Children's Action-Control Beliefs About School Performance: How Do American Children Compare With German and Russian Children?

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Using the revised Control, Agency, and Means-ends Interview (T. D. Little, G. Oettingen, & P. B. Baltes, 1995), we compared American children's (Grades 2-6) action-control beliefs about school performance with those of German and Russian children (Los Angeles, $n = 657$; East Berlin, $n = 313$; West Berlin, $n = 517$; Moscow, $n = 541$). Although we found pronounced cross-setting similarities in the children's everyday causality beliefs about what factors produce school performance, we obtained consistent cross-setting differences in (a) the mean levels of the children's personal agency and control expectancy and (b) the correlational magnitudes between these beliefs and actual school performance. Notably, the American children were at the extremes of the cross-national distributions: (a) they had the highest mean levels of personal agency and control expectancy but (b) the lowest beliefs-performance correlations. Such outcomes indicate that the low beliefs-performance correlations that are frequently obtained in American research appear to be specific to American settings.

Although children's self-ascribed beliefs about school performance relate consistently to their academic outcomes (e.g., M. M. Baltes & Baltes, 1986; Berman, 1990; Berry & West, 1993; Flammer, 1990; Graham, 1994; Schmitz & Skinner, 1993; Sternberg & Kolligian, 1990), growing evidence suggests that these relationships vary considerably across different sociocultural settings (Fyans, Salili, Maehr, & Desai, 1983). For example, our research with German and Russian children (Oet-

tingen, Little, Lindenberger, & Baltes, 1994; Stetsenko, Little, Oettingen, & Baltes, 1995) has shown consistent cross-sample differences in children's beliefs about their personal access (agency beliefs) to school performance-relevant means and the extent to which they believe they can personally control school performance outcomes (control expectancy). In addition, we have found sizable cross-sample variability in the magnitude of the correspondence between children's beliefs and their actual school performance (school grades). In these contexts, the distribution of correlations has ranged from the high .40s to the mid-.70s (Oettingen et al., 1994; Stetsenko et al., 1995). On the other hand, within these same comparisons, the basic structure of the school performance-related beliefs and children's everyday conceptions of what determines school performance (means-ends beliefs) were very similar.

Given this research with German and Russian children, a general issue emerges regarding how such outcomes relate to research on American children. Quite consistently during the last two decades, American research has obtained relatively weak connections between children's self-related beliefs and their actual performance. In the United States, the distribution of correlations has ranged from the mid-.20s to the high .30s (for overviews, see Findley & Cooper, 1983; Multon, Brown, & Lent, 1991; Stipek & Weisz, 1981). Such findings seem in sharp contrast to the apparently higher belief-performance correlations found in our European samples and raise a number of related questions. For example, are the findings of American studies generalizable to children reared in different sociodevelopmental contexts? Are similar constructs being measured across the sociocultural settings? Are American children's general conceptions of "how the world works" different from those of their European peers?

For this study, we selected a sample of American children in order to bridge our European-based studies with the body of research on American children. Considering the wealth of American research on the effects of children's school perfor-

Table 1

Summary of the Action–Control Beliefs Represented in the Control, Agency, and Means–ends Interview (CAMI)

Definition	Belief dimensions	Symbolic belief relations
Means–ends or causality beliefs (M → E)		
The child's general expectations about the utility or causal power of specific causes or means (M) for a given domain-specific outcome (E) such as achieving good or avoiding bad school performance.	Effort Ability Luck Teachers' role Unknown causes	Means M causes end E
Agency beliefs (A → M :: E)		
The child's belief that he or she (A) (has access to/can use/ can implement) a specific means (M) that is relevant (::) for outcome (E).	Effort Ability Luck Teachers' role	Agent A has means M to achieve end E
Control expectancy (A → E)		
The child's personal expectation that he or she (A) can achieve a given outcome (E), without reference to any specific means.	Unspecified	Agent A can achieve end E

Note. Boldface type denotes one of the constituents of intentional action: A symbolizes the agent, M symbolizes a given outcome-relevant means, and E symbolizes the desired outcome. Outcome E, such as school performance, implies either the desire to succeed by accomplishing a positive outcome (i.e., getting a good grade) or to succeed by avoiding a negative outcome (i.e., not getting a bad grade).

mance-related beliefs (Findley & Cooper, 1983; Graham, 1994; Schunk, 1991; Multon et al., 1991; Skinner, Wellborn, & Connell, 1990; Stipek & Weisz, 1981), we view this study as a critical piece in the psychological control and self-related beliefs puzzle; namely, the piece that ties our cross-national database to data from American children.

Action–Control Beliefs in the School Context

As mentioned, children's ideas about the general causes of school outcomes and about their own role in producing such outcomes consistently and systematically relate to their actual school achievement (Ames, 1992; Bandura, 1986, 1990; Skinner & Connell, 1986; Skinner, 1990a, 1990b). However, to understand how such a self-belief system is formed and how it relates to performance, researchers generally have differentiated among various belief types; these include, for example, agency and means–ends beliefs, competence and contingency beliefs, strategy and capacity beliefs, and self-efficacy and outcome expectations (M. M. Baltes & Baltes, 1986; Connell, 1985; Flammer, 1995; Sternberg & Kolligian, 1990; Weisz, 1990).

In our own work on children's psychological control of school performance, which stems from an action-theory perspective, we differentiate among three action-related belief systems: means–ends (or causality), agency, and control expectancy (Chapman, Skinner, & Baltes, 1990; Little, Oettingen, & Baltes, 1995; Skinner & Chapman, 1987; Skinner, Chapman, & Baltes, 1988a, 1988b). Our perspective explicitly distinguishes the general causality-related aspects of psychological control (means–ends beliefs) from the self-related components (agency and control expectancy). Specifically, *means–ends* beliefs are everyday

causality-related conceptions of whether a given means, such as luck or the teacher's help, is generally useful or involved in producing a given outcome (e.g., "Is doing well at school a matter of luck?"; see Table 1). *Agency* beliefs, on the other hand, are personal perceptions of whether one possesses, or can use, a given outcome-relevant means such as effort, luck, or ability (e.g., "When it comes to school, I'm pretty smart"). Lastly, *control expectancy*[1] is a global sense of whether one can produce or avoid a given outcome without referring to any specific means. In this regard, control expectancy is a means-unspecified agency conception of whether a given child can personally affect a desired outcome (e.g., "If I want to do well in school, I can"). Given this framework, a former research group at the Berlin Max Planck Institute (Skinner, Chapman, & Baltes, 1988c) developed the Control, Agency, and Means–ends Interview (CAMI) to assess these action-control beliefs.

The CAMI provides a comprehensive theoretical and measurement framework that allows us to distinguish and cross-culturally compare these central features of psychological control (for validity information on the latest version of the CAMI,[2] see Little, Oettingen, & Baltes, 1995). For example, because the means–ends dimensions reflect children's everyday conceptions

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[1] In our previous writings, this category was referred to as *control beliefs.* As seen in Table 1, *control expectancy* more clearly describes this category.

[2] The original CAMI contained 80 items; since then, it has been revised and validated across numerous sociocultural settings and now contains 58 items (Little, Oettingen, & Baltes, 1995). The instrument is available from the authors in German, English, and Russian.

of how school performance works in general (see Table 1),[3] such an operationalization allows us to assess whether the children in different sociocultural environments view the causes of school performance similarly. Agency and control-expectancy beliefs, on the other hand, directly tap the self-related aspects of children's psychological control (Oettingen et al., 1994).

