Soc Just Res (2011) 24:255–277
DOI 10.1007/s11211-011-0135-6

Cross-Cultural Preferences for Distributive Justice Principles: Resource Type and Uncertainty Management

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Published online: 30 August 2011

Abstract Drawing on social resource theory, we investigated the evaluation of distributive justice principles in relation to material benefits (monetary rewards in working life) and symbolic benefits (praise at university) in a cross-cultural study. We predicted that the equity principle would be perceived as more just for distributing culturally valued resources, whereas the equality principle would be perceived as more just for resources that are less valued within culture. Moreover, applying uncertainty management theory, we predicted that cross-cultural fairness evaluations would be more pronounced for individuals with higher (vs. lower) uncertainty avoidance or lower (vs. higher) uncertainty tolerance. Data of 608 Canadian and German students were collected in a two-wave survey. As expected, when allocating material benefits Canadians found the equity principle to be more just than did Germans, whereas Germans perceived the equality principle as more just than did Canadians. When allocating symbolic benefits, by contrast, Canadians perceived equality as more just than did Germans, though unexpectedly culture did not influence evaluations of the equity principle. Finally, consistent with uncertainty management theory, some of the cultural differences in the evaluation of distributive principles were more pronounced among people with higher uncertainty avoidance and lower uncertainty tolerance. Implications for cross-cultural research on distributive justice are discussed.

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Keywords Cross-cultural differences · Distributive justice · Uncertainty management · Equity · Equality · Symbolic benefits

Should everyone be paid equally or should the pay depend on the amount of work people put into their jobs? Who should receive special praise in a team—only the best performers, or all colleagues equally? As these questions exemplify, justice-related issues are a main concern when evaluating working life. People want to be selected for a job with the feeling that the recruitment processes are just (e.g., van Vianen, Taris, Scholten, & Schinkel, 2004), and employees want to be paid (e.g., Shaw & Gupta, 2001), promoted (e.g., Ambrose & Cropanzano, 2003), and even laid-off following certain justice-driven rules (e.g., Hemingway & Conte, 2003). The dilemma that organizations face when trying to make fair allocation decisions concerning their employees is that there are alternative, often conflicting justice principles that can be applied when resources (or burdens) are distributed (Montada, 1994). According to the multi-principle approach, the most important distributive principles are equality, equity, and need (Deutsch, 1975).

In the present study, we focus on *cultural differences* in the evaluation of distributive justice principles by comparing Canada and Germany, nations that differ significantly on relevant cultural dimensions (Hofstede, 1980; Spector, Cooper, & Sparks, 2001). As stated by Törnblom and Foa (1983) "… given the same situation and resource, people of different nationalities do not necessarily choose the same distribution rule" (p. 169). Complementing prior cross-cultural justice research in an important way, we directly contrast culturally shared fairness norms for the allocation of material and symbolic benefits. Moreover, based on uncertainty management theory (van den Bos, 2001) we assume that evaluations of justice principles are more pronounced for individuals who are less able to cope with uncertainty. In sum, we aim to combine a well-established social justice theory with cross-cultural research on fairness perceptions and, by doing so, to apply uncertainty management theory in a cross-cultural context.[1]

Determinants of the Evaluation of Justice Principles

Much effort has been invested toward identifying the moderating conditions that determine which allocation principles are perceived as just (e.g., Mikula, 1980, 1981; Sabbagh, Dar, & Resh, 1994; Schmitt & Montada, 1982; Törnblom, Jonsson, & Foa, 1985). One of the most prominent determinants is the social context in which a distribution occurs (Deutsch, 1975, 1985). There are, however, other—far less investigated—situational, personal, as well as cultural characteristics that might play roles in the evaluation of distributive principles (e.g., Dar & Resh, 2001). In an attempt to provide a parsimonious classification of determinants of justice perceptions, Törnblom (1992) identified (1) characteristics of recipients and allocators, (2) the

[1] Please notice that we are using the terms just/justice and fair/fairness interchangeably in this paper.

social relationship among these actors, (3) the social, cultural, and historical context of an allocation, (4) types of contributions perceived as relevant investments, (5) types of resources to be allocated, and (6) characteristics of allocation procedures.

In a world of ongoing globalization, knowledge about culture-specific evaluations of distributive principles is of high importance in organizations dealing with employees in different countries and multi-national teams (Conner, 2003; Hofstede, 2001). Cross-cultural research on distributive justice has made important contributions on theoretical (Baumert & Schmitt, 2012; Bolino & Turnley, 2008; Fadil, Williams, Limpaphayom, & Smatt, 2005) as well as on empirical grounds (Fischer & Smith, 2003; Leung, 2005; Sabbagh, Vanhuysse, & Schmitt, 2010). However, most empirical cross-cultural studies have, thus far, been limited with regards to the types of resources under consideration. The most prominent focus has been on allocations of monetary rewards among co-workers or teammates in relation to their efforts and achievements at work (Fischer & Smith, 2003).

As social resource theory emphasizes, in social relations, not only are tangible goods, such as money, goods, and services exchanged and distributed, but also are intangible goods, such as love, status, and information (Foa, 1971; Foa & Foa, 1974). Fairness perceptions have been shown to depend on whether the allocated resource possesses a *material benefit* such as a pay raise, or a *symbolic benefit* such as praise (e.g., Sabbagh et al., 1994; Schmitt & Montada, 1982). In addition to the type of resource, people evaluate justice principles differently as a function of their national culture (Törnblom & Foa, 1983; Törnblom et al., 1985). In their conceptual review, Baumert and Schmitt (2012) theorize that a culture may perceive the equity norm as most just when culturally valued resources are being distributed. From a social exchange theoretical point of view, they argue that the appropriateness of investments and outcomes may be monitored more closely when the resource is more valuable (e.g., Törnblom et al., 1985). By contrast, for less culturally valued resources, an undifferentiated (i.e., egalitarian) allocation might be perceived as most just (Baumert & Schmitt, 2012). If these assumptions are correct, in a culture that highly values material goods, people should perceive money or other tangible rewards as fair outcomes in exchange for their effort and achievements. Within a culture that highly values interpersonal rewards, such as praise or other symbolic benefits, people should similarly evaluate equitable allocations in response to their efforts and achievements as most just. These assumptions await an empirical test.

