10

GOAL ORIENTATIONS AND ACTION-CONTROL BELIEFS

A Cross-cultural Comparison among Croatian, Finnish, and Japanese Students

Markku Niemivirta, Majda Rijavec, and Hirotsugu Yamauchi

One clearly emerging theme in recent motivational research is the consideration of contextual and cultural boundaries in conceptualizing and studying motivation and learning. It has been argued that people in different cultural contexts develop sets of cognitive, emotional, and motivational patterns that enable them to function adaptively in situations that are common and recurrent in those cultures: "many psychological processes result from and support the very ways in which social acts and situations are collectively defined and subjectively experienced in the respective cultures" (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997, p. 1245). In other words, the constraints, values, and naturally occurring contingencies embedded in the overarching sociocultural fabric of the given society guide children's achievement behavior and shape their related beliefs (Little, 1998). Some factors operate in similar ways in many different cultures, whereas others emerge in their own, unique, indigenous forms (Salili, 1994).

The purpose of this study is to examine whether goal orientations and action-control beliefs differ in students from three different cultures. Two samples represent somewhat more Western cultures (Croatia and Finland), whereas one sample represents Eastern cultures (Japan). The main emphasis is thus on examining the potential relationships between different cultural backgrounds and the structure, patterning, and level of students' personal beliefs about learning and themselves. We begin with a brief overview of prior findings on cross-cultural differences in

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motivation, followed by a selective look at some potential explanations and interpretative frameworks. Consequently, few emerging assumptions will then be tested in the empirical part.

CROSS-CULTURAL DIFFERENCES IN MOTIVATION

The starting point: Differences in achievement-related attributios

The cumulative findings in research on causal attributions of success and failure clearly evidence the existence of a profound functional bias in self-evaluative attributions. People, in general, are likely to attribute success to internal factors and failures to external factors (Greenberg, Pyscyzynski, & Solomon, 1982; Zuckerman, 1979) -at least in the Western cultures. Namely, cross-cultural research on causal attributions in academic settings has found the patterning of attributions to vary as a function of cultural background. In a review of 23 Japanese studies on causal attributions of success and failure, Kitayama, Takagi, and Matsumoto (1995) concluded that Japanese, unlike people in Western cultures, tend to explain their success in terms of situational factors and failure in terms of low effort expenditure (e.g., Hayamizu, 1984; Yamauchi, 1988). Similar findings have also been obtained in comparative studies. For example, Holloway, Kashiwagi, Hess, and Azuma (1986) found that American children attributed low performance mostly to lack of ability, whereas Japanese children emphasized more lack of effort (see also Stevenson, Lee, Chen, Stigler, Hsu, & Kitamura, 1990; Yamauchi, 1989). Results by Chandler, Shama, Wolf, and Planchard (1981) evidenced that American children believed the influence of effort to be more important for success than for failure, whereas the opposite was true for Japanese. More recently, Tuss and Zimmer (1995) found that both Japanese and Chinese students viewed failure situations as more controllable than did American students, and that these differences were mostly due to Americans making significantly less effort attributions. Additionally, Japanese children, in contrast to other groups, viewed failure outcomes equally controllable to success outcomes.

In general, these findings suggest that compared to Western children, Japanese do not exhibit self-serving bias in their causal ascriptions for achievement outcomes. Although this difference could be attributed to a number of possible culture-bound reasons (see Fletcher & Ward, 1988), two of them can be considered especially relevant in the present context; namely, differences in underlying motives and differences in conceptions of effort and ability.

Different motives in different cultures? The case of self-enhancement vs. self-improvement

A vast array of research in recent decades suggests that people seek to enhance or maintain their self-esteem in various ways. People tend see themselves in overly

positive terms (Alicke, 1985), they take credit for success and deny responsibility for failures (Bradley, 1978), and they commonly view their future in optimistic terms and underestimate possible misfortunes (Weinstein, 1980). However, a number of studies suggest that such self-enhancing tendencies are rare, absent, or even reversed within some Asian cultures, and especially in Japan; in adult populations, there is virtually no evidence of illusory optimism (Heine & Lehman, 1995), false uniqueness effect (Markus & Kitayama, 1991), or self-serving attributions (Kitayama, Takagi, & Matsumoto, 1995; Yamauchi, 1988) in Japanese. The general conclusion appears to be that, compared to Europeans and Americans (herein Euro-Americans), Japanese are far more self-critical – that is, sensitive to negative self-relevant information and motivated to improve potential shortcomings (Heine, Lehman, Markus, & Kitayama, 1999).

From this perspective, one could argue that the findings showing differential patterning of causal attributions in Japanese students might in fact reflect differences in underlying motives. That is, while Western children's causal attributions clearly serve a self-enhancing or self-protecting function, Japanese students' attributions might in fact serve verisimilitude strivings (Swann & Schroeder, 1995) – "the quest for truth and understanding". Considering the salience of the cultural frame for self-improvement in Japan (see Kitayama & Markus, 1999), it could well be that Japanese students' causal attributions derive from a need to acknowledge the sources of one's shortcomings; if and when one is expected to act on potential imperfections, one must also be confident that the identification of such weaknesses is correct.

