Examining Cultural Capital and Student Achievement: Results of A Meta-Analytic Review

Cheng Yong Tan

The University of Hong Kong

This meta-analysis summarized the relationships between cultural capital and student achievement (155 effect sizes involving 685,393 K-12 students) published in education journals between 1981 and 2015. Results showed a small-to-medium overall mean effect size, and larger individual effect sizes for parental education and parental expectations compared to parent-child cultural participation and discussions. Effect sizes were also larger for older students, reading achievement, and studies published earlier. The results affirm the role of cultural capital in explaining student achievement, and indicate that cultural capital is not a unidimensional construct with unequivocal effects on achievement.

Cette méta-analyse résume les rapports entre le capital culturel et le rendement des élèves (ampleur de l'effet =155 comptant 685 393 élèves K-12) publiés dans des revues pédagogiques entre 1981 et 2015. Les résultats indiquent que globalement, l'ampleur moyenne de l'effet est entre petite et moyenne et que l'ampleur de l'effet individuel est plus grande pour l'éducation des parents et les attentes parentales que pour la participation culturelle et les discussions parent-enfant. L'ampleur de l'effet est également plus importante chez les élèves plus âgés, pour le rendement en lecture et dans les études publiées antérieurement. Les résultats affirment le rôle du capital culturel dans le rendement scolaire et indiquent que le capital culturel n'est pas une construction unidimensionnelle ayant des effets clairs et explicites sur le rendement.

In many contemporary societies characterized by socioeconomic inequality, policymakers, educators, and scholars regard inequality in educational achievement to be as important as quality learning outcomes (Lucas & Beresford, 2010; Schleicher, 2009). This inequality in educational achievement may arise from either school or family circumstances. Between the two sources, evidence from school effectiveness research suggests that family socioeconomic factors account for a greater proportion of the variance in student educational achievement than school resources (Reynolds et al., 2014). Given the significance of family factors, it is therefore important to identify the specific aspects of the family that contribute to student achievement. Insights from this research will enable us to understand why and how social reproduction works, and perhaps even to inform teacher and school processes on compensation strategies for the lack of family resources for disadvantaged (e.g., lower socioeconomic status or SES) students.

Not surprisingly then, many scholars focus their research programs on investigating the different types of family resources that contribute to socioeconomic inequality in educational achievement (Waithaka, 2014). A large group of these scholars employ the conceptual heuristics

of Bourdieu's (1986) cultural capital theory to understand how culturally valued resources that higher SES students bring to the educational field privilege them in their learning over and above demonstrated academic ability. These cultural resources in turn perpetuate their socioeconomic hegemony, eventuating in social reproduction and inequality (Kingston, 2001; Reay, 2004a). Notwithstanding the corpus of studies, results on the relationship between many cultural capital variables and student achievement are mixed, with some studies showing that cultural capital benefits learning, some showing that it impedes learning, and others showing nonsignificant relationships between the two sets of constructs.

There is also a related body of literature where researchers attempt to synthesize prior research findings and make summary conclusions in qualitative or meta-analytic reviews (Castro et al., 2015; Jeynes, 2007; Kingston, 2001; Shulruf, 2010; Sirin, 2005; Wilder, 2014). While providing useful summaries of cultural capital effects, these studies suffer from two pertinent limitations. First, qualitative reviews make an important contribution often by generalizing from previous studies and interpreting findings informed by theories. However, they often fail to take into account the reliability of the studies reviewed because they do not account for sample sizes. They are also unable to empirically examine the relative effects of cultural resources as a function of contextual and methodological differences in the studies reviewed (Ahn, Ames, & Myers, 2012). The second limitation is that most of the studies adopting a more quantitative approach in the analysis examine the effects of only some (but not all) cultural capital variables. Given the different conceptual emphases and methodological procedures employed in these studies, it is not possible to make valid comparisons of the relative contributions of different cultural capital variables on student achievement.