Goals of the Study: Expected Similarities and Differences

As mentioned, in exploring children's beliefs using the three-fold action-theory conceptualization, we have found broad sociocultural similarities in the means–ends (causality) beliefs. In particular, German and Russian children of both genders and different ages appear to share similar views of what factors generally regulate school performance. At the same time, however, we have observed systematic cross-sample differences in the self-related agency and control-expectancy dimensions; these differences include both the mean levels of the beliefs and their degree of correspondence (correlation) with academic performance (school grades). Given these outcomes from our previous work and the results of related work with American children (Ames, 1992; Findley & Cooper, 1983; Graham, 1994; Multon et al., 1991; Schunk, 1991), we had two general expectations about how American children would compare with their German and Russian peers.

Hypothesis 1: American Children's Everyday Conceptions About the Causes of Good and Bad School Performance (Means–Ends Beliefs) and Their Correlation With School Performance Will be Similar to the European Samples

We expected American children's means–ends beliefs to be similar to the other children's causal conceptions because, in addition to shared cognitive–developmental influences, these beliefs are shaped and constrained by core similarities across modern schooling environments. Particularly in industrialized nations, formal schooling is characterized by generally similar goals, procedures, settings, and activities (Gardner, 1991; Inkeles, 1983; Stetsenko et al., 1995). As such, it represents a generally uniform influence across modern sociocultural contexts. For example, formal schooling environments share the common goal of instilling competence in basic academic skills (e.g., reading and arithmetic). In addition, the professional model of teacher-based instruction is largely the same: One teacher, in a position of authority, presents materials and supervises learning activities that are designed to convey the necessary cognitive and social skills for adolescent and adult functioning. These skills are taught to groups of generally same-aged children who must demonstrate mastery of these materials, by means of teacher-controlled evaluation practices, to progress to the next educational level.

Given the school-related commonalities in these sociocultural settings (Gardner, 1991; Inkeles, 1983), we anticipated that in each sample children's beliefs about the utility of various school-relevant means would be generally congeneric, with a possible exception for the teacher's role (Stetsenko et al., 1995). *In other words, we expected children to agree on the basic importance of causal influences such as effort and ability in pro-*

ducing school performance. In addition, the correlations between these means–ends beliefs and school grades should be the same across the sociocultural contexts, and their magnitudes should be quite small or essentially zero (Chapman et al., 1990; Oettingen et al., 1994).

Hypothesis 2: In Comparison to Their German and Russian Peers, American Children Will Have Higher Mean Levels and Lower Correlations With Academic Performance for Their Self-Related Agency and Control-Expectancy Beliefs

Given the marked differences in the mean levels of German and Russian children's personal agency and control expectancy and in the magnitude of the beliefs–performance correlations (Oettingen et al., 1994; Stetsenko et al., 1995), our assumption has been that unique contextual features of the sociocultural settings contributed to the variable outcomes. In general, we view the school-related context and its associated organizational factors as embedded in the overarching sociocultural fabric of a given society. Thus, in addition to its unique influences, the school context serves as a carrier of more distal sociocultural features (Hofstede, 1991; Oettingen, 1995; Stetsenko et al., 1995) and provides the proximal context in which children's perceptions of their academic competence are formed. In interpreting our findings with German and Russian children, we have resisted using general distal characteristics (e.g., societal values) and have focused instead on more proximal, school-related features of the sociocultural settings. Specifically, we have emphasized a posteriori two school-related attributes that can affect children's personal perceptions of agency and control expectancy and their links to school performance (Oettingen et al., 1994; Stetsenko et al., 1995); namely, degree of dimensionality of the school curriculum and manner of performance feedback.

Degree of dimensionality refers to the general distinction between uni- and multidimensional teaching structures (Mac Iver, 1987, 1988; Rosenholtz & Rosenholtz, 1981). These two formats are not solely either–or categorizations but rather reflect varying proportions of dimensionality in the different sociocultural settings. More unidimensional school curricula involve standardized and uniformly applied daily activities for all children within a classroom (cf. direct instructional formats), whereas multidimensional formats involve generally individualized and often nonstandard daily activities that are geared to the specific learning needs of individuals or small groups of children within the larger classroom (cf. open-classroom instructional formats). The second dimension, *manner of feedback*, refers to varying aspects of feedback, such as social transparency (public vs. private feedback; Oettingen et al., 1994) and directness (critical and realistic feedback vs. less-critical and support-

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[3] Skinner (e.g., Skinner, Wellborn, & Connell, 1990; Skinner, Schindler, & Tschechne, 1990) differentiated between strategy and capacity beliefs. Although agency and capacity beliefs are operationalized similarly, means–ends and strategy beliefs are not. Strategy beliefs reflect children's views of what factors influence school performance outcomes personally for each child, whereas the means–ends beliefs reflect children's views of what factors influence school performance outcomes for children in general.

ive feedback; cf. performance-goal vs. learning-goal feedback; Ames, 1992; Ames & Archer, 1988; Boggiano & Katz, 1991; Deci & Ryan, 1987; Dweck, 1986; Stipek, 1992).

In applying these explanatory perspectives to American-based research, we assumed that two general tendencies of American schooling environments would be particularly relevant; namely, a relatively greater emphasis on cooperative multidimensional teaching formats coupled with relatively less-critical and supportive evaluation feedback (Ames, 1992; Stevenson, Lummis, Lee, & Stigler, 1990). Thus, generalizing from our previous work, we expected that, in comparison to the German and Russian samples, these tendencies of American schooling would lead to: (a) higher mean levels for the American children's self-related agency and control expectancy and (b) lower correspondences (correlations) between these beliefs and school performance (thereby replicating the consistently low beliefs–performance correlations found for American children; e.g., Multon et al., 1991).

We acknowledge at the outset that we do not have direct comparative measures of these characteristics (teaching formats and feedback practices) and that other factors may be involved.[4] However, we believe that our assumptions are consistent with general American educational ideology and teaching practices (Ames, 1992; California Department of Education, 1990, 1992; Schunk, 1991; Stevenson et al., 1990; Stipek, 1992). In addition, our expectations of higher agency and control-expectancy beliefs in American children are also consistent with more macrosocietal aspects of American child-developmental ideals, specifically, with those ideals that emphasize the importance of children's self-efficacy (Bandura, in press) and optimism (Seligman, 1991) in their growth and development.

Our observations of American-based research reflect a general motivation for this study. However, these observations are based only on indirect evidence because the measurements used in previous American studies were not identical with those used in our European research. Our central goal in this study, therefore, was to establish a direct assessment of the implied differences between American- and European-based findings by using a common and comprehensive theoretical framework and the same measurement instrument. In our view, if the data support our hypotheses, the outcomes would accomplish four related goals: (a) provide a direct empirical comparison linking American- and European-based findings, (b) serve as a catalyst to more in-depth analyses of the possible processes and mechanisms that affect the development of children's psychological control and its varying linkages to school performance, (c) highlight the utility of cross-context comparisons as a quasi-experimental technique to address such issues, and (d) bring to the foreground the relative uniqueness, and thus limited generalizability, of typical American outcomes.

Method

Participants

We tested more than 2,000 boys and girls from Grades 2–6 in four sociocultural contexts. As seen in Table 2, the samples consisted of 54–178 children per grade level across each setting, with approximately equal gender distributions. Depending on various practical issues (e.g., the fall of the Berlin Wall), we collected the data at various times: (a) the East Berlin sample in early summer 1990, 3 months prior to the begin-

Table 2

Sample Sizes by Gender, Grade, and Combined, and Average Ages by Grade

| Sample | Grade level | | | | | Total |
	2	3	4	5	6	
Los Angeles (n = 657)						
Male	69	82	71	66	66	354
Female	72	50	67	58	56	303
Average age	8.1	9.2	10.2	11.1	12.2	
East Berlin (n = 313)						
Male	33	35	33	43	32	176
Female	25	28	31	31	22	137
Average age	8.6	9.7	10.7	11.8	12.7	
West Berlin (n = 517)						
Male	47	54	46	48	29	224
Female	65	61	67	56	44	293
Average age	8.6	9.6	10.6	11.6	12.6	
Moscow (n = 551)						
Male	49	57	52	50	50	258
Female	51	67	57	62	56	293
Average age	8.5	9.6	10.7	11.5	12.5	

ning of political reunification; (b) the Moscow sample in fall 1990, after democratic reforms began but while the former regime was still intact; (c) the West Berlin sample in spring 1991; and (d) the Los Angeles sample in spring 1992. As noted in published reports on the German and Russian samples (Oettingen et al., 1994; Stetsenko et al., 1995), they represented generally typical middle- to lower-middle-class settings.