Different beliefs and conceptions in different cultures? The role of ability and effort in motivation and achievement

It is also possible that the categories and dimensions used in classifying causal attributions have different meanings in different cultures (cf. Fletcher & Ward, 1988; Salili, 1994). Although a series of studies by Hayamizu and his colleagues (Hayamizu, 1984; Hayamizu & Matsuda, 1982) demonstrated that the changes and variations in Japanese children's understanding of the concepts effort and ability follow the same developmental sequence as in American children (Nicholls, 1978), the meaning and behavioral implications attached to these concepts might nevertheless vary. In Japan, where the notion of effort includes a "positive orientation toward intrinsic benefits of such persistency" (Holloway, 1988; p. 331), children's conceptions of effort and ability might be somewhat confounded. This is well illustrated in constructs *gambari* (endurance) and *gaman* (perseverance), which reflect the imperative cultural belief that hard work and persistence result in self-improvement (see Heine et al., 1999). In other words, the view of ability as malleable encompasses the belief that the process of becoming able necessitates effort expenditure and self-discipline.

In a like manner, Dweck and Leggett (1988) have argued that children's different conceptions of the *nature of ability* lead to different goal tendencies and subsequent behavior. They suggested that the way students view ability as either a dynamic quality (i.e., a repertoire of skills that increases through effort) or as a static quality (i.e., a global and stable entity whose adequacy is judged through performance) orients them toward particular goals. In contrast, Nicholls (1984) argued that achievement-related goals are pursued differently depending on how individuals *construe competence.* Based on developmental data he suggested a distinction between two types of conceptions, which "embody different criteria for judging one's ability or chances of demonstrating ability" (p. 329). In the less differentiated conception ability judgments are self-referenced. That is, high effort is seen to lead to learning, which in turn indicates higher ability; the greater gain in a difficult task reflects greater competence. In the differentiated – normative – conception, ability is perceived as capacity, which is inferred by interpersonal comparison of effort and performance. A demonstration of high ability thus relies on success in tasks where others fail, but high effort implies less capacity. This view suggests that in Japan, the less differentiated conception of ability might be readily internalized as a cultural constituent and thus becomes a standard rather than an alternative.

Nicholls (1984) went on to suggest that the two conceptions of ability lead to different goals in achievement situations. He used the term task-involvement to refer to states where individuals seek to gain ability in the less differentiated sense (e.g., in noncompetitive situations) and the term ego-involvement to states where individuals seek to demonstrate ability in the more differentiated sense (e.g., in competitive situations). This distinction between situationally induced ability conceptions led Nicholls and his colleagues to propose a similar distinction in dispositional tendencies (e.g., Nicholls, Patashnick, Cheung, Thorkildsen, & Lauer, 1989; Nicholls, Patashnick, & Nolen, 1985); they argued that people with different motivational orientations – task or ego orientation, respectively – differ in their commitment to the two criteria of success. Nicholls (1984) did not, however, argue that people with different task-related goals had different conceptions of the *nature* of ability and effort; they just differ in their beliefs about the *role* of ability and effort in success.

A line of research that has explicitly focused on this issue concerns children's *generalized means-ends beliefs* - that is, their "implicit world views or naive theories about how school outcomes come about" (Little & Lopez, 1997, p. 165). Despite the clear patterns of intercultural similarity found in a number of studies (cf. Little, 1998), few noteworthy exceptions have emerged. Compared to most of their Western peers, Japanese students showed higher endorsement of effort and lower endorsement of luck and teachers' influence as causes of school performance. However, they also showed lowest levels of control expectancy and agency beliefs of ability (Karasawa, Little, Miyashita, Mashima, & Azuma, 1997; Little & Lopez, 1997). That is, they were not convinced that they are able to produce positive and prevent negative outcomes in school and that they possess necessary abilities to succeed. These findings are partly in line with the results from attribution research.

The effort-outcome link evident in Japanese students' causal ascriptions also appears to be an integral part of their generalized means-ends beliefs. On the other hand, their relatively low level of corresponding agency beliefs point out to the possibility that already children in Japan acknowledge the cultural imperative of self-improvement and self-criticism.

THE PRESENT STUDY

The research briefly reviewed above provides a basis for a number of assumptions concerning the relationships among various types of motivational beliefs in general, and the differences between Japanese and Euro-American students in particular. First of all, it may well be that *Japanese students are driven by a motive to self-improve rather than a motive to self-enhance.* Moreover, they may also exhibit *higher levels of self-criticism.* From the perspective of motivation research, these notions relate to both the different types of goals students pursue and the accompanying achievement behavior (Boekaerts & Niemivirta, 2000; Niemivirta, 2000; Pintrich, 2000). Since the motive to self-improve is seen to underlie learning (or task) orientation, and the motive to self-enhance - or self-protect - is associated with performance (or ego) orientation, it could be assumed that *Japanese students show relatively higher levels of learning orientation and relatively lower levels of performance orientation* compared to their Croatian and Finnish peers.