Despite some cross-cultural studies on preferences regarding the allocation of interpersonal rewards such as friendship (e.g., Bond, Leung, & Wan, 1982; Kim, Park, & Suzuki, 1990), there is still a considerable lack of direct comparisons of material and symbolic resources. For this reason, our study was aimed at comparing two cultures with regard to their evaluations of distributive justice principles for allocations of both material and symbolic benefits.

Cultural Differences in Allocating Material Benefits

To assess cultural differences in the evaluation of distributive norms, we selected two countries, namely Canada and Germany, which are distinct with regard to

several cultural dimensions (Hofstede, 1980; Spector et al., 2001): Canadians have generally been found to be relatively individualistic—a trait that is related to more competitive behavior (Cox, Lobel, & McLeod, 1991). Additionally, research suggests that Canadian students strongly associate achievement with materialism, and materialism in turn with success (Kilbourne, Grünhagen, & Foley, 2005). Hence, we expected that, for the allocation of material benefits, Canadians would perceive the consideration of their past efforts and achievements (in line with the equity principle) as most just. In comparison, the German culture has been found to be less individualistic, more collectivistic (Hofstede & Bond, 1988), and more concerned with equality in regard to material benefits (Kilbourne et al., 2005; for a review, see Kagitçibaşi & Berry, 1989). As Kilbourne et al. (2005) suggest, "German students do not see material possessions as a distinguishing factor in social institutions of society as much as […] Canadian students" (p. 638). Therefore, we expected that, for allocations of material benefits, Germans would perceive equality as most just. Comparing the two cultures, we expected that, for allocations of material benefits, Germans would perceive equity as less just than would Canadians, whereas they would perceive equality as more just than would Canadians.

Cultural Differences in Allocating Symbolic Benefits

So far, we have focused on the allocation of *material benefits* when predicting culturally shared justice norms regarding distributive principles. As argued above, this focus is characteristic of most cross-cultural comparisons concerning distributive justice (e.g., Chen, Meindl, & Hui, 1998; Leung & Bond, 1984; Leung & Park, 1986), but it neglects the potential impact of the type of resource (Törnblom & Foa, 1983; Törnblom et al., 1985). To overcome this limitation, we compared allocations of material benefits with allocations of *praise*.

Whereas in Canada, material gain is associated with success, in Germany success is more defined by intrinsic reward (Kilbourne et al., 2005). Thus, it seems reasonable to assume that a symbolic reward such as praise is a highly valued resource in Germany. Drawing on the exchange theoretical argument explained earlier that for valuable resources, people should more closely monitor the appropriateness of investments and outcomes, we expected that, in Germany, people would perceive equitable allocations of praise as more just than would Canadians.

For Canada, symbolic benefits may not have the same importance as markers of success as they have in Germany. As outlined above, for less culturally valued resources an egalitarian allocation might be seen as most fair (Baumert & Schmitt, 2012). Hence, equality might be perceived as more just when allocating praise in Canada compared to in Germany.

The Impact of Individual Differences in Uncertainty Management

In addition to the above predictions, we also reasoned that the degree to which cultural differences in the evaluation of distributive justice norms are discernible might depend

on *individual differences in uncertainty management*. According to uncertainty management theory, a basic function of fairness in human lives is help people cope with the world as overall an uncertain place (Lind & van den Bos, 2002; van den Bos & Lind, 2002). Reliance on fairness norms—as an important kind of social norm (Folger & Cropanzano, 1998)—can provide a buffer against feelings of uncertainty (van den Bos, Poortvliet, Maas, Miedema, & van den Ham, 2005). In line with this theorizing, several studies have found that fairness judgments, as well as reactions to unfairness, are more pronounced under conditions of high situational uncertainty salience in comparison to low uncertainty salience (van den Bos, 2001). Furthermore, it can be derived from uncertainty management theory that the reliance on fairness norms depends not only on situational characteristics of uncertainty salience, but also inter-individual differences in whether uncertainty is perceived as aversive, as well as in a person's ability to cope with uncertainty.

Individual differences in uncertainty management can be illuminated by an individual's tendency to avoid uncertainty or an individual's ability to tolerate uncertainty. Relevant personality constructs in this context are *uncertainty avoidance* as identified by Hofstede (1980, 2001) and *uncertainty tolerance* (Dalbert, 2002; Sorrentino, Bobocel, Gitta, Olson, & Hewitt, 1988). Hofstede (1980) classified uncertainty avoidance as a cultural dimension. He pointed out that in societies with strong uncertainty avoidance people feel highly threatened by uncertain situations, and try to overcome them "by reliance on social norms, rituals, and bureaucratic practices" (House, Javidan, Hanges, & Dorfman, 2002, p. 5). Similarly, individuals with low uncertainty tolerance tend to interpret uncertain situations as threatening, whereas those with a high uncertainty tolerance perceive the same kinds of situations as challenges (e.g., König & Dalbert, 2004; Otto & Dalbert, 2010).

Note that in the present context we regard both dimensions of uncertainty management (i.e., uncertainty avoidance and uncertainty tolerance) as individual difference constructs. Former research has established the cross-cultural importance and validity of examining the uncertainty avoidance dimension also at the individual level of analysis (see e.g., Clugston, Howell, & Dorfman, 2000; Dorfman & Howell, 1988; Kim, Choi, & Kim, 2010; Shuper, Sorrentino, Otsubo, Hodson, & Walker, 2004). In contrast to other concepts with ecological validity for which the application on the individual level is questionable, Hofstede's measures are derived from individual-level, not country-level, characteristics and, therefore, van de Vijver and Poortinga (2002) state that "… they refer to values as individual psychological dispositions […] (*which*) […] are mental programs shared by most members of a society" (p. 145).

