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The links among action-control beliefs, intellective skill, and school performance in Japanese, US, and German school children*

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We compared the relationships among action-control beliefs, intellective skill, and actual school performance in samples of children from Tokyo ($n = 817$, grades 2–6), Los Angeles ($n = 657$), and West Berlin ($n = 517$). Although these samples have been utilised in other comparative studies we have conducted, the role and function of intellective skill, as measured by the Raven Progressive Matrices, has not before been examined. The results of our analyses predicting school performance from the action-control beliefs and the Raven scores were quite revealing. The amount of variance in actual school performance that was shared with (1) the children's action-control beliefs and (2) their Raven scores was very high in West Berlin (86%) and Tokyo (73%), but very low in Los Angeles (37%). These outcomes strengthen arguments that the comparatively high levels of personal agency, but low correlations with performance, are distinctive characteristics of US socioeducational contexts.

Introduction

In this study, we extend our prior cross-national comparisons examining the links between children's action-control beliefs and their actual school performance by including a measure of intellective skill (i.e., the Raven; Raven, 1989). Intellective skill is a critical factor that may be relevant for understanding the sociocultural differences we have documented because it provides an objective standard against which the teacher-assigned grades and the student-reported beliefs can be compared. For this study, we utilised three or our extant samples that have not undergone dramatic social changes (West Berlin, Tokyo, and Los Angeles) to conduct a direct cross-cultural comparison of the links among the children's action-control beliefs, their intellective skill, and their actual school performance.

An action-theory view of psychological control

We utilise a model of action-control beliefs that differentiates three belief types: means-ends, agency, and control-expectancy beliefs (for overviews, see Little, 1998; Oettingen, 1995; Skinner, 1995). The causality-related *means-ends* beliefs refer to children's general beliefs about the utility or causal power of a specific means (effort, ability, luck, teachers, and unknowns) to produce a given outcome. *Agency* beliefs refer to children's beliefs that they personally can utilise, or have access to, the specific means that are relevant for school performance (effort, ability, luck, and teachers). The *control-expectancy* belief refers to children's general expectations of being personally able to produce a desired outcome (e.g., get good school grades) without specifying the means involved. We use the Control, Agency, and Means-ends Interview (CAMI; see, Little, Oettingen, & Baltes, 1995a; Skinner, Chapman, & Baltes, 1988) to measure these beliefs.

In our cross-national comparisons using the CAMI, we have found important similarities and systematic differences in the mean-levels of these action-control beliefs and in their correlations with actual performance (Little, 1998; Oettingen, 1995). For example, both the rated importance of causal factors such as effort and ability (i.e., means-ends beliefs) and the correlations between the means-ends beliefs and actual

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performance (school grades) have shown pronounced sociocultural similarities (see Little & Lopez, 1997; Little, Oettingen, Stetsenko, & Baltes, 1995b; Oettingen et al., 1994; Stetsenko, Little, Oettingen, & Baltes, 1995). Sociocultural similarities in the means-ends beliefs indicate that children's "world views" about the causal factors involved in school performance (i.e., their subjective theories of school performance) are similar (Little & Lopez, 1997; Stetsenko, Little, Oettingen, & Baltes, 1995). In contrast to the similar means-ends conceptions, our past research has shown pronounced sociocultural differences in two aspects of children's personal action-control beliefs (i.e., agency and control-expectancy beliefs).

First, the *mean levels* of the agency and control-expectancy beliefs have differed across the sociocultural contexts. Of the contexts we have studied, the Los Angeles sample displayed by far the highest levels of personal agency and control-expectancy beliefs. The West Berlin children are generally in the middle of our cross-national samples (e.g., Little et al., 1995b; Oettingen et al., 1994). Because a direct comparison with the Tokyo sample has not been conducted before on all these dimensions, a precise statement of their location cannot be made, but they also appear to fall in the middle ground (see Karasawa, Little, Miyashita, Mashima, & Azuma, 1997).[1]

Second, the *correlational convergence* between children's personal agency and control-expectancy beliefs and actual school performance has differed. In US samples, the magnitudes of the relations between beliefs and performance have been rather weak, with *r*s only around .3 (Little et al., 1995b; for a meta-analysis see also Multon, Brown, & Lent, 1991). In European samples (East Berlin, West Berlin, Moscow), we found that the beliefs-performance correlations were quite strong, both cross-sectionally and longitudinally, with the correlations ranging between .5 and .7 (Little et al., 1995b; Little, Lopez, Oettingen, & Baltes, 2001; Oettingen, Little, Lindenbergen, & Baltes, 1994; Stetsenko et al., 1995). In a prior report, we showed that agency beliefs shared 43% of the reliable variance with academic performance in the sample of West Berlin children, but only 15% of the variance in the Los Angeles sample (Little et al., 1995b). The magnitude of this association for the Tokyo sample will be determined and presented in the results following.