Secondly, previous studies also suggest that *Japanese students not only emphasize effort as the main causal factor influencing school performance -both good and bad- but altogether employ a different conception of effort and ability,* while Japanese consider increased effort as a means to overcome obstacles, Euro-Americans are likely to perceive it as indicating deficits in ability. This implies that *Japanese might perceive themselves as more persistent and exhibiting higher levels of action-related control* than either Croatian or Finnish students. Further, the conceptual confounding of effort and ability might result in a closer association between means-ends beliefs of effort and ability.

The present study thus sought to examine whether these assumptions hold. This was approached by assessing students' goal orientations (i.e., their preferences for certain types of goals, outcomes, or consequences; Niemivirta, 2000); means-ends beliefs (i.e., their beliefs about the extent to which certain classes of potential causes produce certain outcomes; cf. Skinner, Chapman, & Baltes, 1988); and self-reported action control (i.e., their perceived capability to persist and concentrate when facing difficulties or obstacles; cf. Kuhl, 1984; Kuhl & Goschke, 1994; Niemivirta, 1999). Cross-cultural differences and similarities across the measures were then evaluated both in terms of structural properties and patterns of associations, as well as in relation to construct mean-levels. The focus was clearly on the comparison of Japanese students vs. others, which was mainly due to the lack of prior comparative studies including either Croatian or Finnish participants. The few studies available suggest, however, that Finnish students' control-related per-

ceptions should not differ from those of other Western European students (Grob, Little, Wanner, Wearing, & Euronet, 1996), and that the degree of self-serving bias might not be as strong as for American students (Nurmi, 1995). One study including Croatian students found that as they grew older (from second to eighth grade) the degree of self-serving bias in causal attributions of success and failure increased (Lugomer, 1988). Therefore, the general conjecture in the present context was that Finnish and Croatian students would not show any significant differences among each other, and that the differences in relation to Japanese students might not be as accentuated as in studies including American students.

Method

Participants and instruments. The participants in this study were 722 fifth- and sixth-grade children: 245 students from Croatia (124 girls, 121 boys), 250 from Finland (115 girls, 102 boys, 33 did not report gender), and 227 from Japan (113 girls, 114 boys). The age of the students ranged from 11 to 13 years.

The students were administered a questionnaire that included scales for different types of goal orientations and action-control beliefs (Niemivirta, 1996; 1998). For measuring goal orientations, three subscales were used. The *scale for Learning Orientation* contained five items for assessing students' focus on learning, acquisition of knowledge, and gaining competence (e.g., "To acquire new knowledge is the most important goal for me in school"); the scale for *Performance Orientation* included five items for assessing students' ability- and outcome-related focus and evaluation concerns (e.g., "I am particularly satisfied when I do better in school than other students"); and the *scale for Avoidance Orientation* contained items reflecting students' desire to avoid achievement situations and to minimize the effort and time spent on studying (e.g., "I try to get off with my schoolwork with as little effort as possible"). *Means-ends beliefs* were measured using items to which students reacted as two potential means or causes for success and failure in school: effort (four items: e.g., "You succeed in school if you try hard") and ability (four items: e.g., "If one does not learn things in school, it is due to the lack of abilities"), respectively. The *Action Control scale* was constructed to measure specific aspects of students' volitional control (cf. Kuhl, 1984). Although the original Action Control scale (Kuhl, 1994) was not used here, the items were designed to tap facets linked to the general construct of action control. Accordingly, the scale consisted of four items assessing participants' perceived ability to concentrate in problem-solving situations and their tendency to give up when facing demanding tasks (e.g., "It often happens to me that I find something else to do when I have a difficult task in front of me"). However, since all items referred to inability rather than ability, the scale was coded accordingly. That is, high scores on the scale indicate *lack of* action control. Students rated all items on a 5-point Likert-scale ranging from *totally disagree* (1) to *totally agree* (5)[1].

Analytical considerations. It must be noted that the original intent of the present study was not to carry out a cross-cultural comparison – the participating countries were initially conducting independent studies for their own purposes. For this reason, a strict translation-back-translation procedure was not employed. Instead, a simple application strategy (i.e., the original instrument is translated and used without any modifications), common in studies utilizing instruments that originate in other languages, was utilized. Thus, the original instrument was translated from Finnish into English, and then independently from English into Croatian and Japanese. This lack of a priori consideration of possible biases in translation thus presented a serious threat to the comparability of items used and the underlying constructs measured (see van de Vijver & Leung, 1997). On the other hand, since studies employing a simple application procedure naturally *assume* that the translated items and scales correspond to the original constructs, the present context provided an explicit possibility to test this assumption. Accordingly, several analytical procedures were utilized to examine the equivalence of the measurements used in each country.

Data analyses and results

Preliminary analyses. Since differences in score distributions (e.g., skewness and kurtosis) or patterns of item responses (e.g., frequencies in different response categories) may produce biased results and/or reflect genuine cultural differences (cf. Byrne & Campbell, 1999) these descriptive statistics were examined first. In general, the scores of Croatian students were more skewed than those of Finnish and especially Japanese students. Furthermore, they also appeared to use extreme response categories more than either of the other two groups. Implications of and possible explanations for these findings are discussed later.