As the endorsement of culturally shared distributive principles is a means to reduce or cope with uncertainty, individuals with high uncertainty avoidance or low uncertainty tolerance should rely more strongly on these principles. In sum, based on uncertainty management theory (van den Bos, 2001), we assumed that the predicted cultural differences in the evaluation of distributive justice principles should be most evident among individuals who have a lower tolerance for, or higher avoidance of, uncertainty.[2]

[2] Conceptually, uncertainty tolerance and uncertainty avoidance appear to be counterparts. However, on an empirical level, they do not inter-correlate strongly. The weaker inter-correlation may be due to

Hypotheses

Drawing on the assumption that for allocations of culturally valued resources, the equity norm should be perceived as most just, whereas for less valued resources the equality principle should be perceived as most just (Baumert & Schmitt, 2012), we made the following predictions:

H1 When material benefits are allocated, Germans should perceive the equity principle as less just than should Canadians (Hypothesis 1a), and they should perceive the equality principle as more just than should Canadians (Hypothesis 1b).

H2 By contrast, for allocation of symbolic benefits, Germans should perceive equity as more just than should Canadians (Hypothesis 2a), and they should perceive equality as less just than should Canadians (Hypothesis 2b).

In addition, drawing on uncertainty management theory (van den Bos, 2001), we suggest that culturally shared evaluations of distributive principles should be most pronounced for individuals who experience uncertainty as highly aversive. More specifically, we made the following prediction:

H3 The expected cross-cultural differences in the evaluations of justice principles (see H1 and H2) should be more pronounced among persons with higher (vs. lower) levels of uncertainty avoidance (Hypothesis 3a) and among persons with lower (vs. higher) levels of uncertainty tolerance (Hypothesis 3b).

Method

Procedure

To test our hypotheses, questionnaires were distributed to undergraduate students at the University of Waterloo (Canada), the Martin-Luther-University of Halle-Wittenberg (East Germany), and the University of Koblenz-Landau (West Germany) during 2004 and 2005. To minimize the risk of carry over effects, a time lag was introduced between the measurement of the moderator and the criterion variables (see e.g., Podsakoff, MacKenzie, Podsakoff, & Lee, 2003). The moderator variables uncertainty avoidance and uncertainty tolerance were assessed at the beginning of the term (T1), and the dependent measures (evaluations of distributive justice principles concerning the allocation of material and symbolic benefits) about 2 months later (T2). Different from the German sample, at T2, undergraduate students in Canada filled in either the questionnaire on allocation of material benefits or on allocation of symbolic benefits (between-subjects design). The German students filled in both questionnaires at T2.

Footnote 2 continued
different operationalization of the constructs, as the items tap into different situations in which uncertainty plays a role. For this reason, the measure of uncertainty avoidance has been criticized. Nonetheless, it seems appropriate as an established cultural dimension to consider in the present study.

Sample

Overall, 412 Canadian undergraduates participated. Sample size was 199 for the allocation of material benefits, and 213 for the allocation of symbolic benefits. The combined German sample—including East and West Germans—consisted of complete data from 195 undergraduate students for both allocation of material and symbolic benefits. For the German sample, ages varied between 19 and 49 years ($M = 23.23$, $SD = 4.65$) with 74% females.[3] All students were taking psychology as a major or a minor degree.

Research Instruments

For those instruments that did not already exist in both languages, the translations into English or German were verified by using an independent back-translation procedure (see Brislin, Lonner, & Thorndike, 1973). Scale scores were calculated by averaging across items only if no more than one item per scale was missing. Reliability coefficients for all of the scales can be found in Table 1.

Material Benefits

To assess evaluations of the equity principle for allocating material benefits, we used a shortened version of the Preference for the Merit Principle Scale (PMP Scale; Davey, Bobocel, Son Hing, & Zanna, 1999). The PMP Scale consists of 15 items that broadly measure people's agreement or disagreement with the idea that merit ought to be used to allocate outcomes in the workplace and academic settings, in line with the equity principle (Davey et al., 1999). For our purpose, we chose those six items that were exclusively related to material benefits in the workplace (see Appendix for all selected items). Participants indicated their level of agreement or disagreement with the idea that it is just to distribute material benefits in the workplace via the equity principle. Responses to the items ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

Evaluations of the equality principle for allocating material benefits were assessed by means of vignettes taken from Schmitt, Maes, and Schmal (1995). Prior research has demonstrated that the vignettes successfully distinguish between the allocation principles equity, equality, need, and equality of chances (e.g., Maes & Schmitt, 1999). We chose three vignettes exclusively related to material benefits within a work context (e.g., "I think the distribution of income would be just if…") and provided as response items only those related to equality (e.g., "…everyone earned the same regardless of their profession"; see the Appendix for the selected items). Again, participants indicated their level of agreement or disagreement with the idea that it is just to distribute material benefits in the workplace via equality. Responses to the items ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

[3] For the Canadian sample, data on students' age and gender was not available. However, given that both samples were undergraduate students in psychology at the same level of study, the means on these variables should be comparable across the samples.

Table 1 Descriptive statistics and inter-correlations for all constructs for the Canadian and German samples

		Canada			Germany			1	2	3	4	5	6
		M	*SD*	α	*M*	*SD*	α						
Uncertainty management													
1	Uncertainty avoidance	3.68	0.88	–	3.73	0.97	–	–	−.09	−.01	−.20	−.06	.19*
2	Uncertainty tolerance	3.63	0.71	.68	3.55	0.76	.73	−.18*	–	−.20*	.10	.00	−.01
Evaluation of the distributive principles													
3	Equity for material benefits	4.83	0.59	.66	4.42	0.66	.73	.08	.01	–	−.18*	–	–
4	Equality for material benefits	2.55	0.93	.62	3.05	1.08	.67	−.12	.05	.18*	–	–	–
5	Equity for symbolic benefits	4.02	0.87	.71	4.08	0.81	.69	.13	−.02	.32***	−.10	–	−.36***
6	Equality for symbolic benefits	3.72	1.12	.87	3.02	0.94	.78	-.14	.08	-.01	.18*	-.48***	–