The distinctiveness of the US sample on these two patterns of findings is striking. The US school children expressed the greatest sense of personal agency, but the lowest correspondence between these beliefs and actual school performance. This pattern is generally representative of other US studies (see, e.g., Multon et al., 1991), is consistent with differences found for other control related constructs (e.g., Weisz, Rothbaum, & Blackburn, 1984), and, therefore, appears to be a particular characteristic of US settings (Little et al., 1995b).

Including a measure of intellective skill was motivated primarily by our search for additional predictors of school achievement that might increase the predictability of the US children's performance outcomes. We proceeded from the assumption that the low beliefs-performance convergence commonly obtained in US children (Multon et al., 1991) does not represent the entire story of the relations between children's person-related attributes and their school performance. We anticipated that a measure of intellective skill such as the Raven would yield added predictive power, particularly in the US context. Including an objective measure of intellective skill would provide yet another important piece of information for evaluating the source of the wide disparity in the beliefs-performance correlations we have observed. In this case, the measure of intellective skill becomes a common standard against which the student-report beliefs and teacher-assigned grades can be compared.

General expectations

Our primary goal was to extend our cross-national comparisons by examining the role of children's intellectual skill (see also Oettingen & Little, 1993). We were particularly interested in the predictive relations that the combination of the Raven and the action-control beliefs would have on the children's actual school performance. We expected that adding the Raven, as an additional predictor of performance, would close the gap in the predictive relations for the US sample.

Our secondary goal was to establish the position of the Tokyo sample relative to the West Berlin and Los Angeles samples. Given that the German and Japanese educational systems share a number of common structural features (e.g., unidimensional teaching formats and selection criteria for advancement to higher-level secondary education tracks; see Karasawa et al., 1997; Oettingen et al., 1994), we expected the Tokyo sample to be closer to West Berlin than to Los Angeles.

Method

Participants

Our samples consisted of 2nd- through 6th-grade children. As described in previous reports, we collected the West Berlin sample ($n = 517$) in spring 1991, the Los Angeles sample ($n = 657$) in spring 1992, and the Tokyo sample ($n = 817$) in winter 1993. Each sample represented generally lower-middle-class suburban neighbourhoods (for more information on these samples see Karasawa et al., 1997; Little et al, 1995b; Oettingen et al., 1994). Longitudinal follow-ups of the West Berlin sample and other samples have revealed striking consistency in the pattern of results over the ensuing years (Little et al., 2001; Little, Stetsenko, & Maier, 1999). Given

[1] In a previous validity analysis of the CAMI on this sample of Japanese (Tokyo) children, Karasawa et al. (1997) showed that the basic psychometric structure of the action-control beliefs was mostly comparable to that found in other sociocultural contexts. Of the 10 CAMI dimensions, only the children's agentic access to luck showed a substantive incongruence in these Japanese children (see Karasawa et al., 1997, for details). In addition, an analysis that explored the developmental relations among the causality-related means-ends beliefs in various sociocultural samples, and which included these Japanese children, found many cross-cultural similarities in the children's conceptions of how school performance comes about (Little & Lopez, 1997). Two notable differences that emerged were: (1) Tokyo children appeared to differentiate among the causes of school performance (e.g., effort, ability, luck, teachers) at younger ages than did their international peers (i.e., samples from Los Angeles, West Berlin, East Berlin, Moscow, and Prague), and (2) the importance of teachers as a contributor to school outcomes was rated far lower by the Tokyo sample than by their cross-national age-mates. However, a direct comparison to the extant US and German samples on the agency and control-expectancy beliefs (and their relations to school performance) has not been conducted. Karasawa et al. (1997) focused their investigation only on the structure of the 10 CAMI dimensions and did not examine the relations to actual school performance nor did they compare their findings directly with other sociocultural samples. Similarly, Little and Lopez (1997) examined only the developmental patterns of the causality-related means-ends dimensions. Although they included direct comparisons, they did not examine the agency beliefs or links to performance.

these findings, we have little reason to expect that the socioeducational contexts of these samples has changed and that the generalisability of these comparisons is not compromised nor undermined.

Table 1 contains the average ages and sample sizes by grade and gender. Although the formal schooling experiences of these children were similar, the average ages at each grade level were somewhat younger in the Tokyo sample because their data were collected in winter. In each sociocultural context, we selected two schools, and within each school, generally two to four classes per grade level were evaluated. Supplementary analyses of possible between-school differences within each sociocultural setting indicated few and sporadic mean-level and correlational differences for the variables in the analyses (Little et al., 1995a).