The newly added American sample consisted of 657 children and, similar to our other samples, their average age ranged from 8.4 to 12.6 years at each grade level (see Table 2). We selected the children from two schools located in the eastern suburbs of the greater Los Angeles region (the Ontario–Montclair school district). The schools reflect generally middle- to lower-middle-class families of moderate ethnic diversity (approximately 35% were of Hispanic and mixed Hispanic origin, 3% other). English was the children's primary language, and the neighborhoods served by the schools were residential.

Preliminary tests for both mean-level and correlational differences on the variables described below between the two American schools, ethnicity (Caucasian vs. Hispanic and other), and their interaction were nonsignificant (all $ps > .05$), except a marginal difference for academic achievement between the ethnic groups ($z = 1.99, p < .05$, favoring the Caucasian sample; see Appendix). We also found the same pattern of no differences when we randomly selected subsamples of the Los Angeles sample that reflected lowered proportions of Hispanic children (i.e., in 5% increments) and when we excluded the *other* category. Given the ethnic diversity of our sample, this information indicates that the outcomes described below are not due to the ethnic composition of the sample.[5]

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[4] One can find marked variability within a given sociocultural setting along the dimensions we describe here (Ames, 1992; Dweck, 1986, Mac Iver, 1987, 1988; Rosenholtz & Rosenholtz, 1981; Stipek, 1992). With the current samples, we attempted to select schools that reflect generally typical characteristics of a given sociocultural setting to emphasize variability between settings; however, such limits in sampling should be considered when evaluating the representativeness of our samples and the generalizability of these findings. The findings and a posteriori explanatory framework are first steps in evaluating such context-related mechanisms and must be further examined in future studies.

[5] Our American sample is certainly not representative of all American society or schools. Because of the mixed ethnic composition, however, it is similar to many regions of the United States that reflect the

Measures

The CAMI. The revised, 58-item CAMI questionnaire (Little, Oettingen, & Baltes, 1995) assesses 10 dimensions across three action-related belief categories: 1 control expectancy, 4 agency-belief dimensions (effort, ability, luck, and teachers), and 5 means–ends (causality) dimensions (effort, ability, luck, teachers, and unknown causes; see Oettingen et al., 1994, for sample items; Stetsenko et al., 1995, for translation procedures). In the teacher's absence, we group-administered the CAMI in the children's classrooms (20–30 children each), reading the items aloud as the children followed silently along, answering on a 4-point scale. We emphasized that their answers were private and that they should respond with what was most true for them.

School grades. We used the children's school grades for math and verbal skills, which we collected either from the class records or directly from their teachers, as indicators of academic performance. Both scores correlated highly in each sample, ranging from .64 to .79. We standardized these scores within classroom to remove teacher-specific scaling effects.[6]

Analytic Procedures

As in our previous studies with German and Russian children (Oettingen et al., 1994; Stetsenko et al., 1995), we used multiple-group mean and covariance structures (MACS) methods for all our analyses. MACS models provide numerous research advantages, such as disattenuation, tests of measurement equivalence, inclusion of covariates, and a powerful hypothesis-testing framework (Little, 1995; McArdle & McDonald, 1984).

Model structure and analyses. To represent the 10 CAMI constructs for each sociocultural context (a four-group MACS model), we used the same randomly determined indicators as in our previous reports (i.e., for MACS analyses, the items for each construct are combined into three indicators; see Little, Oettingen, & Baltes, 1995; Oettingen et al., 1994; Stetsenko et al., 1995). In each model, we estimated and thereby controlled for (a) the effects of gender and (b) the linear and quadratic effects of grade in school. Because of the large sample size and degrees of freedom in our models, which would lead to quite significant statistical indices of model fit (i.e., the model chi-square), we assessed model fit with the non-normed fit index (NNFI, Bentler & Bonett, 1980; Tucker & Lewis, 1973) and the incremental fit index (IFI; Marsh, Balla, & McDonald, 1988). For both practical fit indices, values of about .9 and higher are generally considered acceptable (Bentler & Bonett, 1980; Marsh et al., 1988). In addition, we evaluated possible interactions between the controlled-for effects and the sociocultural settings by placing equality constraints on these estimates and evaluating the loss in fit as a multivariate, nested-model chi-square difference test (Jöreskog & Sörbom, 1989). We used a conservative .10 p level in determining the degree of possible interaction.

Our expectations regarding the cross-cultural comparability of these constructs stem from psychometric postulations (Little, 1995; Meredith, 1993) and our past research (Oettingen et al., 1994). Specifically, we distinguish between the *measurement level,* which focuses on whether the constructs are measured equivalently, and the *construct level,* which focuses on the constructs' substantive meaning. We expected the possible differences between the various settings to emerge only at the construct level (Little,

growing ethnic diversity of American society and the educational systems that exist to serve it. In addition, the similarity between the Caucasian and Hispanic subgroups suggests a broader representativeness (i.e., up to 35% English-speaking children of Hispanic origin); however, we caution the reader that thorough and systematic sampling across the many ethnic subpopulations and sociocontextual regions within the *United States* would be necessary to establish the full range of representativeness of this sample.

1995; Meredith, 1993). We tested this expectation by first estimating the constructs' measurement structure independently in each group. In a second model, we specified metric invariance of the measurement level (cross-group equality constraints on the variables' loadings and intercepts) but placed no constraints on the constructs' means, variances, and covariances (Little, 1995; Meredith, 1993). We assessed the tenability of this metrically invariant model by examining the differences in the NNFI (ΔNNFI) and IFI (ΔIFI) indices between this model and the freely estimated model. Differences of less than .05 generally indicate functionally equivalent models (Little, 1995; Tucker & Lewis, 1973). Relative to the freely estimated model, the metrically invariant model has two main advantages: (a) it demonstrates that the constructs can be equivalently defined in each sociocultural setting and, therefore, are psychometrically comparable, and (b) it allows possible culture-relevant influences to emerge at the construct level.

Results

We report our findings in three main sections. First, we examine (a) the model fit, (b) the comparability of the constructs' variances, (c) the implied substantive structure among the dimensions (i.e., the correlational structure), and (d) possible interactive gender- and age-related effects. In the last two sections we turn to the tests of our two hypotheses.

Cross-Context Comparability of the CAMI Constructs

Model fit. As expected, and in accordance with our previous work (Oettingen et al., 1994), adding the American sample to our analysis framework did not affect the fundamental measurement characteristics of the instrument. Each model showed sound practical fit, and therefore, the CAMI instrument generalizes not only to German and Russian children but also to American children. Moreover, we did not include any post hoc estimates (e.g., correlated residuals, dual-factor loadings) in the models; thus, cross-validation was not required. Specifically, for these children, the metrically invariant model, which tests the constructs' psychometric comparability, showed good practical fit (NNFI = .906, IFI = .921) and, in comparison to the model with no equality constraints, evinced small and negligible differences in fit (ΔNNFI = .023, ΔIFI = .024; see Table 3).