Note: All scale values ranged from 1 to 6, with 6 indicating strong endorsement of the construct. For inter-correlations, the upper diagonal reflects the Canadian sample, and the lower diagonal the German sample. As two Canadian samples were used—one for material benefit (monetary rewards in working life), the other for symbolic benefit (praise at university)—some inter-correlations are not available

* $p < .05$, ** $p < .01$, *** $p < .001$

Symbolic Benefits

To measure evaluations of the equity and equality principles for allocating symbolic benefits, we developed an 8-item scale concerning the distribution of praise at universities (see Appendix for the items). Participants indicated how just or unjust they believe it is for professors to distribute praise via the equity and equality principles. Responses were made on a 6-point scale ranging from -3 (*very unjust*) to +3 (*very just*). For data analyses, the scale values were transformed to vary between 1 and 6. After confirming the two-dimensionality of our measure in the Canadian sample by means of an exploratory factor analysis ($\lambda_1 = 3.49, \lambda_2 = 1.60, \lambda_3 = 0.80, l = .67–.85$; 63.59% variance explained), we additionally conducted a confirmatory factor analysis in the German sample using AMOS 7.0 (Arbuckle, 2006). Our results showed strong support for the hypothesized two-factor model ($\chi^2 = 36.76$, df $= 19$, $p = .009$, χ^2/df $= 1.94$ [ratio <2.5 indicates a good model fit], NFI $= .90$, CFI $= .95$, RMSEA $= .07$), which provided a significantly better fit ($\Delta\chi^2 = 76.72$, Δdf $= 2$, $p < .001$) than the one-factor model ($\chi^2 = 113.48$, df $= 21$, $p < .001$, χ^2/df $= 5.40$, NFI $= .69$, CFI $= .72$, RMSEA $= .15$) in which all items patterned on a global factor.

Uncertainty Management

Uncertainty avoidance was assessed with the three items of Hofstede's (1980) Uncertainty Avoidance subscale ("After you graduate and find suitable employment, how long do you think that you will continue working for that organization?"—responses range from 1 "*under 1 year*" to 6 "*until I retire;*" "Company rules should not be broken, even when the employee thinks it is in the company's best interest"—responses range from 1 "*strongly disagree*" to 6 "*strongly agree;*" and "How often do you feel nervous or tense at school?"—responses range from 1 "*never*" to 6 "*always*"). Consistent with previous research (see Spector et al., 2001), a reliability analysis indicated a very low internal consistency. Therefore, we omitted the least reliable item (which showed a negative item-total correlation in the Canadian sample), and combined the two remaining items—even though they were not significantly correlated ($r = .06$, $p = .23$)—into a global and heterogeneous indicator reflecting the uncertainty avoidance dimension.

Uncertainty tolerance was measured using an 8-item scale by Dalbert (2002; e.g., "I like change and excitement"); responses range from 1 (*strongly disagree*) to 6 (*strongly agree*). The scale has proved to be valid and reliable in several previous studies (e.g., König & Dalbert, 2004; Otto, Dette-Hagenmeyer, & Dalbert, 2010). In our study, one item was excluded because of a low item-total correlation in the German sample; a 7-item scale was thus used.

Preliminary Analyses

Means, standard deviations, reliability coefficients, and culture-specific inter-correlations of all constructs are presented in Table 1. As can be seen, not all scales yielded good internal consistencies (e.g., Nunnally & Bernstein, 1994). Several measures showed Cronbach's alphas lower than .70. However, as alpha is dependent

on the length of a scale, and the breadth of the measure, it is important to also consider inter-item correlations particularly for short scales (Streiner, 2003). Clark and Watson (1995) suggested that mean inter-item correlations between .40 and .50 should be yielded for scales measuring very narrow characteristics and between .15 and .20 for scales measuring broad characteristics. This latter criterion was met by uncertainty tolerance (mean $r = .23$ for the Canadian sample), equity for material benefits (mean $r = .24$ for the Canadian sample), equality for material benefits (mean $r = .35$ for the Canadian and .40 for the German sample), and equity for symbolic benefits (mean $r = .36$ for the German sample).

Next, we tested our measures for cross-cultural measurement invariance. Cross-group comparisons are appropriate only if at least partial measurement invariance is given (Byrne, Shavelson, & Muthén, 1989). We conducted three separate sets of two-group confirmatory factor analyses. In each set, we hypothesized two inter-correlated factors: (a) equity and equality for material benefits, (b) equity and equality for symbolic benefits, and (c) uncertainty management consisting of uncertainty avoidance and uncertainty tolerance. In the proposed measurement models, the items of each scale were specified to load only on their latent factor. In each set of analyses, we followed an algorithm and checked our measures for configural invariance in a first step, followed by metric invariance in a second step, and then for scalar invariance in a third and final step (for details, see Milfont & Fischer, 2010). These tests assessed whether the given elements—factor loadings, item intercept, and factor variance—were equal across groups.

The results of the measurement invariance tests are provided in Table 2. As indices to evaluate the overall model fit, we relied on the chi-square-to-degrees of freedom ratio (χ^2/df), and the root mean square error of approximation (RSMEA). The χ^2 difference, the comparative fit index (CFI) as well as the expected cross-validation index (ECVI; lower values reflect the model with the better fit) were applied as incremental fit indices to estimate improvement over competing models. As shown for all three sets of analyses, at least full metric invariance (RSMEA $< .08$; CFI $> .90$) can be assumed. If this criterion is satisfied, ratings can be compared across groups (Milfont & Fischer, 2010).

Results

Table 1 displays the inter-correlations of our dependent measures for the Canadian and German samples separately. In each culture, evaluations of the equality principle across the two resources (material and symbolic benefits) were positively correlated, as were evaluations of the equity principle. However, the magnitude of the correlations was small to medium, which is consistent with prior findings that people's perceptions of the fairness of distributive principles differ depending on the resource to be allocated (Sabbagh et al., 1994; Schmitt & Montada, 1982). Overall, evaluations of equity and of equality were negatively correlated,[4] with higher correlations within the same type of resource than across type of resource.