Measures

As mentioned, we used the CAMI to measure the children's action-control beliefs (Little et al., 1995a; see Little et al., 2001, for sample items). In each setting, native-language speakers and proctors group-administered the CAMI to the children (about 20 to 30 children per group). The proctors read each item aloud in front of the classroom and the children followed along, answering on a 4-point scale (never, seldom, often, always). We used the teacher-assigned math and verbal grades as two indicators of the children's school performance. In each setting, these class marks correlated highly (i.e., *r*s between .65 and .72).

We also group-administered the Raven Progressive Matrices as a test of intellective skill. Although the Raven is putatively a culture-free index of intelligence, in these samples we found a main-effect difference. The Tokyo children evinced higher scores on the Raven than the West Berlin children, who in turn had higher scores than the Los Angeles sample, $F(2, 1931) = 145.3$, $p < .001$. With the substantial sample sizes, this difference was significant, but not large in terms of its effect size (< 2%). Moreover, although these mean-level differences suggest that the Raven is not fully culture-free as a test of intelligence, they do not confound our focal analyses because we use the Raven scores as an individual-differences variable *within each sociocultural setting* and the Raven still taps core aspects of intellective skill in an objective manner, particularly in industrialised nations (Raven, 1989).

Table 1
Sample sizes by gender, grade and combined, and average ages by grade

	Grade level					
	2	*3*	*4*	*5*	*6*	*Total*
West Berlin ($n = 517$)						
Males	47	54	46	48	29	224
Females	65	61	67	56	44	293
Average age	8.6	9.6	10.6	11.6	12.7	
Los Angeles ($n = 657$)						
Males	69	82	71	66	66	354
Females	72	50	67	58	56	303
Average age	8.1	9.2	10.2	11.1	12.2	
Tokyo ($n = 817$)						
Males	72	83	92	96	83	426
Females	73	71	86	80	81	391
Average age	7.8	8.8	9.8	10.9	11.9	

Data analytic procedures

We used multiple-group mean and covariance structures analyses (MACS; Little, 1997) for this study, because they can (1) verify the cross-cultural validity of the constructs and (2) correct for the attenuating effects of unreliability. We included variables representing the effects of gender and the linear and quadratic effects of grade level in school to control for their potentially confounding influence (see Stetsenko, Little, Gordeeva, Grasshof, & Oettingen, 2000, for a detailed analysis of gender effects, and Little et al., 1999, for grade-related effects). We did not include the agency for luck items for the Tokyo sample because they form two factors instead of one (see Karasawa et al., 1997, for details). We assessed model fit using standard indexes: the non-normed (NNFI) and incremental fit indexes (IFI) and the root-mean squared error of approximation (RMSEA).

We expected the item-to-construct relations to be metrically invariant—a necessary condition if the constructs have been measured in an equivalent manner. To test this expectation, we fit two models and evaluated the differences in their relative fit (i.e., we used a difference-in-fit criterion for the NNFI and IFI of < .05; see Little, 1997). In the first model, we fit the basic measurement structure in each sample. This model fit very well: NNFI = .94. IFI = .95, RMSEA = .041. In the second model, we placed equality constraints on the measurement loadings and intercepts across each group and freed the corresponding latent variances and means in the second and third groups, but placed no constraints at the latent level (Little, 1997). This model also fit very well: NNFI = .91, IFI = .92, RMSEA = .048. Because these two models differed by less than the .05 difference-in-relative-fit criterion, we can conclude that the constructs' measurement properties are equivalent and that our further analyses are based on socioculturally comparable constructs (Little, 1997).

The substantive analyses were assessed against the measurement-equivalent model by placing cross-group equality constraints on the parameters of interest and evaluating the loss in fit as a nested model chi-squared test (see Little & Lopez, 1997). Later, we report the findings from the constrained analyses because (1) the constrained (equated) values did not differ from one another (multivariate-$p > .05$), while (2) all unequated values differed substantially (all ps < .01), and (3) the manner of presentation is parsiminious and readily interpretable. For purposes of independent verification, the unconstrained raw data estimates are given in the Appendix.

Results

We report our findings in four sections. The first three sections examine the position of the Tokyo sample relative to the US and German samples. In the final section, we evaluate the roles of intellective skill and action-control beliefs in predicting academic performance.