Table 1. Internal consistencies for each scale by country

Scale	Croatia	Finland	Japan
Learning orientation	.81	.75	.75
Performance orientation	.70	.79	.82
Avoidance orientation	.65	.79	.72
Means: effort	.60	.57	.64
Means: ability	.56	.74	.79
(Lack of) action control	.75	.78	.73

Next, the generic structure of the data was examined. The goal was to check whether the clustering of items, in general, resulted in similar dimensions across groups and whether these dimensions corresponded to the assumed underlying structure. Accordingly, principal axis factor analyses with varimax rotation were performed for full sets of items for each country. Although the presumed structure

held rather well for each group, some minor item-level deviations were detected. Items for learning orientation and performance orientation on one hand, and items for avoidance orientation and action control on the other, had slightly higher cross-loadings for the Japanese group than for the others. To examine each scale's internal consistency, a series of item analyses was conducted next. Estimates of internal consistency (Cronbach's alpha) for each scale by group are presented in Table 1.

Despite the fairly low alpha coefficients for means-ends beliefs of effort, the overall level of internal consistency across scales and groups was acceptable. Croatian students' relatively low alpha coefficients for performance orientation, avoidance orientation, and means-ends beliefs of ability were notable deviations from the general pattern. These relative deviations could be considered as a result of the differential distributions detected earlier or due to one or more biased items within the corresponding scales. Potential indications of the latter were examined next.

Assessing item bias and construct equivalence among the groups. The identification of biased items and tests for construct equivalence were carried out in two complementary phases: In the first phase, a method specifically designed for detecting differential item functioning was used to identify severely biased items. In the second phase, the set of purified items was subjected to analyses of factorial invariance in order to test for construct comparability.

Differential item functioning (DIF) is present when participants from different groups, equated on the relevant ability or trait, have a different likelihood of answering an item correctly or endorsing an item (Camilli & Shepard, 1994). An ordinal logistic regression method for identifying DIF was used in the present study because it can be applied to polytomously coded items and it provides both a test statistic and a natural corresponding measure of effect size (Zumbo, 1999). According to the analyses, only Item 3 of the performance orientation scale ("I feel the best when I manage to demonstrate other people that I master things") showed substantial DIF ($\Delta R^2 = .141$) and was thus removed from further analyses.

If one is to compare mean levels of a given construct among two or more subgroups, the assumption of construct equivalence among those groups must first be tested empirically. Covariance structures analyses (CSA) provide a set of powerful means for such testing because it permits corrections for measurement error and simultaneous model fitting of a hypothesized factorial structure in two or more groups (Little, 1997). Furthermore, since in a latent variable system the construct (latent factor) is believed to have a causal influence on the observed variables, CSA allows the estimations of disattenuated factor means, and, in the case of multigroup analysis, tests for group-level differences. The prerequisite for such an analysis is sufficient level of measurement equivalence.

Measurement equivalence exists at several different levels (see Meredith, 1993). If manifest variables load on the same latent variables across groups, and if the factor loadings are not significantly different, then factorial invariance is said to exist (cf. Byrne, Shavelson, & Muthén, 1989). A higher level of measurement

equivalence exists if, for example, the variance-covariance matrices of the error terms are not significantly different. However, sufficient factorial invariance is the necessary condition for comparisons across groups.

In order to identify possible group-dependent sources of non-invariance, confirmatory factor analyses (CFA) were applied to test the hypothesized factor structure for each country (all subsequent analyses were undertaken using LISREL 8; Jöreskog, Sörbom, du Toit, & du Toit, 1999). For each group, a model with 26 observed variables and six latent variables was specified. All items were allowed to load only on the corresponding latent factor, and the factors were allowed to correlate. One item for each latent factor was fixed to 1 in order to render model identification and to provide a scale for the estimation (Jöreskog & Sörbom, 1989). Following recent recommendations (see Browne & Cudeck, 1993), four indicators were used to examine model fit: x^2-statistics (Jöreskog & Sörbom, 1989), Bentler's (1990) Comparative Fit Index (*CFI*); Bentler & Bonnett's (1980) Non-Normed Fit Index *(NNFI);* and Steiger's (1990) Root Mean Square Error of Approximation (*RMSEA*), respectively. In general, values close to .90 for *CFI* and *NNFI,* and values around .05 for *RMSEA* are considered good. Since the x^2-statistic is found to be sensitive to a number of different factors, it was mainly used to assess comparative fit among different models.