[4] The only exception was a small positive correlation between preferences for equity and equality regarding the allocation of symbolic benefits in the German sample.

Table 2 Fit indices for measurement invariance tests

Model	χ^2	df	χ^2/df	RMSEA		CFI	$\Delta\chi^2$	ECVI	
				Value	90% CI			Value	90% CI
Material benefit									
Full configural invariance	69.05	58	1.19	.02	.00–.04	.98	–	.51	.48–.59
Full metric invariance	105.25	65	1.62	.04	.03–.06	.93	36.20***	.58	.51–.68
Full scalar invariance	214.88	74	2.90	.08	.06–.09	.75	109.63***	.85	.74–1.00
Symbolic benefit									
Full configural invariance	91.74	40	2.29	.06	.04–.08	.95	–	.53	.46–.62
Full metric invariance	107.41	56	2.34	.06	.05–.08	.94	15.68*	.54	.47–.64
Full scalar invariance	222.93	54	4.13	.09	.08–.11	.82	115.52***	.82	.70–.96
Uncertainty management									
Full configural invariance	95.83	70	1.37	.03	.01–.05	.95	–	.56	.51–.64
Full metric invariance	123.00	78	1.58	.04	.03–.05	.92	27.17**	.59	.52–.68
Full scalar invariance	222.34	88	2.53	.06	.05–.07	.75	99.35***	.80	.69–.93

Note: *RMSEA* root mean square error of approximation, *ECVI* expected cross-validation index, *CFI* comparative fit index

* $p < .05$, ** $p < .01$, ***$p < .001$

Cultural Differences

To test whether evaluations of distributive principles differ inter-culturally (Hypotheses 1 and 2), two MANOVAs—one for each resource type (material benefits/symbolic benefits)—were performed with justice principle (equity/equality) as the within-subjects factor, and culture (Canadian/German)[5] as the between-subjects factor. The dependent variable in each analysis was participants' evaluations of the fairness of the distributive principle.

Concerning *material benefits*, we found a significant main effect of justice principle, $F(1, 325) = 753.47, p < .001, \eta_p^2 = .70$, indicating that participants generally perceived equity to be more just ($M = 4.65, SD = 0.66$) than equality ($M = 2.75$, $SD = 1.02$). However, we also observed a significant interaction between justice principle and culture, $F = 45.28$, $p < .001$, $\eta_p^2 = .12$. In line with our predictions, mean comparisons (see Table 1) revealed that for the allocation of material benefits, Canadians perceived equity as more just than did Germans (Hypothesis 1a), whereas Germans perceived equality as more just than did Canadians (Hypothesis 1b).

Concerning *symbolic benefits*, we again found a significant main effect of justice principle, $F(1, 346) = 60.11, p < .001, \eta_p^2 = .15$, showing that participants generally perceived equity as more just ($M = 4.04$, $SD = 0.85$) compared to equality ($M = 3.45$, $SD = 1.11$). Again, we also found a significant interaction between

[5] The results remained the same when culture was divided into Canadian, East German, and West German.

justice principle and culture, $F = 18.79$, $p < .001$, $\eta_p^2 = .05$. Contrary to Hypothesis 2a, for the allocation of symbolic benefits, mean comparisons revealed no difference in perceived fairness of equity between Germans and Canadians (with Canadians evaluating equity as just to the same degree as Germans, see Table 1). However, consistent with Hypothesis 2b, Canadians perceived equality to be more just compared to Germans.

Uncertainty Management

The Canadian and the German samples can be seen as comparable concerning uncertainty management. That is, the samples did not differ in their endorsement of uncertainty avoidance, $t = 0.52$, $p = .60$, nor uncertainty tolerance, $t = -1.07$, $p = .29$ (see Table 1). These results deviate from what was found in previous research in which Germans appeared to be significantly more uncertainty avoidant than Canadians (Hofstede, 1980; Hofstede & Bond, 1988; Spector et al., 2001). Across our samples, both dimensions of uncertainty management (i.e., avoidance and tolerance) were on average negatively correlated ($r = -.14$, $p < .01$) though only to a small degree.

Finally, we tested our assumption derived from uncertainty management theory that cross-cultural differences in the evaluation of distributive justice principles will be most pronounced among individuals who are higher in uncertainty avoidance or lower in uncertainty tolerance (Hypothesis 3). We conducted separate hierarchical multiple regression analyses for our four criterion variables: evaluations of (a) equity for material benefits, (b) equality for material benefits, (c) equity for symbolic benefits, and (d) equality for symbolic benefits. In each analysis, we regressed the dependent variable on culture (0 = German; 1 = Canadian), uncertainty avoidance, and uncertainty tolerance in a first block. Then, Uncertainty Avoidance × Culture was entered in a second block, and finally Uncertainty Tolerance × Culture in a third block. Continuous variables were *z*-standardized before interaction terms were calculated (Aiken & West, 1991). The results of the regression analyses are displayed in Table 3.

Evaluations of Equity for the Allocation of Material Benefits

Overall, 8% of the variance in evaluations of equity for allocation of material benefits could be explained by the regression equation, $F(5, 219) = 3.90$, $p < .01$. First, replicating the results of the MANOVA, we found a main effect of culture, such that Canadians evaluated equity as more just than did Germans, $\beta = .24$, $t = 3.83$, $p < .001$. Most importantly, we obtained a marginally significant interaction effect between uncertainty tolerance and culture, $\beta = -.14$, $t = -1.66$, p (2-sided) $< .10$, $\Delta R^2 = .01$. As predicted, the lower their uncertainty tolerance, the more Canadians perceived equity as a just distributive principle for allocating material benefits, $\beta = -.13$, $t = -2.12$, $p < .05$. For Germans, however, there was no difference between persons high and low in uncertainty tolerance, $\beta = .02$, $t < 1$ (see Fig. 1). In summary, in partial support of Hypothesis 3b, the impact of culture on evaluations of equity for material benefits (i.e., Canadians

Table 3 Explaining evaluations of distributive principles for the allocation of material and symbolic benefits by culture and uncertainty management