These outcomes show that the data of each sample are well represented by the metrically invariant model (i.e., the practical

[6] We also conducted our analyses with the unstandardized forms of the school grades. As mentioned, in the Los Angeles sample, Caucasians were higher than the Hispanics, and the East Berlin children in Grade 4 were marginally higher than their West Berlin counterparts (see Oettingen et al., 1994). In addition, although the samples did not differ in overall achievement, we found that the Moscow children had higher verbal scores than did the two Berlin samples, followed by the Los Angeles sample. The remaining comparisons were not significant, including the comparisons between schools within each sample (ps > .05). Most important, in these analyses, the correlational structure was nearly identical to what is reported here. We present the standardized form of the math and verbal grades because the primary relationship of interest is the distributional overlap within a given classroom between the teacher-assigned grades and the children's action-control beliefs. In addition, the general similarities in the scores indicates that the mean-level differences on the CAMI constructs are due to mechanisms other than an academic performance difference, particularly because the few differences that emerged should have affected the mean-level outcomes in an opposite direction from that obtained.

Table 3
Summary of the Fit Statistics for the Four-Sample MACS Models

Model description	df	χ^2	NNFI	IFI	ΔNNFI	ΔIFI
Null model	2,380	29,346.86				
Freely estimated model	1,884	3,396.08	.929	.945		
Metrically invariant model	2,013	4,164.57	.906	.921	.023	.024

Note. $N = 2,038$. MACS = multiple-group mean and covariance structures; χ^2 = the maximum likelihood ratio; NNFI = non-normed fit index; IFI = incremental fit index; Δ is the difference between the freely estimated and metrically invariant models for the noted practical fit index.

fit was acceptable, and the difference in fit between the invariance model and the noninvariance model was not large, $< .05$). This model, therefore, represents a strong test of the constructs' psychometric comparability, particularly because no post hoc changes were included.

Variances of the constructs. In addition to their measurement equivalence, the constructs' variances were generally similar across the sociocultural contexts (to examine these variances, see the raw standard deviations in the Appendix). Specifically, our initial multivariate test showed some cross-context variance differences (equality constraints on the variances across groups yielded $\chi^2[33, N = 2,038] = 174.83, p < .01$). However, we found that each sociocultural context showed no variance differences for academic performance (the teacher-assigned grades for math and verbal performance), control expectancy, and the three agency dimensions of effort, ability, and luck. We also found that the American and Russian children (who did not differ) evinced greater variability on the means–ends dimensions than did the two samples of German children (who did not differ). Lastly, the American children showed the largest variance for Agency: Teacher, followed by West Berlin children, and then Moscow and East Berlin children (who did not differ). This final test was no longer significant, $\chi^2(26, N = 2,038) = 32.38, p = .181$. In general, these differences in the means–ends dimensions and the Agency:Teacher dimension are not so large as to indicate a restricted range or artifactual bias in these samples (no univariate test exceeded $p \le .01$; see below as well).

Latent correlations among the constructs. In Table 4, we present the interrelations among the CAMI constructs. As in our previous work, these are LISREL estimates of the disattenuated correlations with the effects of gender and the age-related effects of grade in school partialed (see Little, Oettingen, & Baltes, 1995, for the raw correlations).

The means–ends dimensions showed only two general differences. First, in East Berlin ($r = .79$) and West Berlin ($r = .84$), the relationship between effort and ability was somewhat higher than in Moscow ($r = .60$) and Los Angeles ($r = .57$). These correlations indicate that in Moscow and Los Angeles individual differences in children's views of effort and ability, as avenues to getting good grades, showed a somewhat lower convergence than the two Berlins. Second, the roles of luck and teachers and their relationships to ability also showed notable differences. Specifically, the Moscow and Los Angeles children who believed that luck and their teacher's help were important in determining school grades also believed ability was important (rs in the .60s). In contrast, the East and West Berlin children's ratings of the importance of ability were only moderately correlated with those for luck and teachers (rs around .30).

Regarding the agency and control-expectancy dimensions, we found a generally positive and high correlational manifold. In fact, because of the high manifold in the East and West Berlin samples (the rs among effort, ability, and luck were generally in the .90s; see Table 4), we represented the relations among effort, ability, and luck (EAL) in a previous writing as a single dimension (Agency: EAL, Oettingen et al., 1994). However, these same disattenuated relations were lower in Moscow children (rs in the .70s and .80s) and, as we discuss later, these dimensions had varying magnitudes of correlation with academic performance and varying mean-level differences across samples. These findings suggest that the agency constructs should be evaluated as separate dimensions.

Turning to the cross-belief relations presented in Table 4, we found that the agency and control-expectancy dimensions showed very small and often negative correlations with the means–ends (causality) dimensions, providing strong empirical support for the differentiation between them. More specifically, the children's ratings of the importance of luck, their teacher's help, and unknown causes in producing school outcomes were generally unrelated, or negatively related, to the ratings of their personal agency and control expectancy in each sample (median $r = -.22$). However, in East and West Berlin, children who reported high levels of agency and control expectancy also viewed effort and ability as important causes of school outcomes (median $r = .23$). On the other hand, in Moscow and Los Angeles, only effort showed positive relations with the agency and control-expectancy dimensions (rs between .01 and .49). Finally, an intriguing and moderately strong relationship emerged in all four contexts. Namely, the more children believed that the teacher's help was important in producing school grades, the less they believed that they had access to the teacher (rs between $-.33$ and $-.50$).

As mentioned, East and West Berlin children showed consistent evidence that ability (both personal access and its causal importance) was viewed differently than in Los Angeles and Moscow. The patterns suggest that the German children's conceptions of ability were more closely tied to those for effort than was the case for the Los Angeles and Moscow children. As a whole, however, the interwoven network of relations in the correlational patterns (180 total correlations, 45 per sample) was quite similar across the sociocultural settings, and indicate that the overall substantive meaning implied in this correlational structure is also quite similar.

Possible interactive gender effects. Before testing our primary hypotheses, we examined whether differential, interactive gender effects were evident in the data. In general, we found very few gender differences in the mean levels of the beliefs and in

Table 4

Relations Among the CAMI Construct, With Gender and Grade Partialed

Construct	Means–ends					Agency and control expectancy				
	meEFF	meABL	meLUC	meTEA	meUNK	Cntrl	agEFF	agABL	agLUC	agTEA
East Berlin 1990 (n = 313)										
meEFF	—									
meABL	79	—								
meLUC	-05	26	—							
meTEA	00	32	66	—						
meUNK	07	16	34	35	—					
Cntrl	46	36	03	-01	-02	—				
agEFF	32	17	-24	-27	-17	88	—			
agABL	19	23	-20	-07	-20	73	92	—		
agLUC	14	22	-15	-05	-18	79	91	90	—	
agTEA	18	06	-16	-37	-19	52	67	60	64	—
West Berlin 1991 (n = 517)										
meEFF	—									
meABL	84	—								
meLUC	-03	30	—							
meTEA	07	28	70	—						
meUNK	06	15	33	18	—					
Cntrl	34	29	-11	-04	-14	—				
agEFF	28	21	-31	-22	-25	84	—			
agABL	23	23	-21	-14	-22	83	96	—		
agLUC	18	25	-06	-03	-24	80	84	91	—	
agTEA	23	14	-18	-33	-22	51	64	62	59	—
Moscow 1990 (n = 551)										
meEFF	—									
meABL	60	—								
meLUC	07	63	—							
meTEA	10	64	79	—						
meUNK	25	43	51	47	—					
Cntrl	23	-02	-11	-15	-14	—				
agEFF	23	-14	-30	-27	-26	87	—			
agABL	10	-11	-27	-30	-23	79	78	—		
agLUC	01	-08	-29	-27	-26	76	76	87	—	
agTEA	18	-20	-34	-43	-37	53	56	58	56	—
Los Angeles 1992 (n = 657)										
meEFF	—									
meABL	57	—								
meLUC	18	63	—							
meTEA	19	66	66	—						
meUNK	18	34	44	37	—					
Cntrl	49	09	-07	-03	-12	—				
agEFF	21	-11	-30	-38	-41	65	—			
agABL	17	-07	-24	-16	-41	72	88	—		
agLUC	17	-10	-28	-24	-33	61	86	98	—	
agTEA	18	-09	-31	-50	-25	44	73	59	68	—

Note. Decimals omitted. The LISREL estimates of the disattenuated correlations have had the effects of gender and grade partialed; CAMI = Control, Agency, and Means–ends Inventory; me = means–ends beliefs; EFF = effort; ABL = ability; LUC = luck; TEA = teachers; UNK = unknowns; Cntrl = control expectancy; and ag = agency beliefs.

their correlations with academic performance. The differences that did emerge were generally unsystematic, with most of the *mean-level differences located in the agency and control-expectancy dimensions (generally favoring girls; for details, see Little,* Oettingen, & Stetsenko, 1995). Moreover, these differences showed little evidence of interacting with the sociocultural contexts.