Initial analyses suggested that the basic model did not fit well for any of the groups. Especially, for the Japanese group, the fit was poor. An examination of potential cross-loadings and error covariances or items with unexpectedly low loading indicated few consistent sources of misfit. Item 5 of the performance orientation scale ("'It is important to me that other students and teachers appreciate my schoolwork"), Item 2 of the means-ends beliefs of effort scale ("If one does not succeed in school, it is because he or she has not tried enough"), and Item 4 of the means-ends beliefs of ability scale ("One can learn everything that is required if one is just smart enough and has the abilities") had low factor loadings in each group. Modification Indexes (MI; see Jöreskog & Sörbom, 1989, p. 45) also suggested that freeing the error covariance between Items 2 ("I feel especially good when I succeed in tests better than other students") and 1 ("I am particularly satisfied when I do better in school than other students") of the performance orientation scale, and Items 1 ("I have realized that I give up easily when school tasks are difficult") and 3 ("If I have a difficult task before me I often notice that I do not really even try"), and Items 2 ("It often happens to me that I find something else to do when I have a difficult task in front of me") and 4 ("When I should concentrate on a difficult task I often realize that I start doing something else") of the action control scale, respectively, would improve the model fit significantly. These indications were again consistent across all groups. Alike evidence of correlated errors were found between Items 1 ("I try to get off with my schoolwork with as little effort as possible") and 5 ("I try to do my schoolwork with as little effort as possible"), and between Items 3 ("I usually want to do just the required schoolwork, nothing more") and 4 ("I am not interested in doing anything extra for my

schoolwork and studying") of the avoidance orientation scale, but only for the Croatian and Japanese samples.

These findings point out to different sources of misfit. A consistently low factor loading across groups suggests that the corresponding item is not a good indicator of the underlying latent construct. In other words, this seems to be an unfortunate characteristic of the original instrument rather than a sample-specific difference or bias. Similarly, group-independent evidence of correlating error terms indicate that the corresponding item share a quality that is not solely explained by the common latent factor. In the present case, it clearly refers to the similar wording of the items. In contrast, group-dependent indications of similar type of covariance suggest that it is rather the adopted translation that may have resulted in somewhat congenial expressions.

Since the sources of misfit mentioned above were substantively interpretable and meaningful, an attempt was made to modify the basic model accordingly. Thus, another model was specified for each country with the following alterations: all three apparently invalid items were excluded and the three error covariances mentioned above were freed. Additionally, the error terms for avoidance orientation Items 5 and 1, and Items 4 and 3, respectively, were let to correlate, but only for the Croatian and Japanese groups.

Table 2. Goodness of fit indexes for the single group confirmatory factor analyses

	x^2	*df*	*CFI*	*NNFI*	*RMSEA*
		Croatia			
Base model	467.61	284	.88	.86	.050
Modified model	230.26	189	.96	.95	.030
		Finland			
Base model	485.90	284	.89	.88	.052
Modified model	231.92	190	.97	.97	.030
		Japan			
Base model	693.84	284	.80	.77	.080
Modified model	324.39	189	.92	.90	.057

The modified models fit very well for each group, yet for the Japanese group, another indication of misfit emerged. The MI for Item 2 of the avoidance orientation scale ("I am very satisfied when my school- or homework does not require too much time or thinking") suggested a significant cross- loading on the latent factor of performance orientation. Even though this overlap was clearly meaningful from the substantive point of view – that is, the content of the item exemplifies a tendency towards superficial engagement in achievement settings, which is commonly associated with performance orientation (see Niemivirta, 2000; Pintrich, 2000) – the corresponding modification would have clearly been a step away from the

equivalent factor structure. Thus, all subsequent analyses were carried without further alterations. Fit indexes for all modified models are presented in Table 2.

The next task was to examine the extent to which the modified models were equivalent across groups. The specification of simultaneous models was based on the results of single group analyses. Testing for factorial invariance was carried out in three steps. First, a model with no invariance restrictions was specified; next, a model with invariant factor loadings was specified; and finally, to assess the extent to which one model exhibited an improvement over another, the difference in x^2 was examined between the two models. This differential (Δx^2) is itself x^2-distributed, with degrees of freedom (*df*) equal to the difference in degrees of freedom (Δdf), and can thus be tested statistically. A significant difference indicates an improvement in model fit.

Table 3. Goodness of fit indexes for the multigroup confirmatory factor analyses and structured means analyses

	x^2	*df*	*CFI*	*NNFI*	*RMSEA*	Δx^2	Δdf	Δp
Multigroup model								
Null model	5312.74	693						
Freely estimated	807.33	568	.94	.93	.042			
Factorial invariance	890.29	600	.93	.92	.045	82.96	32	<.05
Factorial invariance*	841.06	594	.94	.93	.042	49.23	6	<.05
Multigroup model with mean structures								
Intercepts invariant	1268.48	631	.86	.86	.067			
Modified model**	1013.50	617	.91	.90	.052	254.98	14	<.05

Note. * Partially invariant model with items λ_2, λ_{13}, and λ_{18} free. ** Partially invariant mean structures model with items λ_2, λ_{13}, and λ_{18}, corresponding intercepts τ_2, τ_{13}, and τ_{18}, and additional intercepts τ_8 and τ_{11} free.