	Equity			Equality		
	B	β	ΔR^2	*B*	β	ΔR^2
Material benefits						
Culture	0.32	.24***		−0.60	−.29***	
UC avoidance	0.05	.08		−0.11	−.11	
UC tolerance	0.02	.03		0.03	.03	
Step 1			.07***			.10***
UC avoidance × culture	−0.06	−.05		−0.08	−.05	
Step 2			.00			.00
UC tolerance × culture	−0.14	−.14^{+}		0.06	.03	
Constant	4.44			3.09		
Step 3			.01^{+}			.00
Symbolic benefits						
Culture	0.05	.03		0.63	.30***	
UC avoidance	0.11	.13		−0.12	−.11	
UC tolerance	0.00	.00		0.06	.05	
Step 1			.00			.09***
UC avoidance × culture	−0.16	−.13		0.34	.22*	
Step 2			.01			.03**
UC tolerance × culture	−0.01	−.01		−0.03	−.02	
Constant	4.03			3.08		
Step 3			.00			.00

Note: For culture, 0 = German, 1 = Canadian. All other scale values ranged from 1 to 6, with 6 indicating strong endorsement of the construct. UC = uncertainty

$^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

greater than Germans) was particularly evident among individuals low in uncertainty tolerance. This is consistent with uncertainty management theory.

Evaluations of Equality for the Allocation of Material Benefits

Here, 10% of the variance could be explained by the regression model, $F(5, 219) = 5.10$, $p < .001$. As already evidenced by the MANOVA there was a significant main effect of culture, $\beta = -.29$, $t = -4.51$, $p < .001$, such that Germans perceived equality for material benefits to be more just than did Canadians. However, contrary to prediction, culture did not interact with either of the uncertainty management variables (both ts < 1).

Evaluations of Equity for the Allocation of Symbolic Benefits

The regression model explained only 1% of the variance in evaluations of equity for the allocation of symbolic benefits, $F(5, 229) < 1$. As noted earlier, culture did not

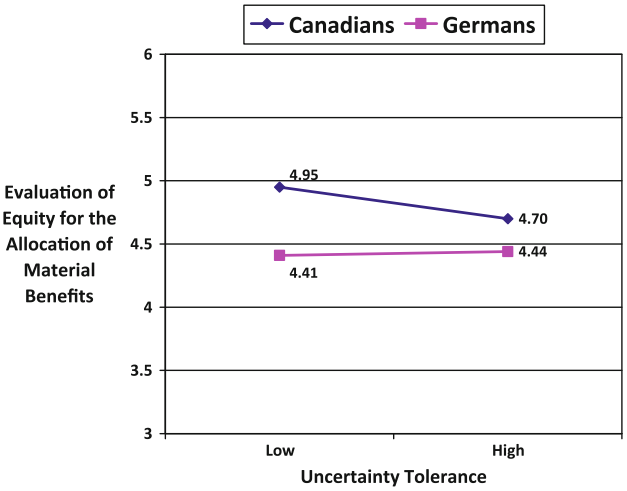

Fig. 1 Evaluation of equity for the allocation of material benefits (monetary rewards in working life) for Canadian and German undergraduates as a function of uncertainty tolerance (± 1 SD around the mean)

predict significant variance (contrary to Hypothesis 2a), and there were no significant interactions with uncertainty management variables (contrary to Hypothesis 3a/3b; all *t*s < 1.5).

Evaluations of Equality for the Allocation of Symbolic Benefits

The regression model explained 12% of the variance, $F(5, 229) = 6.29$, $p < .001$. Again, in line with the results of the MANOVA, we found a significant main effect of culture, $\beta = .30$, $t = 4.71$, $p < .001$, such that Canadians evaluated equality for the allocation of symbolic benefits as more just than did Germans. Moreover, there was a significant interaction between uncertainty avoidance and culture, $\beta = .34$, $t = 2.51$, $p < .05$, $\Delta R^2 = .03$. As shown in Fig. 2, higher uncertainty avoidance was associated with greater perceptions of the fairness of equality for the distribution of symbolic benefits among Canadians, $\beta = .22$, $t = 2.00$, $p < .05$. Among Germans, in contrast, higher uncertainty avoidance was associated (marginally) with lesser perceptions of the fairness of equality for allocating symbolic benefits, $\beta = -.12$, $t = -1.60$, $p = .11$. Thus, in line with uncertainty management theory, and as predicted in Hypothesis 3a, the impact of culture (i.e., greater perceived fairness of equality for symbolic benefits among Canadians than Germans) was particularly evident among individuals high in uncertainty avoidance.

Discussion

The present study investigated people's evaluations of distributive justice principles from a cross-cultural perspective. In the specific contexts of work and education, important cultural differences emerged between Canadian and German

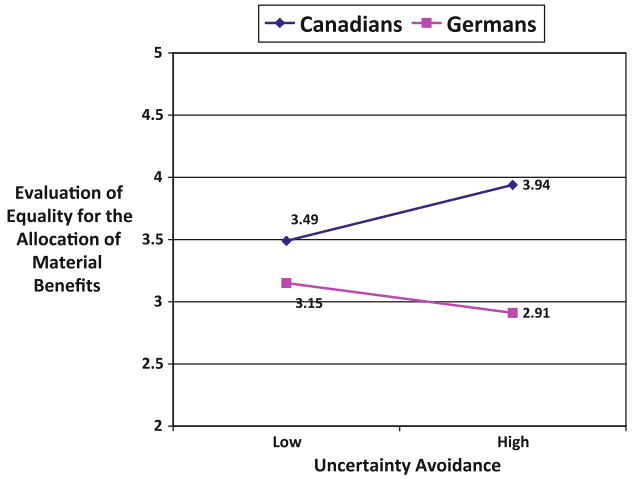

Fig. 2 Evaluation of equality for the allocation of symbolic benefits (praise at university) for Canadian and German undergraduates as a function of uncertainty avoidance (±1 SD around the mean)

undergraduates. Overall, most cross-cultural research on distributive justice has focused on the allocation of material resources. However, within cultures, research has robustly shown that the type of resource to be allocated is an important moderator of justice perceptions (e.g., Foa, 1971; Sabbagh et al., 1994; Schmitt & Montada, 1982). Moreover, international comparisons have shown that the impact of resource type on people's evaluations of distributive justice principles varies across nations (Törnblom & Foa, 1983; Törnblom et al., 1985). In the present study we aimed to combine a cross-cultural approach to the evaluation of distributive justice principles with a systematic comparison of two distinct types of resources—material and symbolic. Our results corroborate the importance of this combination: Across cultures, people's perceptions of what is a more just distribution principle for allocations of *symbolic benefits* (i.e., praise at university), differed from what they perceived to be the more just distribution principle for allocations of *material benefits*.