Mean-level comparisons. As indicated in Figures 1 and 2, few sociocultural comparisons within a given means category were equivalent; however, a number of cross-dimension comparisons were, $\chi^2(16) = 21.2$, $p = .17$ for the equivalent mean

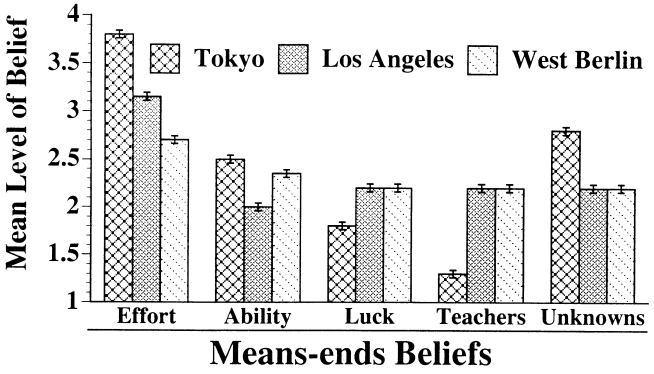

Figure 1. Latent mean levels for the means-ends beliefs. *Note.* Estimates that were not different from one another have been equated. The constrained estimates fit as well as the unconstrained estimates (multivariate $p > .05$). All remaining estimates that are not identical are different from one another at $p < .01$.

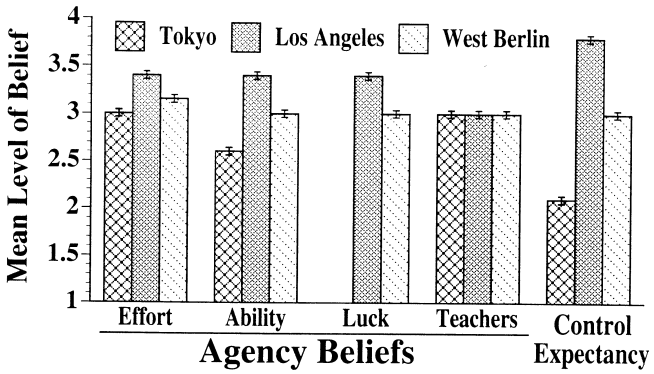

Figure 2. Latent mean levels for the agency beliefs. (See note to Figure 1.)

levels; each possible remaining comparison differed from one another, $p < .01$.

For the means-ends beliefs, the Tokyo children differed on each means category. Relative to Los Angeles and West Berlin, Tokyo children showed high endorsements for the importance of effort and moderately high endorsements for the importance of ability as causes of school performance (Figure 1). Tokyo children were also lower on luck and teachers, but higher on unknowns (see also Little & Lopez, 1997). For the agency beliefs, including the Tokyo sample in this direct comparison did not change the extreme standing of the Los Angeles children (Figure 2). On the contrary, the Tokyo children showed the lowest beliefs in their personal access to effort and ability and in their general control expectancy.

Correlations with academic performance. The correlations in Figures 3 and 4 reflect the degree of correspondence between the children's actual school performance and (1) their general means-ends (causality) beliefs (Figure 3) and (2) their self-reports of their personal agency and control-expectancy beliefs (Figure 4). For these beliefs-performance links, we found considerable cross-cultural commonality, $\chi^2(24) = 23.6$, $p = .50$ for the equivalent correlations; the other correlations differed from one another, $p < .01$.

Regarding the means-ends beliefs, one distinctive pattern emerged wherein all three settings had differing magnitudes (and directions) of correlation for means-ends: ability (West Berlin $r = .15$, Los Angeles, $r = 0$, and Tokyo, $r = -.15$; see Figure 3). The sizes of the correlations for the means-ends beliefs are quite small (i.e., less than 3% explained variance), replicating patterns of predictive relations within this framework (e.g., Chapman, Skinner, & Baltes, 1990; Oettingen et al., 1994). For the agency and control-expectancy beliefs (Figure 4), the West Berlin sample showed generally higher beliefs-performance correlations than did the Tokyo children, who were generally higher than the Los Angeles children.

Correlations with the Raven. The correlations in Figures 5 and 6 reflect the relations between the children's intellective skills and their action-control beliefs about school performance. Before turning to these relations, we note here that in the Tokyo and West Berlin samples, the children's Raven scores correlated moderately strongly with their actual school performance ($r = .55$; i.e., 30% of the variance overlapped in both samples), whereas in the Los Angeles sample this link was quite low ($r = .31$, or less than 10% overlap; $p < .01$).