In view of these research gaps, the present study adopts a multidimensional perspective on cultural capital and employs meta-analysis to summarize findings from the extant empirical literature examining the relationship between family cultural capital and student achievement. The meta-analysis can account for study reliability by factoring in different sample sizes in the computation of effect sizes (Ahn et al., 2012). There are three research objectives. First, the association of individual cultural capital variables with student achievement is examined. Second, a comparison is made to determine which variables are more closely related to achievement than others. Third, the analysis examines the influence of various contextual and methodological factors that may moderate cultural capital effects on student achievement.

Cultural Capital Theory

According to cultural capital theory (Bourdieu, 1986), variations in student academic achievement may reflect more than demonstrated abilities to indicate student possession of high-status cultural competences or capital. This cultural capital is arbitrarily sanctioned by schools, reinforced by school gatekeepers, and transmitted by higher SES parents to perpetuate their social advantage. There are three forms of cultural capital: objectified, embodied, and institutionalized.

Objectified cultural capital refers to home educational (e.g., reading materials, learning facilities) and cultural (e.g., literature and art works) resources that enable students from privileged backgrounds to learn the dispositions, values, perceptions, knowledge, and skills that are valued by teachers in schools. Embodied cultural capital refers to myriad student characteristics associated with higher SES families that are conducive to academic achievement. It comprises values and attitudes conducive to learning, tastes and preferences for academic pursuits, and mastery of academic competencies and skills. These characteristics are emphasized

in the formal school system, and teachers may perceive students demonstrating these characteristics as being more capable (Bourdieu, 1986). Researchers have examined embodied cultural capital using different variables, namely cultural participation, reading habits, child or parental educational expectations for their children, and parental home and school involvement. Institutionalized cultural capital is formed when embodied cultural capital is publicly recognized and acknowledged as a marker of social distinction. Researchers have examined institutionalized cultural capital using parental educational attainment.

Different Forms of Cultural Capital

Most scholars have adjudged these different forms of cultural capital as legitimate markers of social distinction, and examined how and why they contribute to student achievement (De Graaf, de Graaf, & Kraaykamp, 2000; Jaeger, 2011; Kraaykamp & van Eijck, 2010; Lareau, 1987; Reay, 2004a, b). There is evidence indicating that these three forms of cultural capital are related to yet distinct from each other. Possession of each of these is influenced by different parental resources (Kraaykamp & van Eijck, 2010). Huang and Liang (2016) compared the relationship between all three types of cultural capital and student achievement. However, in that study, the researchers examined a small number of variables (parental education, parental expectations, parental reading, book possession) corresponding to the three forms of cultural capital. Other studies have each focused on investigating some but not all forms of cultural capital (Hvistendahl & Roe, 2004; Moon & Lee, 2009). The present study addresses this knowledge gap by comparing the strength of relationship between the three forms of cultural capital and student achievement.

Highbrow Cultural Participation Versus Linguistic Competence

There are debates on whether cultural capital should be narrowly construed as highbrow arts appreciation and participation (e.g., as measured by possession of home cultural resources and cultural participation), or broadly interpreted to include linguistic and cognitive habits, knowledge, and skills as well as familiarity with school evaluative standards (e.g., as measured by possession of home educational resources and reading habits) (Lareau & Weininger, 2003). However, the results have been mixed (De Graaf et al., 2000; Hvistendahl & Roe, 2004; Iruka, Dotterer, & Pungello, 2014). Therefore, the present study will compare the relative association between highbrow cultural participation and linguistic competence and student achievement.

Student, Contextual, and Achievement Moderators

Researchers have also examined how the relationships between cultural capital and student achievement differ for different students (e.g., student sex, grade levels, SES), national contexts, and achievement domains. Again, the evidence is mixed. For example, with respect to grade levels, Aschaffenburg and Maas's (1997) study found that the effects of cultural participation on educational outcomes were lower for students from higher educational levels. However, Andersen and Hansen's (2012) study of Norwegian secondary school students reported that there were greater class inequalities in student achievement at higher secondary levels possibly because of the greater emphasis on stylistic or symbolic qualities (e.g., logical argument) vis-à-vis procedural knowledge (e.g., spelling) at these levels. As for SES, social reproduction theory hypothesizes that higher SES families have more cultural capital, and parents pass on this cultural capital to their

children to maintain their dominant position (Huang, 2013; Marks & McMillan, 2003). Teachers perceive students with this cultural capital as being more competent, thereby contributing to social reproduction (Kingston, 2001). However, proponents of cultural mobility theory (De Graaf et al., 2000; DiMaggio, 1982; Hernandez-Martinez & Williams, 2013) contend that marginalized or nondominant social groups can also learn the cultural codes that are valued by educational gatekeepers, and benefit from the cultural resources in their academic careers.