The freely estimated model showed excellent fit indicating that the general structure was tenable (Table 3). Also the initial model with invariant factor loading fit the data well; yet, some indications of unequal loadings were found. An examination of MIs suggested that freeing three item loadings would improve the model fit significantly. These items were Item 3 for learning orientation ("To acquire new knowledge is the most important goal for me in school"), Item 1 for means-ends beliefs of effort ("One can learn everything required in school if one just concentrates and tries hard enough"), and Item 3 for means-ends beliefs of ability ("If one does not learn things in school, it is due to the lack of abilities"), respectively. Consequently, these modifications lead to a significantly better fit. An examination

of x^2-statistics revealed that the difference between the freely estimated and the partially invariant model was not significant, $\Delta x^2(26) = 33.73$, $p > .05$. Therefore, being more parsimonious with high model-specific fit, the partially invariant model was accepted.

Since these results permitted the conclusion that sufficient configural and factorial equivalence existed across the groups, the logical next step was to examine the degree of measurement invariance and differences in latent means across groups. This was obtained by extending the analyses to include means and variable intercepts in the model (Byrne et al., 1989; Little, 1997). The simultaneous estimation of covariance and mean structures associated with the latent and observed variables facilitates the ultimate goal of making inferences about the groups' population means on the construct of interest. In other words, group differences on the observed variables are presumed to be the direct result of group differences on the underlying construct, and this can be assessed through structured means analysis.

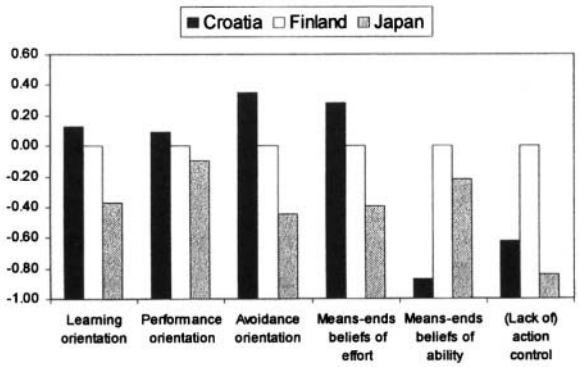

Figure 1. Disattenuated latent mean profiles for each group (Finland = 0).

The central question to be asked here concerns the degree of invariance required for making proper inferences about between-group differences on construct means. Following the suggestions by Byrne et al. (1989; see also Pentz & Chou, 1994) a base model was specified in which intercepts other than the ones corresponding to unconstrained item loadings were set invariant. Based on the subsequent model fit and modification indexes, additional, potentially unequal, intercepts were freed and their influence on factor means evaluated by means of a sensitivity analysis (see Byrne et al., 1989). If the modified model with acceptable fit exhibited full measurement invariance, or at least strong partial invariance, factor means were estimated and compared across groups.

The base model with invariant intercepts obtained only a moderate fit, $x^2(620) = 1113.15$, *CFI*= .89, *NNFI*= .88, *RMSEA* = .058. An examination of MIs suggested

unequal intercepts for Items 1 and 4 of the avoidance orientation scale. Freeing these intercepts improved the model fit significantly, $\Delta x^2(4) = 102.87$, $p < .05$. Since the modified model achieved a reasonable fit in relation to the constraints set (Table 3), it was accepted as the basis for mean level comparisons.

Table 4. Pairwise comparisons of group differences in disattenuated factor means

	Learning orientation		Performance orientation		Avoidance orientation		Means: effort		Means: ability		(Lack of) action control	
	FIN	JA	FIN	JA	FIN	JA	FIN	JA	FIN	JA	FIN	JA
CRO	*	**	*ns*	*ns*	**	**	**	**	**	**	**	*
FIN		**		*ns*		**		**		*ns*		**

Note. *ns* = nonsignificant, CRO = Crotia, FIN = Finland, JA = Japan. * $p < .05$, ** $p < .01$.

Table 5. Raw data estimates for all scales

	Learning orientation		Performance orientation		Avoidance orientation		Means: effort		Means: ability		(Lack of) action control	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
CRO	4.20	.80	3.70	1.02	3.33	.88	4.65	.61	1.79	.78	2.45	1.05
FIN	4.03	.68	3.49	1.07	2.87	.87	4.43	.57	2.46	.96	2.96	.98
JA	3.49	.96	3.54	1.11	2.47	.83	3.76	.85	2.23	.98	2.18	.76

Model identification and the scale for latent mean comparison was achieved by fixing factor means for one group to zero. In other words, one group at a time was defined as a reference group against which the others were compared. The results showed significant mean differences on all dimensions except for performance orientation. Croatian students had highest mean scores on learning orientation, avoidance orientation, and means-ends beliefs of effort, whereas Japanese students scored lowest and Finnish students highest on lack of action control. Both Finland and Japan had significantly higher factor means on means-ends beliefs of ability than did Croatia, but they did not differ from each other. Mean profiles illustrating relative group differences are presented in Figure 1 and the results of pairwise comparisons are summarized in Table 4. For comparative purposes, raw data estimates for all scales are shown in Table 5.