Our initial multivariate test of interactive gender effects

yielded a significant chi-square, $\chi^2(36, N = 2,038) = 69.92, p = .001$ (note that we estimated the gender effects separately for math and verbal performance because of possible differential patterns for these skills; see Oettingen et al., 1994). In examining these differences, we found that only 3 of the possible 48 gender effects showed relations that were different from the remaining sociocultural contexts, $\chi^2(33, N = 2,038) = 39.49, p = .203$. Namely, (a) in the Moscow sample, the magnitude of the difference for math grades (girls were higher) was in the opposite direction of the other contexts, (b) a difference on Means–ends: Unknowns (girls were higher) emerged in the West Berlin sample, and (c) the magnitude of the difference for Agency: Effort (girls were higher) was larger in the Los Angeles sample than in the other sociocultural contexts.

On the whole, the three isolated and unsystematic gender differences showed very little indication of an interaction across the sociocultural settings. Therefore, the major outcomes presented below can be generalized across genders in these samples.

Possible interactive grade effects. Similar to the gender comparisons, we explored whether differential developmental patterns may have affected our findings. In general, both the age- and grade-related changes in the agency and control-expectancy dimensions showed generally flat mean-level trends and similar cross-age magnitudes in their correlations with academic performance (Little, Oettingen, & Baltes, 1995). The means–ends beliefs showed some developmental variability (mean-level divergence and correlational differentiation), but the trends were generally similar in the sociocultural contexts (Little & Lopez, 1995).

Our initial multivariate equivalence test of the grade-related trends yielded a significant difference, $\chi^2(60, N = 2,038) = 153.42, p < .001$; however, only 7 of the possible 80 trends (10 linear and 10 quadratic per sociocultural context because we standardized academic performance; see footnote 5) were not equal across the different settings, and 5 of these were located in the means–ends dimensions, $\chi^2(53, N = 2,038) = 64.62, p = .132$. In general, the dissimilar trends were in the same direction as in the other sociocultural settings, differing only in magnitude. One exception to this pattern was that the Los Angeles
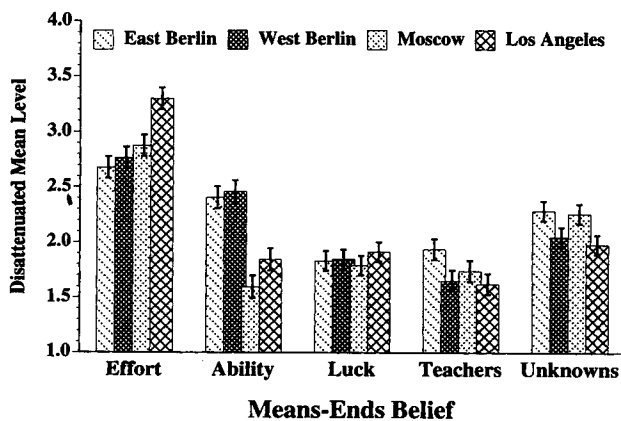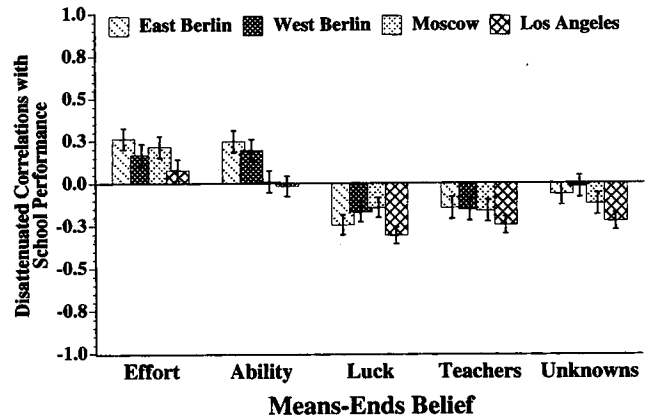

Figure 2. Latent, disattenuated correlations with academic performance for the means–ends dimensions. Error bars represent half of the 99% asymptotic confidence interval; thus, error bars that do not overlap indicate approximate ($p < .01$) differences between correlations.

sample showed a flat linear trend for control expectancy, whereas the other settings showed an age-related decrease. Moreover, the estimates that used age as the predictor (instead of grade in school) showed nearly identical outcomes and, notably, the cross-context differences in these sociocultural settings were also nearly identical.

As with the few and unsystematic gender effects, no strong, differential age-related developmental differences across the settings emerged in our data. Thus, the major findings presented below are not confounded with a Grade × Cultural Context interaction.

Hypothesis 1: American Children Will be Similar to Their European Peers in Their Means–Ends (Causality) Beliefs About School Performance

Mean levels. In Figure 1,[7] we present the mean levels for the means–ends beliefs. As mentioned above, these causality-related beliefs reflect children's everyday views of the importance of a given means in producing school outcomes. Consistent with our first hypothesis, of the 30 possible comparisons, only 2 general differences emerged ($p < .01$). American children believed that effort was more important in producing school performance than did Russian and German children, and children in the two German samples believed that ability was more important in producing school outcomes than did Russian and American children. This difference in the role of ability is also consistent with the evinced correlational patterns (see Table 4). Two marginal ($p < .05$) trends also emerged: East Berlin children rated the teacher's role as a more important causal influence than did West Berlin and American children, and children

Figure 1. Latent, disattenuated mean levels of belief for the means–ends dimensions. Error bars represent half of the 99% asymptotic confidence interval; thus, error bars that do not overlap indicate approximate ($p < .01$) differences between means.

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[7] In Figures 1–4, the error bars represent the LISREL estimates of the standard errors (Jöreskog & Sörbom, 1989) adjusted to reflect half of the 99% asymptotic confidence interval. Nonoverlapping error bars are thus approximate indications of those values that differ from one another. Rather than report all significance levels, only the differences ($p < .01$) or notable trends ($p < .05$) are highlighted.

from the formerly communist countries (East Berlin and Moscow) viewed unknown causes as more involved in producing school outcomes than did West Berlin and Los Angeles children. Other than the few differences and marginal trends, however, the patterns showed high similarity across the four sociocultural contexts.

Correlations with academic performance. The same high degree of similarity emerged in the correlations between the causality-related beliefs and school performance. In addition, and as predicted from past findings with the CAMI (Chapman et al., 1990), the children's general conceptions of the causes of school performance (means–ends beliefs) did not relate strongly to their actual performance, nor did the relations differ systematically across the sociocultural contexts.

As seen in Figure 2, only 4 (of 20 possible) cross-context differences emerged in the link between actual school performance and the means–ends beliefs: (a) Means–ends: Effort correlated more strongly in East Berlin than in Los Angeles ($z = 2.87, p < .01$), (b) Means–ends: Luck showed a stronger negative relationship in Los Angeles than in West Berlin and Moscow ($ps < .01$), (c) the magnitude of the relationship for Means–ends: Unknowns was greater in Los Angeles than in East Berlin ($z = 2.64, p < .01$), and (d) Means–ends: Ability showed stronger correlations in East and West Berlin children than in Moscow and Los Angeles children ($ps < .01$). This latter difference is consistent with the comparatively unique role of ability in the two German samples. Finally, because the variances of these dimensions were slightly larger in the American and Russian samples, the mixed pattern of differences supports our interpretation that the variances have not restrictively biased any results.