The relationship between cultural capital and student achievement may also be moderated by characteristics of national contexts, especially those differing in education systems, and levels of wealth and socioeconomic equality. In terms of achievement domains, reading achievement is more affected by subjective and stylistic variables than achievement in a subject such as mathematics. Furthermore, it is easier for linguistic (vis-à-vis mathematical) aspects of cultural capital to be transmitted from parents to their children in daily interactions. Therefore, higher levels of cultural capital may benefit achievement in reading more so than in mathematics or science (Espinosa, Laffey, Whittaker, & Sheng, 2006; Hvistendahl & Roe, 2004). In view of the mixed evidence to date, the present study will examine how student characteristics, national contexts, and achievement domains moderate the relationship between cultural capital and student achievement.

Meta-analytic Evidence

There is a related body of literature where researchers use meta-analysis to quantitatively summarize prior empirical works on the effects of different cultural capital variables (Castro et al., 2015; Jeynes, 2007; Shulruf, 2010; Sirin, 2005; Wilder, 2014). The results indicated that the availability of home educational resources, parental educational expectations of their children, and parental educational levels had generally larger effect sizes, while children's cultural participation and parent school involvement had lower effect sizes. The effect sizes of parents reading with their children, parent-child communication about school issues, and parents monitoring children's completion were somewhere between the two extremes. However, this comparison is tentative given that the different meta-analyses focus on different variables, and that different sampling and effect size metrics are employed in the studies. Furthermore, some aspects of cultural capital (e.g., availability of cultural resources at home) have not been examined. These problems render it impossible to address important research issues, such as comparing the effect sizes of different forms of cultural capital, or examining how the effect sizes vary across different moderating variables. The present study addresses these knowledge gaps.

Method

Meta-analysis

Meta-analysis was employed to analyse the empirical findings across published studies that examined the relationship between cultural capital and student achievement. The technique enables effects in individual studies to be converted into a common metric—the effect size—that can be compared across studies (Glass, 1976).

Identification of Studies

The author conducted a computer search to identify the pool of relevant studies. First, the list of 224 Education and Educational Research category journals in Journal Citation Reports (JCR) was retrieved. Only JCR journals were reviewed because they comprise a broad representation of peer-review journals and have citation metrics (5-year impact factors) available for the subsequent examination of publication bias. Furthermore, only journals from the Education and Educational Research category were reviewed because the research objective was to examine cultural capital effect sizes pertaining to student achievement instead of other sociological outcomes. This category included key educational sociology journals which published studies involving educational outcomes (e.g., *British Journal of Sociology of Education, Sociology of Education*).

The second step involved reviewing the journal titles and homepages to determine whether these journals published educational research examining academic outcomes for K-12 grade levels using quantitative (or mixed) methods. Based on this review, 131 journals were excluded, thereby leaving 93 journals for the search. Next, a search was conducted with the following sets of terms for each journal using four article databases (Academic Search Premier, ERIC, Family & Society Studies Worldwide, and TOC Premier) in the EBSCO Research Databases:

- Cultural capital keywords (namely "cultural capital," "objectified," "institutionalized," "embodied," "habitus," "academic capital," "economic capital," "cultural," extra-curricular," "highbrow," "beaux arts," "parent involvement," "home involvement," "school involvement," "reading," "expectations," "aspirations," "parent education," "social class," "social reproduction," "cultural reproduction," "social mobility," "social stratification,") in the field "Abstract"; and

- Achievement keywords (namely "achievement," "performance," "results," "learning") in the field "Abstract".