Given these differences, however, we found considerable commonality in the beliefs-skill links, $\chi^2(26) = 24.5$, $p = .56$ for the equivalent correlations; the other correlations differed from one another, $p < .01$. Notably, the patterns generally followed those for the beliefs-performance correlations, although the magnitudes of the relations with the Raven were considerably lower than were the relations with actual performance. For the agency beliefs, a few changes occurred (compare Figure 4 with Figure 6). First, Tokyo children showed a higher correlation between their personal agency for

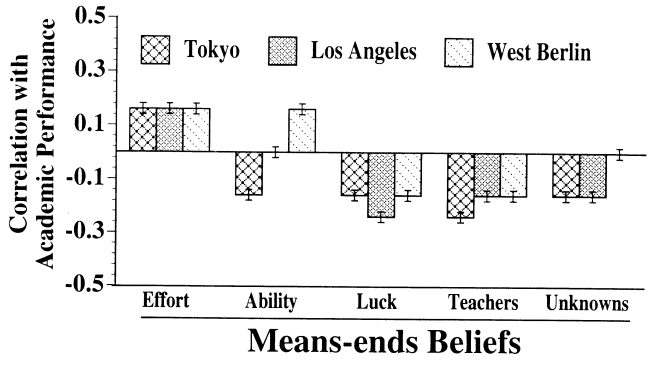

Figure 3. Latent correlations with academic performance for the means-ends beliefs. (See note to Figure 1.)

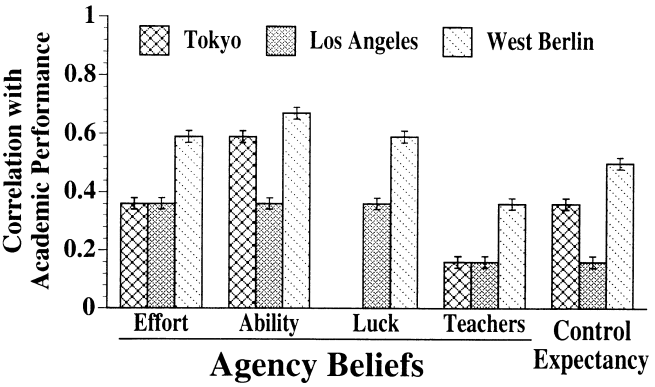

Figure 4. Latent correlations with academic performance for the agency beliefs. (See note to Figure 1.)

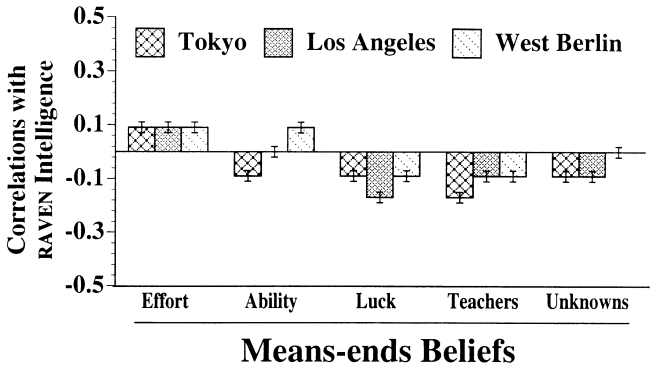

Figure 5. Latent correlations with Raven intelligence for the means-ends beliefs. (See note to Figure 1.)

effort and the Raven than did the Los Angeles children, and they showed a link between their agency for ability and intellective skill that was equal to the West Berlin children's correlation. Second, the sociocultural differences in the beliefs-performance correlations for agency: teachers and the control expectancy disappeared in these beliefs-skill links.

Predicting academic performance. Regarding the relative predictive power (variance shared) of the action-control beliefs in relation to the measure of intellectual skill, we performed latent-space commonality analyses predicting the children's academic performance from the set of agency beliefs (A), the set of means-ends beliefs (B), and the Raven scores (C).[2] Seven latent regressions were conducted to determine the unique and common predicted variance of these predictors by comparing the predicted variance estimates across the different regressions: ABC together, AB together, AC together, BC together, and A, B, and C alone (see also Little et al., 1995a).

For the Tokyo sample, the combination of agency and means-ends beliefs accounted for 36% of the variance in academic performance. After including the children's Raven scores into the analyses (Figure 7), the children's beliefs in their personal agency still accounted for unique (and generally sound) proportions of variance in West Berlin (13%) and Los Angeles (8%), but a more modest proportion in Tokyo (3%). The children's conceptions of the causal importance of these

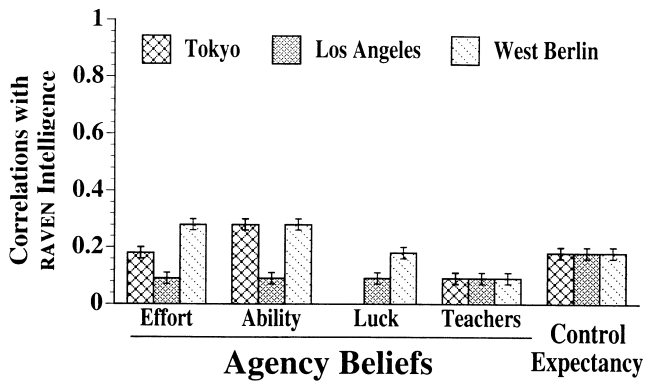

Figure 6. Latent correlations with Raven intelligence for the agency beliefs. (See note to Figure 1.)