Hypothesis 2: In Comparison to Their German and Russian Peers, American Children Will Have Higher Mean Levels and Lower Correlations With Academic Performance for the Self-Related Agency and Control-Expectancy Beliefs

The general similarities among the everyday causality-related beliefs are in marked contrast to the cross-context differences
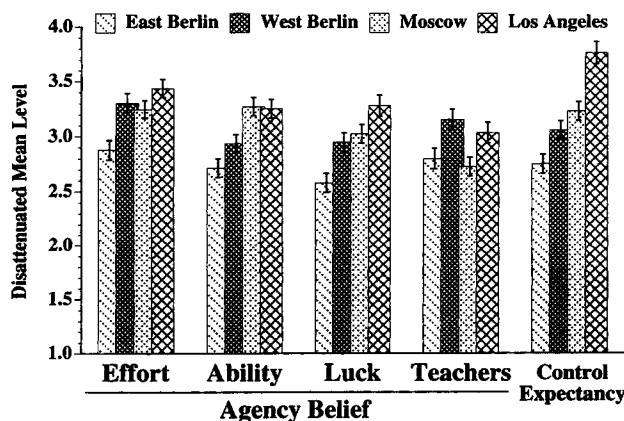
Figure 3. Latent, disattenuated mean levels of belief for the agency and control-expectancy dimensions. Error bars represent half of the 99% asymptotic confidence interval; thus, error bars that do not overlap indicate approximate ($p < .01$) differences between means.
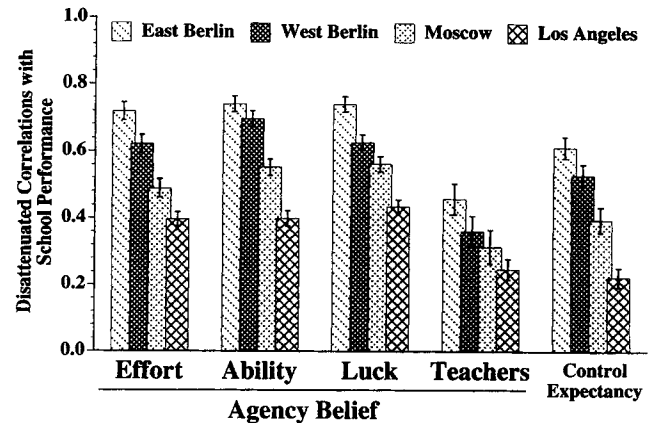
Figure 4. Latent, disattenuated correlations with academic performance for the agency and control-expectancy dimensions. Error bars represent half of the 99% asymptotic confidence interval; thus, error bars that do not overlap indicate approximate ($p < .01$) differences between correlations.

found for the self-related agency and control-expectancy beliefs. Here, both the mean levels of the children's beliefs and the beliefs–performance correlations showed sizable and systematic differences across the sociocultural settings.

Mean levels. In accordance with our expectations, the Los Angeles children showed generally higher mean levels of agency and control-expectancy beliefs than their German and Russian peers. The most striking contrast emerged between East Berlin and Los Angeles children (see Figure 3). In every instance, Los Angeles children exhibited substantially higher mean levels for these dimensions than did East Berlin children (all $ps < .01$). Although the Los Angeles children consistently had the highest mean levels on these self-related dimensions, West Berlin children did not differ from Los Angeles children in their perceived access to effort ($z = 1.58, p > .10$) or teachers ($z = -0.78, p > .10$), and Moscow children were equal to Los Angeles children in their perceived access to ability ($z = -0.10, p > .10$). In addition, Moscow children believed they had more access to ability than did West Berlin children ($z = -4.07, p < .01$) but, conversely, West Berlin children believed they had more access to their teachers' help than did Moscow children ($z = 4.82, p < .01$).

Correlations with academic performance. The disattenuated correlations between the agency and control-expectancy dimensions and school grades are depicted in Figure 4 (see Appendix for comparative raw correlations). These correlations represent the degree of correspondence between children's self-related beliefs about their action potential and their actual school performance. As expected, the Los Angeles sample showed the weakest relationship to academic performance and, quite importantly, these magnitudes of correlation (between .16 and .32; see Appendix) fall within the expected range based on past research with American children (Multon et al., 1991). In addition, the cross-context variability in these belief–performance correlations were quite striking and systematic. In comparison to Los Angeles children, East Berlin children showed the strongest relations between actual performance and their self-related agency and control-expectancy beliefs, followed by West Berlin children and then Moscow children (all $ps < .01$,

except Agency: Ability, East Berlin vs. West Berlin, $p = .04$; Agency: Teacher, West Berlin vs. Moscow, $p = .22$, and Moscow vs. Los Angeles, $p = .11$; see Figure 4).

The magnitude of these differences in the beliefs–performance nexus can be seen by examining the shared variance between academic performance and the action-related beliefs. When we predicted the children's school grades from the agency and means–ends dimensions,[8] we found that 63% of the variance in academic performance was accounted for in the East Berlin sample. For West Berlin (55%) and Moscow (41%) children, this figure was also quite high (see Figure 5). However, for Los Angeles children these action-related beliefs accounted for only 28% of the academic performance variance. Notably, the predictive power in these relations stems primarily from the self-related agency beliefs. Specifically, the agency beliefs uniquely accounted for 47% (East Berlin), 43% (West Berlin), 32% (Moscow), and 15% (Los Angeles) of the variance in school grades, whereas the means–ends (causality) beliefs uniquely accounted for only 6%, 4%, 7%, and 10% of the respective variances (slight variations from our earlier publications, e.g., Oettingen et al., 1994, in the estimated proportions of variance are the result of different combinations of predictors and subgroup arrangements).

Discussion

We outlined above our two hypotheses regarding American children's school performance-related beliefs, and in the Method section we described our expectations about the psychometric comparability of the CAMI constructs. In each case, our expectations were generally supported.

Cross-Context Comparability and Similarities in the Children's Action-Control of School Performance

The measurement equivalence of the CAMI constructs across the sociocultural contexts lends further empirical support to our distinction among the three action-related belief systems (control-expectancy, agency, and means–ends beliefs). In addition, we found (a) general similarities in the constructs' variances, (b) systematic commonalities in the constructs' intercorrelations (see Table 4), and (c) a general lack of interactions for the gender- and grade-related effects. These psychometric outcomes suggest, for example, that many possible artifacts (e.g., differential gender or grade effects, different scale usage and, in the case of the teacher-assigned school grades, teacher-specific grading practices) are unlikely alternative explanations for our major findings.

Consistent with our first hypothesis, a primary substantive outcome was the general similarity in the children's means–ends (causality) beliefs across the sociocultural contexts (see mean levels in Figure 1 and links to performance in Figure 2). As mentioned, our assumption has been that, in addition to shared aspects of cognitive development, core similarities across formal schooling systems are central factors in shaping children's understandings about the causes of school-related outcomes (Little & Lopez, 1995; Stetsenko et al., 1995). Although a few differences emerged in these causality-related beliefs, the distinct similarities indicate that American children, along with their German and Russian peers, share largely similar everyday conceptions of what factors produce school outcomes. Thus, in conjunction with the psychometric