The Boolean operator "OR" was used for the cultural capital keywords and for the achievement keywords, while "AND" was used across the journal title, cultural capital keywords, and achievement keywords to return searches. Requests were made of the author's institutional library to make available studies that were identified in the search process but whose full text were not available from the databases. The journal homepage for the *Learning, Culture, and Social Interaction Journal* was searched for studies because the journal was not included in the four databases searched. The search yielded 7,708 studies after duplications were removed.

The third step involved examining the studies to determine whether they met the following inclusion criteria:

- Examined the relationship between cultural capital and student achievement;

- Used one or more cultural capital measures (namely home educational or cultural resources, cultural participation, reading at home or outside school, parent-child discussions on cultural or school issues, parental educational expectations, home or school involvement, parental educational attainment);

- Studied mathematics, science, or reading achievement;

- Reported Pearson's correlations between the cultural capital and achievement measures;

- Examined K-12 students in its sample; and

- Was an English language journal.

This screening excluded studies that reported results from program evaluations or

experiments; studies that included students with special educational needs, students from religious schools, or students enrolled in distance learning; results for partial correlations; quantitative results coded from qualitative research; or results from meta-analyses. The studies were also examined to determine whether any of them used the same dataset. Among studies which were found to have used the same dataset, the effect size for the study which reported using a larger sample size and which was published later was coded for analysis. This step yielded 41 studies for the analysis.

Coding Procedure

A formal coding scheme was developed to record substantive and methodological details about the studies. This scheme comprised four categories. First, the identification section coded data on author(s), publication year, article title, and journal title. The student section coded data on student sex (1 = Boys, 2 = Girls, 3 = Mixed), age (in months), grade levels (1 = kindergarten, 2 = 1st to 6th grade, 3 = 7th to 12th grade), and SES (1 = low, 2 = middle, 3 = high). The average age and grade levels across different data-collection time points were computed and coded for longitudinal studies. Samples described as being middle to high in SES were coded as 2.5 for SES. The methodology section coded data based on whether the study adopted a cross-sectional or longitudinal design, the name of the country where the study was conducted, and on the name of the study/database used (e.g., whether the study analysed national or international data such as the Program for International Student Assessment).

The effect size section coded data on the types of cultural capital and student achievement, Pearson's correlations between cultural capital and achievement, and sample size. The cultural capital variables comprised home educational resources; home cultural resources; child cultural participation; cultural participation of child and parents together; child reading at home or outside school; parent reading; parent-child reading together; parent-child discussions on cultural, sociopolitical, or school issues; child educational expectations; parental educational expectations of child; parental home involvement; parental school involvement; maternal educational attainment; paternal educational attainment; and combined parental educational attainment (average or higher of the two parents). The achievement variables comprised mathematics, science, and reading.

To ensure that only data on one effect size involving each cultural capital variable and each type of achievement from each study was included in the analysis, the following protocol was adopted:

- If both parent and child-reported cultural capital variables were examined in studies, only the correlation between the parent-reported variable and achievement was coded.

- In studies where the correlations between different components of the same cultural capital variable (e.g., parent-child discussions on culture and on school) and achievement were reported, the average of the correlations were computed and coded.

- In studies where the correlations between the education of one parent and achievement, and between the average parental education and achievement were reported, only the former was coded.

- In studies where the correlations between different components of achievement in a single subject (e.g., reading fluency and comprehension) were reported, the average of the correlations was computed and coded.

- In longitudinal studies where cultural capital variables and achievement scores were measured at more than one time point, only the correlation between cultural capital variables measured at the earliest time point and achievement scores measured at the last time point was coded.

- In studies comparing the performance of cohorts (which might include the same students) over time, the correlations at the last time point were coded.

- In studies where correlations were reported for subsamples and the entire sample, only the former was coded.

The author coded all the articles. To determine interrater reliability, a graduate research assistant who was taking a course on student achievement in the Faculty of Education also independently coded the effect size data; this randomly selected sample contained 20 articles comprising 55 effect sizes. The results showed an interrater agreement for 19 studies (95%) and 54 effect sizes (98.18%).