The mean-level differences were in agreement with what was found earlier in relation to differences in item score measures. That is, Croatian students' scores were clearly more extreme than those of other participants. Since it is possible that such differences in score distributions reflect sources of more systematic bias, such as culture-bound response sets or styles, it is useful to explicitly test for such possibility[2]. The tendency to use extreme ends of the scales has been referred to as extreme response style, whereas the tendency to agree with statements is referred to as acquiescence (see Grimm & Church, 1999). A straightforward way to measure

these tendencies is simply to calculate the number of times each respondent uses certain response alternatives. It is clear that such indexes are confounded with valid content variance, but, nevertheless, they appear to provide at least tentative information about response systematicity. For the present purposes, simple indexes for extreme response style (i.e., response frequencies in Categories 1 and 5), acquiescence (i.e., response frequencies in Categories 4 and 5), and neutral responding (i.e., response frequencies in Category 3) were calculated across all the items included in the final analyses. Group differences on these measures are illustrated in Figure 2.

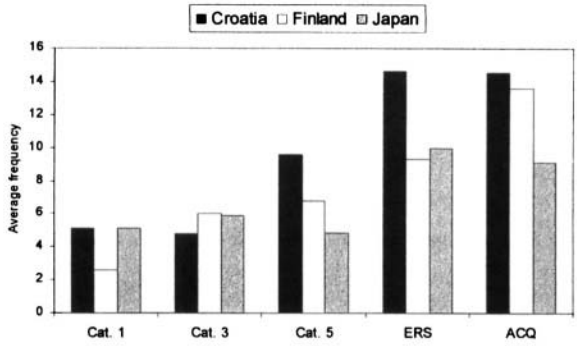

Figure 2. Group differences in response bias (ERS = Extreme response style; ACQ = Acquiescence).

Significant overall differences ($p < .01$) were found for all indexes. Pairwise comparisons (with Sheffe's correction) suggested that Croatian students displayed both the most extreme response style and the least use of the scale mid-point. However, for the index of acquiescence, no differences were found between Croatian and Finnish students; Japanese students were mostly using Categories 2, 3, and 4. It is thus possible, that parts of the detected mean-level differences – or more accurately, the *strength* of the differences – between groups were due to culture-bound disparities in responding. In other words, the differences found in latent mean levels might have been influenced by other sources of dissimilarities as well.

As a final step, the patterning of disattenuated factor correlations were examined within and between the groups (Table 6). In general, the pattering of correlations was in agreement with a priori assumptions. Learning orientation was positively associated with mean-ends beliefs of effort, and negatively with both avoidance orientation and lack of action control. In contrast, performance orientation correlated positively with means-ends beliefs of ability. Avoidance orientation showed a positive connection to lack of action control and a negative one to means-ends beliefs of effort.

Table 6. Disattenuated latent factor correlations for all groups (common metric completely standardized solution)

	Learning orientation	Performance orientation	Avoidance orientation	MEB: effort	MEB: ability
Croatia					
Performance orientation	.21*				
Avoidance orientation	-.35*	.40*			
M: effort	.44*	.11	-.20*		
M: ability	.01	.20*	.09	-.04	
(Lack of) action control	-.47*	.23*	.68*	-.24*	.07
Finland					
Performance orientation	.06				
Avoidance orientation	-.33*	.46*			
M: effort	.29*	.21*	-.22*		
M: ability	.01	.47*	.10	-.01	
(Lack of) action control	-.18*	.29*	.67*	-.14	.19
Japan					
Performance orientation	.34*				
Avoidance orientation	-.45*	.19			
M: effort	.93*	.66*	-.23*		
M: ability	-.02	.62*	.19	.56*	
(Lack of) action control	-.18*	.09	.45*	-.12	.02

Note. * $p < .05$. MEB = Means-ends beliefs.

Despite the rather similar pattering of associations, few notable differences were found among the groups. Disattenuated correlations between means-ends beliefs of effort and learning orientation on one hand, and between means-ends beliefs of effort and performance orientation on the other were significantly higher for the Japanese group ($r = .93$ and $r = .66$) than for either the Croatian group ($r = .44$ and $r = .11$) or the Finnish group ($r = .29$ and $r = .21$), respectively. Also, and in accordance with the findings above, the correlation between means-ends beliefs of effort and means-ends beliefs of ability was higher for Japanese ($r = .56$) than for Croatian ($r = -.01$) and Finnish ($r = -.04$) students. Taken together, these differences may point out to cultural differences in how effort and ability are conceived of as contributors to school performance, and how performance orientation relates to ability-related concerns.

DISCUSSION AND CONCLUSIONS

The main results of the present study were somewhat contradictory in relation to a priori made assumptions. Although the general patterning of associations among various measures were similar across the groups, and as such, well in line with

prior findings, the specific cultural differences detected were dissimilar to what was expected.