[2] We did not include control expectancy because, as we have found before (Little et al., 1995b; Oettingen et al., 1994), it did not uniquely predict achievement.

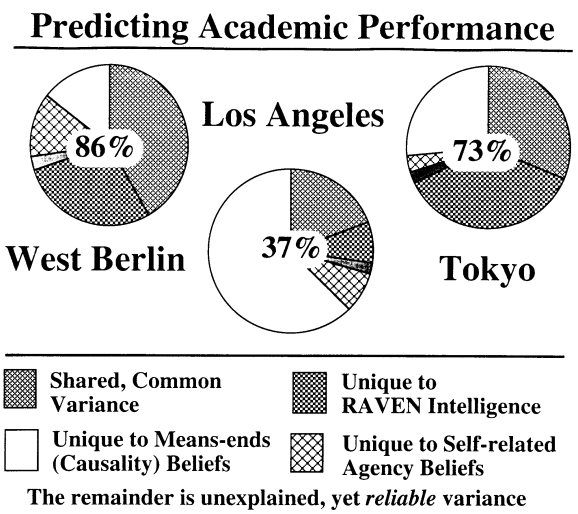

Figure 7. Results of the latent-space hierarchical regressions (commonality analyses) predicting academic performance from (a) the agency beliefs, (b) the means-ends beliefs, and (c) Raven intelligence.

dimensions (i.e., means-ends beliefs) uniquely accounted for relatively smaller proportions of variance (3% in West Berlin, 2% in Los Angeles, and 2% in Tokyo).

Contrary to our expectation, the Raven contributed very little to the predictive nexus in the Los Angeles sample, but did contribute considerably in the Tokyo and West Berlin samples (37% in Tokyo, 8% in Los Angeles, and 28% in West Berlin; for all comparisons, $p < .01$). The overall prediction of academic performance in these three sociocultural settings revealed that the beliefs-skill-performance nexus is quite substantial in Tokyo (73%) and West Berlin (86%) but quite small in Los Angeles, with only 37% of the total *reliable* variance in school performance shared with the children's action-control beliefs and the Raven measure of intellectual skill.

Discussion

Including the Tokyo sample in a direct comparison with the US and West Berlin samples allowed us to locate its relative position precisely. Recall that Karasawa et al. (1997) did not make direct comparisons and Little and Lopez (1997) examined only the relations among the means-ends beliefs. The direct comparison in this sample revealed a number of unique features of the action-control beliefs profile of the Tokyo sample. Therefore, before we turn to our discussion of the role of intellective skill in this evolving story, we first discuss the salient differences in the Tokyo children's profile and relate them, a posteriori, to known characteristics of their schooling contexts. Detailed discussion of the West Berlin schooling context can be found in Oettingen et al. (1994) and the US context in Little et al. (1995b).

Some relevant aspects of Japanese children's schooling context

Numerous writers suggest that Japanese children conceive of effort and ability differently from children of other socio-

cultural settings, such as US children (Hamilton, Blumenfeld, Akoh, & Miura, 1989a, b; Holloway, 1988; Lewis, 1990). In Japan, exerting effort appears to be an intrinsic end in itself that reflects a style of personal behaviour, typical of both adults and children, and explicitly instituted within the schooling context (Holloway, 1988). As a result, the effort concept in Japan appears to be highly differentiated both at the societal level and in the children's views about its importance and accessibility in producing school outcomes (Karasawa et al., 1997; Figures 1 and 2).

A typical feature of Japanese schools, for example, is the cooperative task structure in which children commonly participate (Holloway, 1988; Lewis, 1990). This schooling feature emphasises group-based performance and evaluation practices. Arguably, a group-based emphasis not only teaches social cooperation and humility, for example, but it also reduces the degree to which an individual child can rely solely on his or her ability to perform well. Within this educational structure, all members of a heterogeneously defined ability group must exert effort in order for the group and its members to earn positive performance evaluations. In such a setting, the quality of a child's performance is judged relative to his or her *previous* performance level.

Such a school-based structure distinguishes effort relative to ability as a central means to increase one's performance (Holloway, 1988; Karasawa et al., 1997; Stigler & Perry, 1988). Our review of this literature suggests that teachers and parents in Japan also make clear and pronounced distinctions between effort and ability, emphasising effort and downplaying ability. For example, teachers' verbal evaluations avoid commenting on children's ability and their absolute levels of academic performance. Instead, more emphasis is placed on extolling the children's efforts (Hamilton et al., 1989a, b). The current findings are consistent with these basic features of the children's societal and schooling context.