Calculating Effect Sizes

The effect size employed in the analysis using Comprehensive Meta-Analysis (V2) was Pearson's correlation coefficient, *r*. The r scores were then converted to Fisher's *z*-scores and weighted by the inverse of their variance. The weighting enabled effect sizes from larger sample studies, which had larger study reliability, to be given greater weight than those from smaller sample studies (Lipsey & Wilson, 2001).

Statistical Independence

The analysis used subgroups within each study (where available) as the unit of analysis. In studies without subgroups, the entire study was used as the unit of analysis. The associated variances for multiple effect sizes within each subgroup were not combined to compute tau-squared. The subgroups within each study were combined using the fixed effect model to yield an overall effect size. In the comparison of effect sizes for different cultural capital variables or moderator analyses involving categorical variables (student sex, child grade, child SES, national contexts, cross-sectional versus longitudinal), a mean overall effect size was computed for each unit analysed (studies/subgroups) if there were multiple effect sizes corresponding to different cultural capital measures. Similarly, a mean effect size was computed if there were multiple outcome measures for units analysed (studies/subgroups). This computational strategy used as much of the information as possible from the studies and preserved the principle that each unit of analysis should only contribute one effect size (Lipsey & Wilson, 2001). However, in meta-regression analyses involving continuous moderator variables (student age, article publication year, journal impact factors), the multiple effect sizes and multiple outcomes within each unit (study/subgroup) were assumed to be independent.

Fixed and Random Effects Models

There are two competing models that can be employed in the analysis, namely fixed and random effects models (Cooper & Hedges, 1994; Hedges & Vevea, 1998). The random effects model was employed in the analysis for three reasons. First, as contrasted with the fixed effect model, the

random effects model does not require the strict assumption that all the effect sizes analysed are from the same underlying population. Second, results from the random effect model enable generalizations beyond the studies to be made. Third, in the case where the observed variance in effect sizes across studies is solely attributable to random sampling errors, results from the random effects model will be identical to those from the fixed effect model.

Tests of Homogeneity

The variation among the effect sizes was analysed using the *Q* test of homogeneity (Hedges & Olkin, 1985). A nonsignificant test result means that the observed variation among the effect sizes is attributable to random sampling errors and that the effect sizes belong to a common underlying population. However, a significant *Q* test result means that the observed variation cannot be accounted by sampling errors and that the effect sizes belong to different underlying populations.

Tests for Moderator Effects

Moderator effects were tested using the fixed effect model. For categorical moderators (forms of cultural capital, student sex, student grade, student SES, national contexts, cross-sectional versus longitudinal), between-group was compared with the within-group variability for the *Q* statistics in one-way ANOVA. Significant results mean that the mean effect sizes across categories differ by more than random sampling errors. For continuous moderators (student age, article publication year, journal impact factors), *p* values for the slope statistics and the model *Q* statistics from regression analyses were examined. Significant results mean that variation in the levels of effect sizes can be explained by variation in the moderator variables (Hedges & Olkin, 1985).

Publication Bias

A common concern in meta-analyses is the presence of publication bias in studies (Lipsey & Wilson, 2001; Polanin, Tanner-Smith, & Hennessy, 2016). This means that studies with significant effects are more likely to be published than those with nonsignificant effects. If there is no publication bias, results will show that studies with greater precision as measured by smaller standard errors will have less variation in effect sizes as compared to studies with larger standard errors. A funnel plot plotting standard errors against effect sizes will therefore give the impression of an inverted symmetrical funnel. Results of the funnel plot for the present study showed that the distribution of effect sizes was not symmetrical about the mean effect size. The Kendall's rank correlation between the ranks of the standardized effect sizes and the ranks of the standard errors was .24 (one-tailed $p < .10$; with continuity-corrected normal approximation).

It is also possible that studies published in journals with a higher number of citations may be more likely to report significant effect sizes than those published in less frequently cited journals. To examine this hypothesis, the effect sizes published in journals with available five-year impact factors were regressed on the impact factors ($k = 56$). Results showed that effect sizes were positively associated with the magnitude of impact factors ($\beta = .08$; Model $Q(1) = 887.12$, Residual $Q(21) = 3,030.02$, Total $Q(22) = 3,917.14$), $p < .001$. Therefore, studies published in highly cited journals reported larger effect sizes than those in less cited journals. Results of the funnel plot, Kendall's rank correlation, and meta-regression of effect sizes on journal impact factors indicated that there was publication bias in the studies reviewed.