For allocations of material benefits, as predicted in Hypothesis 1a, Canadians perceived equity as more just than did Germans. Individualistic cultures such as the Canadian culture are strongly competition-oriented (Cox et al., 1991). Allocating material resources by the rule of equity is known to "… promote competition by creating an incentive to excel beyond the performance of others to obtain a greater portion of the reward" (Sinclair, 2003, p. 78). In Canada, allocations of material benefits seem to be perceived as the means for adequately distinguishing between people in terms of achievement and success (Kilbourne et al., 2005), and, thus, to motivate excellence.

By contrast, as expected (Hypothesis 1b), Germans perceived equitable distribution of material benefits as less just compared to Canadians, and they perceived equal distribution as more just compared to Canadians. In line with other relatively collectivistic nationalities, Germans are less inclined to employ material

possessions as a distinguishing factor in society (e.g., Kilbourne et al., 2005), and accordingly, they are less likely to hold equity as the most fair distributive principle for the allocation of material goods (for a review, see Conner, 2003). Instead, collectivists value social integration in groups, be it the family, a workgroup, or an organization (Hofstede, 2001). Thus, in an effort to foster group harmony, Germans may perceive the equal distribution of monetary rewards as more just compared to Canadians.

In contrast to the allocation of material benefits, and consistent with Hypothesis 2b, for allocations of praise as a symbolic benefit, Canadians perceived equality as more just than did Germans. In other words, Canadians, more than Germans, believe that it is fair to praise people equally, regardless of their individual contributions. Thus, Canadians may employ praise—and possibly other forms of symbolic benefits—to promote cooperation. In Canada, praise may even serve as a form of social support aimed to level out differences in achievements in the long run. From an exchange theoretical point of view, compared to Germans, Canadians thus appear to perceive it less fair to monitor the proportionality of investments and outcomes with regard to allocations of praise.

Although as predicted in Hypothesis 2b, Germans evaluated the equal distribution of praise as less just than did Canadians, the results did not support Hypothesis 2a. That is, contrary to prediction, Germans failed to perceive the equity principle for allocations of praise as more just compared to Canadians. Thus, taken together, our results only partially support the general assumption proposed by Baumert and Schmitt (2012) that equity is perceived as most just distribution principle for the allocation of resources that are culturally valued as markers of success.

Uncertainty Management

To our knowledge, our study is the first to apply uncertainty management theory (van den Bos, 2001) to a cross-cultural comparison. Uncertainty management theory provides a promising framework for investigating distributive justice preferences within and across cultures. Specifically, it can be derived that the situational salience of uncertainty as well as the individual ability to manage uncertainty are important determinants of how strongly people evaluate culturally shared fairness norms. Having clear, socially shared evaluations for a distributive justice principle provides a means for coping with uncertainty in life. Consistent with this line of reasoning, we found cultural differences in evaluations of distributive justice principles to be most pronounced among people with low uncertainty tolerance and high uncertainty avoidance, respectively. Regarding the allocation of *material benefits*, as noted above, Canadians more strongly perceived the equity principle as just compared to Germans, and this was more pronounced for those with a lower (rather than higher) uncertainty tolerance. Similarly, regarding the allocation of *symbolic benefits*, Canadians with a strong tendency to avoid uncertainty more strongly perceived equality as just compared to Canadians with a low uncertainty avoidance. In contrast, Germans were less inclined to perceive equality as just, for the allocation of symbolic benefits compared to Canadians, and this effect was

stronger the greater participants' level of uncertainty avoidance. Thus, although we did not find complete support for Hypothesis 3, we did find some evidence that a greater dispositional need to cope with uncertainty intensifies people's within-culture evaluations of the fairness of distributive justice principles.

Future cross-cultural research could build on these findings by investigating the interplay between the situational salience of uncertainty and individual differences in uncertainty tolerance as they relate to perceptions of culturally shared fairness norms (e.g., van den Bos et al., 2005). Moreover, future cross-cultural research may take into account other distributive principles in addition to those that were the focus in the present study, for example, those that consider need or seniority. It is quite possible that by investigating only equity and equality as allocation principles, we failed to identify the most dominant justice principle within the cultures we examined. Particularly in Germany, it has been found that jobs and promotions are frequently offered in relation to seniority (Apfelthaler, Muller, & Rehder, 2002). Thus, in Germany it is possible that the seniority principle is an important culturally shared fairness norm regarding allocations of material benefits. If so, individual differences among Germans in the ability to manage uncertainty should have a particularly strong impact on people's evaluations of this distributive principle. Nevertheless, taken together, our results provide evidence that uncertainty management theory offers a valuable conceptual framework for cross-cultural comparisons regarding distributive justice perceptions.

One seemingly curious aspect to our data was our finding that uncertainty tolerance moderated cultural differences in the evaluation of the distributive principle used to allocate material benefits, whereas uncertainty avoidance moderated cultural differences in the evaluation of the principle used to allocate symbolic benefits. This discrepancy may, however, simply reflect differences in the operationalization of uncertainty management. For example, past research has suggested that *uncertainty tolerance* is a particularly central resource in the domain of working life (e.g., König & Dalbert, 2004; Otto et al., 2010) where material benefits and burdens—such as promotions or layoffs—are distributed frequently. This could be why uncertainty tolerance was relevant for the allocation of material benefits. In contrast, it could be that, *uncertainty avoidance* moderated cultural evaluations for allocating symbolic benefits, given that Hofstede's (1980) uncertainty avoidance measure taps one specific strategy for coping with uncertainty, namely by remaining loyal (i.e., staying as long as possible with one's employer and respecting organizational rules). Loyalty (or commitment) toward one's employer is of strong symbolic value, and this could be why it was relevant for the allocation of symbolic benefits. In summary, different manifestations of how people manage uncertainty may be differentially important, depending on the resource being allocated.