Mean levels. The apparent sociocultural distinctions between effort and ability in Japan are consistent with the Tokyo children's ratings of the importance of effort relative to ability (Figure 1) and in their reported access to these school-relevant means (Figure 2). The mean levels of effort as a cause of school performance (Figure 1) were extremely high in the Tokyo sample, whereas their ratings of ability were comparatively low and nearly on par with their West Berlin age-mates (i.e., the disparity between the effort and ability ratings was largest in the Tokyo sample; see Figure 1). Similarly, the difference between the Tokyo children's ratings of their agency for effort and ability was the largest of the three sociocultural settings (i.e., more differentiated in terms of the mean levels; see Figure 2). Although the distinctiveness of the Tokyo children's ratings are very consistent with the apparent socioeducational features of their schooling context, the absolute magnitudes of their agency and control-expectancy beliefs were consistently the lowest of the three sociocultural contexts.

In our view, one reason for the lower agency and control-expectancy beliefs is the interpersonal relationship-based structures of child socialisation in Japan (e.g., humility of self-presentation) that are pervasive sociocultural aspects of Japanese society (Azuma, 1996; Markus & Kitayama, 1991). Consistent with such structures, the agency and control-expectancy beliefs, as markers of the self-related action-control system, evinced comparable levels of individual-differences variability in these settings (with measurement equivalence in the respective reliability and validity coefficients), but, as a group, the Tokyo children's perceptions of their agentic access to these school-relevant means were lower than the other sociocultural samples.

We view the lower mean levels of the Tokyo children's agency and control-expectancy beliefs as concordant with the sociocultural and socioeducational expectations placed on them. Moreover, within the confines of their sociocultural context the functionality of their agency beliefs becomes, in *relative* terms, a within-context individual-differences influence. To our knowledge, no theoretical or empirical criteria exist to determine an *absolute* level of agency that is optimal for negotiating the demands of a given environment (see Little et al., 1995b; Oettingen et al., 1994). As a result, the general advantages of high agency beliefs would be gained mostly through a process of relative comparisons with other children in the same sociocultural context.

Beliefs-performance correlations. Given the mean-level distinction between effort and ability and the emphasis on effort relative to ability, one could view the Tokyo children's belief-performance correlational patterns as counterintuitive (see Figure 4). Namely, because effort is a highly emphasised school-relevant means in the Tokyo schooling context, one could expect the individual differences in the children's perceptions of their own effort to show substantial correspondence with actual school performance. However, only ability showed a pronounced link to school performance. Only 12% of the variance in the Tokyo children's beliefs in their own effort was shared with their actual academic performance, whereas over 36% of the variance in their beliefs in their own ability overlapped with their school grades (Figure 4). This pattern indicates that the distinguishing individual-differences dimension in the Japanese children's beliefs systems appears to lie in their perceptions of their own ability.

In our view, because of the emphasis on effort in the Tokyo schools, the role of effort may lose its meaning as a differential predictor of individual differences in school performance (i.e., nearly everyone can and does try very hard). As a relatively underemphasised dimension (but still a central aspect in the social construction of performance) ability appears to remain a relatively context-free gauge for the children to use in evaluating their own competence in school.

The role of intelligence and the distinctiveness of the profiles

A major goal of our programme of research has been to use the comparative approach to examine the generality of action-control beliefs and thereby to place localised findings, such as those describing US children, into a larger context. In our view, the presented findings highlight the distinctiveness of the Los Angeles children's action-control beliefs (Figures 1 and 2), their beliefs-performance nexus (Figures 3 and 4), their beliefs-skill nexus (Figures 5 and 6), and their beliefs-skill-performance nexus (Figure 7).

In prior studies, we presented evidence that the outcomes for the present Los Angeles sample are congruent with typical findings reported in the literature (see Little et al., 1995b; Multon et al., 1991). In comparison to other sociocultural contexts, the Los Angeles children's belief in their personal agency is generally the highest and the correspondence between these beliefs and actual performance is generally the

lowest. Notably, when we added the Raven to the predictive equations, we found that this index of the children's basic intellectual skills was hardly an influential aspect of the Los Angeles children's school performance, especially when compared with the Tokyo and West Berlin children. The Raven shared less than 10% of its variance with actual school grades in the Los Angeles sample as opposed to the 30% overlap evinced in Tokyo and West Berlin. The Los Angeles children's action-control beliefs about their academic potential showed very weak correspondence with their intellectual skills (i.e., only control expectancy reached a 2% overlap with the Raven). The combined effects of the children's action-control beliefs and intellective skill accounted for dramatically less variance in actual school performance in Los Angeles (37%) than was the case in Tokyo (73%) and West Berlin (86%; Figure 7).