Predicting Academic Performance

East Berlin 63%

Los Angeles 28%

West Berlin 55%

Moscow 41%

Legend:
- ▨ Unique to Self-related Agency Beliefs
- ▦ Shared, Common Variance
- ▪ Unique to Means-ends (Causality) Beliefs
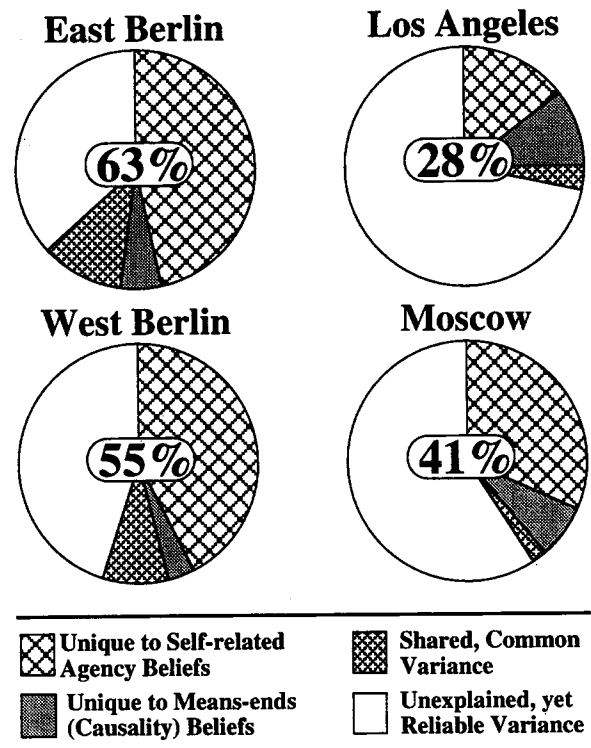- ▢ Unexplained, yet Reliable Variance

Figure 5. Latent, disattenuated commonality analyses predicting academic performance from the self-related agency beliefs and the causality-related means–ends beliefs. The proportions are of the reliable, disattenuated variance in the children's academic performance. Because control expectancy uniquely accounted for less than 0.3% of the academic performance variance in each setting, we did not include it in these analyses.

findings, the substantive outcomes for the means–ends beliefs indicate that the children's responses in each sociocultural setting reflect predominantly shared action-related belief systems (i.e., a "worldview" equivalence). In other words, the evinced differences in the self-related agency and control-expectancy dimensions do not seem to be a consequence of differences in the children's general views of causality.

Cross-Context Differences in the Children's Self-Related Agency and Control-Expectancy Beliefs

Above, we raised the question of the generalizability of American-based research on children's psychological control in the

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[8] As we have found in previous analyses, control expectancy did not contribute uniquely to the prediction of academic performance (Oettingen et al., 1994). For example, in additional commonality analyses of these data, control expectancy accounted for less than 0.3% of the academic performance variance in each setting. Given this lack of predictive power, we did not include control expectancy in these analyses. In so doing, we have explicitly highlighted the distinct predictive strength of the children's self-related agency beliefs in contrast to the relatively low predictive strength of the children's causality-related means–ends beliefs.

academic performance domain. In this regard, our findings for the Los Angeles sample are located within the distributional patterns of previous, related research on American samples (Findley & Cooper, 1983; Multon et al., 1991; Stipek & Weisz, 1981). However, in the context of the observed European samples, such outcomes (ours as well as those of others) appear to lie at the edges of the distribution of findings for these countries. Specifically, the Los Angeles children evinced (a) the highest mean levels of agency and control-expectancy beliefs and at the same time (b) the lowest degree of correspondence (correlation) between these beliefs and actual school grades. Such outcomes for the Los Angeles children represent an opposite extreme in comparison to East Berlin children. The East Berlin children displayed (a) the lowest sense of personal agency and control expectancy and (b) the highest degree of correspondence between these beliefs and school grades. Moreover, these differences in the beliefs–performance correlations were quite sizable in terms of the variance explained (63% in East Berlin, 28% in Los Angeles; see Figure 5).

Possible Sources of the Obtained Differences in the Children's Self-Related Agency and Control Expectancy

One may be tempted to link our outcomes for the Los Angeles sample to general characteristics of American society, such as its focus on optimism and individualism (Seligman, 1991; Triandis, 1989). One even may be tempted to conclude that the outcomes are another illustration of a crisis in American education (Graham, 1994; Lerner, in press; Stevenson et al., 1990), wherein children are educated toward high and generally unwarranted levels of agency, without developing an adequate connection to the reality of their performance. However, our position has been to shy away from such sweeping statements and to tie our interpretations to two more proximal school-related attributes: manner of performance feedback and degree of curriculum dimensionality. In so doing, we do not directly consider more distal, culture-related attributes; instead, we assume that the influences of distal sociocultural values are contained in, and carried by, the children's proximal school contexts (Oettingen et al., 1994; Oettingen, 1995).

In the following discussion of these two explanatory features, we explicitly focus on the contrast between the two extreme settings, East Berlin and Los Angeles. In our view, such a focus can highlight the manner in which such school-related factors may have shaped the children's self-related beliefs and their degree of correspondence with school performance.

Manner of performance feedback. Given our examination of these two school systems, the East Berlin curriculum appears to have involved highly regulated public feedback in the classroom (Oettingen et al., 1994). This form of feedback was quite conspicuous in East Berlin, where such practices even carried over into the parents' work collective (Oettingen et al., 1994, described the East Berlin feedback system in more detail, including the role of parent conferences and the triangulation of the student–teacher–parent feedback system). In addition, the received feedback was generally critical and performance based. Such feedback was intended to enhance the children's accurate self-appraisals and to educate them toward realistic self-appraisals (Franz, 1987; Waterkamp, 1987).

Although teachers in the Los Angeles schools gave daily ver-

bal feedback to the children and periodic written progress reports to the parents, this feedback was relatively more private in contrast to the East Berlin context and was restricted to the child and his or her parents. In addition, given the pervasive emphasis on raising children's performance expectations (California Department of Education, 1990, 1992), the feedback in the Los Angeles schools tended to be more personal, supportive, and individualized. In other words, relative to the European samples and particularly the East Berlin sample, the Los Angeles schools appear to have instituted relatively more esteem-enhancing and less-critical feedback practices (Stevenson et al., 1990).

In terms of psychological mechanisms, salient and veridical feedback (e.g., public and critical) is an important means by which accurate self-judgments are formed and regulated (Bandura, 1981, 1986, 1991, in press; Bandura & Jourden, 1991; Karoly, 1993; Schunk, 1989, 1991). We assume that such feedback affects both the mean levels of agency and control expectancy as well as the strength of the beliefs–performance correlational nexus. The more supportive feedback becomes (as seen in the Los Angeles setting), the more likely it is that (a) the self-assessment of one's performance potential is enhanced, but (b) the correspondence (correlation) with actual performance is attenuated (Stipek, 1988). In contrast, teachers' critical performance-based feedback (East Berlin) would lower children's personal sense of agency and control expectancy as well as strengthen the generally positive relationship between these self-related action beliefs and actual performance (Ames, 1992; Oettingen et al., 1994).

In addition to the directness of the feedback, public versus private feedback indirectly reflects social-comparison opportunities that are central to forming and regulating self-beliefs (Bandura, in press; Butler, 1992; Frey & Ruble, 1990; Ruble, 1983). In general, social comparisons provide a frame of reference for identifying one's position in a social matrix. Moreover, the social-comparison processes and learning experiences associated with public feedback (East Berlin) likely enhance the influence of critical feedback. In contrast, individualized and supportive feedback (Los Angeles) limits the opportunities for, and the salience of, the social comparisons that help children gauge their relative academic standing, thereby weakening the development of accurate self-appraisal. As a consequence, the relationship between children's self-related psychological control and their actual performance would have displayed varying degrees of convergence (quite low in Los Angeles, and very high in East Berlin).

Degree of curriculum dimensionality. A second aspect of the school-related context that may have contributed to our findings is the degree of curriculum dimensionality. As mentioned earlier, unidimensional school curricula involve standardized and uniformly applied daily activities, whereas multidimensional curricula involve less-standard daily activities that are geared to individualized learning needs (Rosenholtz & Rosenholtz, 1981). Given of our observations and our review of the educational literature in these settings, we found that East Berlin schools had a quite rigorous unidimensional system (Oettingen et al., 1994), whereas the curriculum in the Los Angeles sample was relatively more mixed and generally more multidimensional (California Department of Education, 1990, 1992).