Limitations

Although research has demonstrated cultural differences (Germany vs. Canada) in the level of uncertainty avoidance (e.g., Spector et al., 2001), we did not find a significant difference in the present study. On the one hand, it is reasonable to

assume that cultural differences change over time (Fernandez, Carlson, Stepina, & Nicholson, 1997). On the other hand, we cannot rule out sample-specific characteristics. Additionally, there were administrative differences in the data collection process in the two countries that might have played a role: Whereas Canadians answered either items referring to material or symbolic benefits, Germans responded to questions concerning both types of resource. Hence, shared method variance, priming effects, or consistency motives might have led to more similar evaluations in the German sample with respect to evaluations of equity and equality, regardless of the type of resource. Given these issues, it would be of value to replicate the present study with a more representative sample, preferably from a working population.

There are also some limitations to our measures, which could be overcome in future research. First, we assessed self-reported evaluations of distributive justice principles. It would be interesting to replicate the present findings with on-going reactions to actual allocations, to illustrate the behavioral relevance of people's evaluations of distributive justice principles.

Second, it should be noted that by adapting existing measures to assess people's evaluations of equity and equality for the allocation of material resources (see Appendix), we inadvertently required participants to make slightly different judgments when evaluating material resources versus symbolic resources. As noted in the "Method" section, in the former, participants indicated their agreement or disagreement that each scale item was just; whereas in the latter, participants rated how just each scale item was perceived. Hence, in future research, the measurement of different resource types should be identical. Third, the self-report measures that we selected or developed for the present research may be improved, for example, by broadening the scope of allocation situations to which the items refer. Our items capture the degree to which different contributions in the form of effort or productivity are considered relevant (equity) or not (equality). Further items (e.g., referring to ability as an input) could be included to improve the construct validity of the scales.

Conclusion

Until now, research on distributive justice has been concerned largely with identifying individual- and context-specific differences in people's evaluations of allocation principles within North American samples. In contrast, the "scope, depth, and breadth of the cross-cultural research on justice criteria are less impressive" (Leung, 2005, p. 569). As demonstrated in the present study, culture can be associated with substantially different evaluations of allocation principles. Importantly, our study underscores the significant contribution that resource theory, with its strong focus on distinct types of resources (Foa, 1971; Foa & Foa, 1974), has for cross-cultural justice research on distributive justice perceptions (also see Baumert & Schmitt, 2012; Törnblom & Foa, 1983; Törnblom et al., 1985). That is, our data indicate that cultural evaluations of distributive justice principles are contingent on the type of resource being allocated. Moreover, in line with uncertainty management

theory, the findings provide partial support for the idea that the lower people's dispositional ability to cope with uncertainty, the more fair they perceive culturally shared allocation norms.

Acknowledgments We thank Claudia Dalbert, Jane Thompson, Kjell Törnblom and two anonymous reviewers for helpful comments on this paper, and Sabine Schmidt for her support in preparing the data. Correspondence concerning this article should be addressed to Kathleen Otto, University of Leipzig, Institute of Psychology, Work and Organizational Psychology, Seeburgstraße 14-20, D-04103 Leipzig, Germany (e-mail: kathleen.otto@uni-leipzig.de).

Appendix

Scale to Measure the Evaluation of Equity for Monetary Rewards in Working Life[6]

Which decisions at the workplace you would consider to be *just?* Please mark for every phrase how much you agree.

1. In organizations, people who do their job well ought to rise to the top.
2. The effort a worker puts into a job ought to be reflected in the size of a raise he or she receives.
3. Promotion decisions ought to take into account the effort workers put into their job.
4. Members of a work team ought to receive different pay depending on the amount each person contributed.
5. Between two equally smart students applying for the same job, the one who is the harder worker ought to always get the job.
6. If every person in an office has the same abilities, the promotion ought to always be given to the person who puts in the most effort.

Scale to Measure the Evaluation of Equality for Monetary Rewards in Working Life[7]

In the following decide for every decision how *just* you think the respective decision is. Please evaluate again for every phrase how much you agree.

1. When there are two applicants for a job, I think it would be just if the job was shared.
2. To deal with unemployment in Germany/Canada, I think it would be just if work hours and wages were cut so that everybody could work.
3. I think the distribution of income would be just if everyone earned the same regardless of their profession.

[6] Items were selected from the PMP scale by Davey et al. (1999).

[7] Items were selected from vignettes by Schmitt et al. (1995).

Scale to Measure the Evaluation of Equity (Items 1, 4, 6, 8) and Equality (Items 2, 3, 5, 7) Regarding the Allocation of Praise at University

We are interested in when you would consider praise to be fair. What is your opinion about *just praise* that a professor should give to their students? Please mark for every phrase how just or unjust you think it is.

I think that would be...	Very unjust					Very just
1. For an assignment, the professor should give more praise to students whose papers are of higher quality than the papers of classmates	–3	–2	–1	1	2	3
2. The professor should praise all students in a class equally for their presentations	–3	–2	–1	1	2	3
3. The professor should praise all students equally regardless of the quality of their ideas	–3	–2	–1	1	2	3
4. If students hand in a project, the professor should give more praise to students who put more effort into the assignment	–3	–2	–1	1	2	3
5. For a paper assignment, the professor should praise all students equally independent of their individual performance	–3	–2	–1	1	2	3
6. The professor should give more praise to students with better presentations in class	–3	–2	–1	1	2	3
7. If students hand in a project, the professor should praise everyone equally	–3	–2	–1	1	2	3
8. The professor should give more praise to those students whose ideas are better than those of others	–3	–2	–1	1	2	3

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