The substantial link between the Raven and school performance indicates that in the Tokyo and West Berlin children's school contexts, their performance is indexed to their intellective skills. Specifically, the correlation between the Raven and actual school performance was .55 in Tokyo and West Berlin. Therefore, the objective contingencies between ability and performance appear to be reflected in the correspondence between the children's ratings of their own ability and actual school performance in both Tokyo and West Berlin.

Such patterns raise a number of critical questions. For example, if the Los Angeles children's action-control beliefs about their own school performance are only minimally related to their actual performance and their intellectual skills, what, then, are they related to? The evidence presented in our current analyses did not yield a clear picture of the meaning of the assigned grades in the US context. In Tokyo and West Berlin, the beliefs-skill-performance nexus was quite overlapping, suggesting that assigned grades reflect intellective skill and the resulting action-control beliefs reflect this linkage well. In the US context, on the other hand, the beliefs-skill-performance nexus was rather disparate. The assigned grades do not correlate well with intellective skill and nor do the children's action control beliefs about their performance. A number of additional factors may be at play in the US context. First, motivation to perform may be more variable in the US context and function as a moderate of these linkages (i.e., higher linkages among children who are motivated to perform and lower linkages among those who are not). Second, there may be a general tendency toward grade inflation and so called ''social promotions'' that reduce the linkages for the teacher-assigned grades. Third, personality factors may be involved in the US context, with dimensions such as conscientiousness and agreeableness affecting the grading practices.

The related question of whether the US constellation is a risk factor in the future development of these children also arises. Perhaps the tendency in US settings (relative to other sociocultural contexts; Little et al., 1995b) to enhance children's self-esteem, although a worthy goal, may in fact have altered the natural progression of the action-sequences from which action-control beliefs are formed. For example, if one intervenes in this natural formation process at the stage of performance evaluation (Skinner, 1995) by rewarding a child verbally with performance feedback that is esteem-protective and supportive, then the child's beliefs would not be an accurate reflection of actual performance, but rather would reflect the degree of inaccuracy in the feedback. On the other hand, if the antecedents of good performance are targeted for intervention (e.g., through guided-mastery experiences; Bandura, 1997) then, because the remediated skills would lead to better performance, children would develop action-control beliefs that would reflect accurate assessments of their performance potential and actual performance.

In the final analyses, it seems clear that the extreme standing of the Los Angeles children requires further study of the antecedents of such a prototypically US profile and whether such a profile has long-term consequences on the perpetual interplay between the gains and losses of development (Baltes, 1987).

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Appendix

Comparative raw data information

	Means-ends beliefs					*Agency beliefs*				
	Effort	*Ability*	*Luck*	*Teacher*	*Unknown*	*Effort*	*Ability*	*Luck*	*Teacher*	*Control*
Tokyo 1993 ($n = 817$)										
Mean	3.14	2.49	1.64	1.34	2.60	3.03	2.60	3.03	3.00	2.39
SD	0.51	0.55	0.58	0.45	0.70	0.50	0.53	0.64	0.57	0.62
r_{ach}	0.12	−0.14	−0.12	−0.17	−0.10	0.28	0.42	0.22	0.10	0.27
r_{int}	0.23	0.00	−0.19	−0.21	−0.10	0.16	0.16	0.12	0.07	0.11
West Berlin 1991 ($n = 517$)										
Mean	2.70	2.42	1.83	1.83	2.20	3.07	2.83	2.74	2.93	2.90
SD	0.43	0.47	0.52	0.46	0.47	0.49	0.52	0.49	0.50	0.62
r_{ach}	0.12	0.15	−0.13	−0.11	−0.01	0.50	0.55	0.50	0.29	0.41
r_{int}	0.16	0.01	−0.31	−0.17	0.04	0.20	0.20	0.04	0.04	0.07
Los Angeles 1992 ($n = 657$)										
Mean	2.87	2.24	1.86	1.84	2.17	3.14	2.95	2.87	2.90	3.29
SD	0.50	0.54	0.63	0.59	0.59	0.54	0.56	0.59	0.61	0.63
r_{ach}	0.05	−0.01	−0.20	−0.15	−0.15	0.28	0.27	0.32	0.18	0.16
r_{int}	0.15	0.05	−0.24	−0.12	−0.15	0.01	0.02	−0.03	0.05	0.10

r_{ach} = the correlation with school grades, r_{int} = the correlation with RAVEN intelligence.