In our view, the uni- versus multidimensionality of teaching

formats adds to the constellation of systematic factors that influences children's agency and control-expectancy conceptions and their correspondence with school grades. Specifically, these formats differ in the extent to which they allow for social-comparison opportunities and self-mastery experiences (Bandura, in press; Butler, 1992). For instance, within multidimensional systems, comparisons between children are more limited because none or few other children participate in the same task at the same time. Moreover, such multidimensional formats provide children with comparatively more performance-relevant mastery experiences because teachers attempt to define skill-appropriate tasks at which each child can succeed. When combined with supportive and uncritical feedback, the mastery experiences of more multidimensional systems (Los Angeles) likely contribute to relatively higher levels of children's agency and control expectancy and to a lower correspondence between these beliefs and school performance (Stipek, 1988). Unidimensional teaching formats, on the other hand, provide children with ample daily opportunities to compare their like-task performances with those of others. In addition, unidimensional formats tend to apply the same performance-based goals to all children (Rosenholtz & Rosenholtz, 1981). Within such unidimensional systems (East Berlin), children would develop lower mean levels of agency and control expectancy and a higher correspondence between their personal beliefs and school performance (Oettingen et al., 1994).

In summary, the Los Angeles context reflects a constellation of teaching factors that, when juxtaposed with the East Berlin context, represents an opposite extreme: (a) a relatively more individualized and mastery-focused classroom training, (b) a relative lack of veridical comparison opportunities, and (c) a relatively more private and generally supportive form of feedback. As evident in the present data and consistent with these observations, the Los Angeles children showed a comparatively high level of agency and control expectancy coupled with a quite low level of correspondence (correlation) between their actual school grades and their self-related agency and control-expectancy beliefs.

Conclusions

Placing the American sample of children into the distributional context of these European samples has yielded a number of new findings, two of which we found particularly engaging. The first outcome, as we have emphasized, is the comparatively high level of agency and control-expectancy beliefs in American children—an outcome that we view as consistent with the general formats of formal American educational systems. In addition, however, these findings are also consistent with general macrolevel influences in American society such as a general orientation toward optimism and individualism (Seligman, 1991; Triandis, 1989). Such general tendencies may have been a contributing influence on the teaching formats and feedback practices expressed in the Los Angeles sample.

The second noteworthy outcome was the sizable cross-context variability in the magnitude of the link between children's agency and control-expectancy beliefs and their actual performance. Here, for example, we see the powerful end result of two very different developmental contexts. In the East Berlin sample, approximately 47% of the variance was shared between

children's personal agency beliefs and their actual school performance; in Los Angeles, only about 15% of the variance overlapped (see unique values in Figure 5). In other words, the American children—when placed in the framework of these cross-context comparisons and accepting school grades as a criterion—displayed a very low correspondence between their self-related appraisals and their actual school performance.

As mentioned, we view the East Berlin and Los Angeles samples as representing extreme outcomes and reflecting different antecedent constellations. At first glance, one may be tempted to evaluate the outcomes for these children as undesirable from an educational and developmental policy viewpoint, perhaps even to consider them at risk. The East Berlin children's self-related agency beliefs may be too low and too rigidly tied to school performance to maximize their developmental potential. Conversely, American children's beliefs may be too high and too agentic, perhaps even verging on dysfunctional or illusory belief levels, especially when considered in the light of the low correspondence between their beliefs and actual school grades.

Whether or not the extreme conditions observed in the East Berlin and Los Angeles children can be considered benefit or risk factors for the future growth and development of children reared in such contexts remains unclear. For instance, renewed discussion in the literature has emerged concerning the most functional levels of positive self-related beliefs (Baumeister, 1989; Taylor & Brown, 1988). Relatively little research has directly addressed how one's belief system may optimally contribute to future development gains, feelings of well-being, and, in the long run, produce an agentic and successful individual. In addition to the fact that such relations may differ across cultural, intraindividual, and performance contexts, such questions may be an issue of gains and losses (P. B. Baltes, 1987), involving not only the interplay between present functioning and future capacities but also issues of domain transfer. In our view, such a focus on the trade-off between the level of one's personal agency and its correspondence to the reality of one's performance may reveal an optimal beliefs–performance discrepancy that leads to maximum performance gains and maintains strong positive self-evaluations.

We emphasize, again, that our explanatory possibilities are a posteriori interpretations and must be considered in the light of continued research in this area. However, given the present comparative data, we believe that researchers are faced with several new challenges. Among them are: (a) to account for the fact that the levels of American children's agency and control expectancy as well as their magnitudes of correspondence with actual performance seem to represent extremes when placed in the context of several European samples and (b) to determine the long-term impact of these influences on children's performance attainments and their subsequent functioning in other life contexts. Future research, therefore, needs to (a) involve additional school settings within each of the cultural contexts, (b) follow particular cohorts longitudinally, (c) incorporate explicit measures of the possible influencing school- and teaching-related mechanisms, and (d) incorporate additional and more broad-based outcome measures to obtain more information regarding the developmental consequences of children's psychological control. In this sense, perhaps the comparative evidence that we have presented may serve as a catalyst toward gaining a better understanding of the sizable plasticity in children's psy-

chological control and in the relations of these beliefs to performance.

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(Appendix follows on next page)

Appendix

Raw Means and Standard Deviations for the CAMI Constructs and the Raw Correlations With Academic Performance

	Mean–ends					Agency and control expectancy				
	EFF	ABL	LUC	TEA	UNK	Cntrl	EFF	ABL	LUC	TEA
East Berlin 1990 (n = 313)										
M	2.68	2.40	1.83	1.93	2.28	2.75	2.88	2.71	2.58	2.80
SD	0.39	0.42	0.46	0.44	0.45	0.61	0.50	0.52	0.48	0.46
r	.20	.18	−.21	−.11	−.05	.48	.61	.63	.62	.36
West Berlin 1991 (n = 517)										
M	2.70	2.43	1.83	1.83	2.20	2.90	3.07	2.83	2.74	2.93
SD	0.43	0.47	0.49	0.45	0.47	0.62	0.49	0.53	0.49	0.50
r	.08	.13	−.13	−.11	−.01	.42	.50	.56	.51	.29
Moscow 1990 (n = 551)										
M	2.73	2.18	1.81	1.92	2.28	3.01	3.05	2.98	2.77	2.77
SD	0.49	0.54	0.55	0.56	0.56	0.57	0.45	0.49	0.47	0.44
r	.13	.02	−.11	−.12	−.08	.27	.35	.40	.41	.19
Los Angeles 1992 (Combined n = 657)										
M	2.87	2.24	1.86	1.84	2.17	3.29	3.14	2.95	2.87	2.90
SD	0.49	0.54	0.60	0.57	0.59	0.63	0.54	0.56	0.59	0.60
r	.06	.00	−.21	−.14	−.15	.16	.27	.27	.32	.18
Los Angeles 1992 (Caucasian, n = 407)										
M	2.89	2.22	1.84	1.84	2.18	3.31	3.15	2.98	2.90	2.89
SD	0.48	0.56	0.64	0.60	0.62	0.63	0.54	0.56	0.59	0.52
r	.08	.03	−.23	−.14	−.20	.18	.28	.29	.33	.20
Los Angeles 1992 (Hispanic and Other, n = 250)										
M	2.85	2.27	1.90	1.84	2.14	3.25	3.11	2.89	2.82	2.93
SD	0.52	0.51	0.61	0.57	0.55	0.64	0.54	0.57	0.59	0.59
r	.02	−.05	−.16	−.15	−.07	.13	.25	.23	.28	.15

Note. CAMI = Control, Agency, and Means–ends Interview; EFF = Effort; ABL = Ability; LUC = Luck; TEA = Teachers; UNK = Unknowns; Cntrl = Control expectancy.