From the structural point of view, two noteworthy differences emerged. The first was the considerably high correlation between performance orientation and means-ends beliefs of effort for the Japanese sample. This finding might in fact have been due to the measurement of performance orientation itself. Recall, that two of the five items originally intended to measure performance orientation were excluded. The remaining items clearly referred to the enjoyment of performing well rather than having relative achievement as an explicit goal. Therefore, since the joy of performing well does not necessarily imply a goal of being better than others, the items might have been perceived as reflecting, for example, the desired consequences of attaining given standards. From this point view, the significant link found between performance orientation and means-ends belief of effort becomes rather self-evident. However, if this is the case, it also suggests that the items remained in the analyses did not fully tap the construct they were originally intended to measure. In fact, some support for this assumption was found in findings concerning the latent mean differences.

In general, our hypothesis concerning group-level differences on construct means were far from being correct. First, the presumption of no marked differences between Croatian and Finnish students was clearly invalidated. Second, only one of the assumptions concerning mean-level differences between Japanese students and the others held; Japanese did not show higher levels of learning orientation and lower levels of performance orientation, nor did they score highest on means-ends beliefs of effort. They did, however, display lowest scores on lack of action control thus implying that they perceived having *least* problems with sticking to the task when needed. Two possible reasons for the unexpected results can be considered.

It is possible that the measurements used were not sensitive enough to capture the phenomena under study, or that the actual (construct) mean-level differences were confounded with differences in response styles. The latter type of bias might partly explain both the relatively high overall scores displayed by Croatian students and the relatively low overall scores obtained by Japanese students. However, it cannot fully explain some of the puzzling findings concerning mean-level profiles *within* the groups. For example, Croatian students showed highest endorsement of effort and lowest endorsement of ability as the causes of school performance, *and* the highest level of avoidance orientation. That is, while the students did acknowledge the importance of effort expenditure in relation to school performance, they still showed a relatively strong tendency towards avoiding such situations. Croatian students' extreme response style might have contributed to this finding, but it is likely that the result also reflects something about the students' perceptions of their school reality. This is an important issue to be studied in the future.

In a similar vein, the unexpected finding of Japanese students' relatively high scores on performance orientation cannot be considered as solely resulting from their overall response tendencies. Following the interpretation presented earlier in relation to structural differences, a possible explanation for this puzzling result

might relate to the other aspect of suspected bias mentioned above – to construct bias in terms of specific item contents. In other words, if Japanese students made a clear distinction between enjoying the consequences of relative success and having it as a goal, the preference for the former might thus explain their score level on the performance orientation scale. Although this interpretation appears to be in disagreement with the robust findings of Japanese lacking self-enhancement tendencies -which, in general, are presumed to underlie the emphasis on performance orientation- it is not necessarily contradictory considering the high demands set and the grading system applied in the Japanese school system (Kanaya, 1994; Stevenson, 1998). This interpretation is also in line with some of the findings in Hayamizu's (1992) study showing how Japanese students couple affectual attributions with public mistakes and failures in relation to their peers, as well as with Iyengar and Lepper's (1999) study demonstrating how (American) Japanese students' motivation and engagement have a strong external frame of reference and appear to result from the internalization of significant others' values. Nevertheless, future research should focus more carefully on the various aspects of performance orientation and ability-related concerns *within* different cultural settings.

Another reason for the unexpected results might relate to the age of the participants. Most studies to which our assumptions were based on have dealt with people of very different age. Especially, much of the research concerning self-criticism and general forms of self-serving bias has used samples of college students and other adults. It is thus reasonable to ask whether such cultural tendencies evident in adult populations have yet developed in younger children. Or do they just manifest themselves in different ways? Clearly, the differences found in response styles are in agreement with the presumed general cultural differences. That is, even though Japanese students did not exhibit any less focus on ability-related concerns than others, they nevertheless did display more critical – or cautious – views of themselves (see also Footnote 2). However, truly answering to the question posed above would necessitate a longitudinal research design that incorporated culturally sensitive and malleable operationalizations of the phenomena in question.

In addition to the substantive issues, the present study sought to explicate some of the difficulties and challenges associated with cross-cultural research. Attempts were made to avoid the most obvious pitfalls, but the difficulties of making valid and culturally sound interpretations of obtained findings were still inevitable. As such, the present study is just an initial step in examining cross-cultural differences in motivation – and especially in goal orientations and action-control beliefs – so until further studies are carried out and the replicability of present findings examined, the conclusions drawn can only be considered tentative. Nevertheless, it is hoped that both the weaknesses and strengths of the study guide future work in the quest for better understanding in the demanding arena of cross-cultural research.

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ADDRESS FOR CORRESPONDENCE

Markku Niemivirta, Department of Education, 00014 University of Helsinki, Finland. E-mail: markku.niemivirta@helsinki.fi

NOTES

[1] The original response alternatives "I totally disagree" and "I totally agree" were found to be somewhat too abstract and distant for young Japanese children. Therefore, the Japanese equivalents for these options translate rather as "I don't think so at all" and "I totally think so", respectively.

[2] For example, the common finding of Japanese participants' low-esteem has been assumed to reflect a tendency to feigning modesty. However, many studies explicitly examining this possibility suggest that this is not the case; the methodological finding that Japanese respondents frequently use the scale mid points seem to rather reflect Japanese participants' genuinely critical self-evaluations (for a review, see Heine et al., 1999).

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