Results

Effect Sizes

Overall effect size. The effect sizes comprised 155 correlations, ranging from -.34 to .50., that were obtained from 41 published journal studies. The mean effect size for the random effects model was .16 (*SD* = .18), with a 95% confidence interval of .13 to .19, and it was significantly different from zero, *p* < .001. The median effect size was .15. The mean effect size was small to medium in magnitude, according to Cohen's (1988) and Rosenthal's (1996) rules of thumb (*r* = .10, .30, .50, and 0.70 for small, medium, large, and very large effect sizes, respectively). While useful for comparing sizes of effects, these thresholds are admittedly only rules of thumb. Therefore, the practical significance of the association of individual cultural capital variables and student achievement need to be evaluated in context.

The sample sizes for the effect sizes ranged from 39 to 193,841 students, with a mean of 8,294, standard deviation of 34,178, and median of 780. The total sample size was 685,393 students. The studies were published from 1981 to 2015, with the lowest number of effect sizes (1) reported in studies in 2007 and the largest number (29) in 1994.

Individual effect sizes. Effect sizes for 15 variables measuring different aspects of cultural capital were examined (see Table 1). Results showed that seven of them were significantly different from zero at *p* < .001. These aspects were access to home educational resources (*k* = 11,

Table 1

Cultural Capital Effect Sizes and Homogeneity Tests

Cultural capital variables	Number of studies	Effect sizes				Homogeneity tests		
		Mean	-95% CI	+95% CI	Z	Q	df	I^2
All	52	.16	.13	.19	9.26***	6,638.07***	51	99.23
Educational resources	11	.23	.15	.31	5.28***	1,510.21***	10	99.34
Cultural resources	3	.23	.19	.27	11.36***	6.78*	2	70.52
Child cultural participation	1	-.02	-.16	.11	-.34	0.00	0	0.00
Parent and child cultural participation	11	.17	.11	.22	5.54***	156.55***	10	93.61
Child reading	3	.07	-.05	.18	1.08	29.15***	2	93.14
Parent reading	1	.05	-.01	.10	1.51	0.00	0	0.00
Parent and child reading	5	.00	-.09	.10	.09	6.51	4	38.56
Parent-child discussions	11	.11	.07	.15	5.03***	60.24***	10	83.40
Child educational expectations	2	-.03	-.53	.48	-.12	38.90***	1	97.43
Parental educational expectations	13	.38	.32	.44	11.47***	145.99***	12	91.78
Parental home involvement	26	.02	-.03	.07	.79	461.29***	25	94.58
Parental school involvement	14	.06	-.03	.15	1.36	257.91***	13	94.96
Maternal education	11	.29	.25	.33	13.56***	926.63***	10	98.92
Paternal education	3	.24	-.02	.47	1.82	155.48***	2	98.71
Parental education	12	.30	.26	.34	12.84***	106.98***	11	89.72

Note. *p < .05 **p < .01 ***p < .001.

M effect size or ES = .23, small ES), access to home cultural resources (*k* = 3, *M* ES = .23, small ES), parent and child cultural participation (*k* = 11, *M* ES = .17, small ES), parental educational expectations for children (*k* = 13, *M* ES = .38, medium ES), parent-child discussions (*k* = 11, *M* ES = .11, small), maternal education (*k* = 11, *M* ES = .29, small ES), and parental (maternal or paternal) education (*k* = 12, *M* ES = .30, medium ES). Among the other variables without significant effect sizes, it should be mentioned that child cultural participation and parental reading had each only one study and therefore the results for these two variables should be interpreted with caution. In addition, the *Q* statistics of homogeneity for 11 variables were significant, indicating that the effect sizes were not estimating the same underlying population value, thereby affirming the utility of using the random effects model. The large magnitude of I^2 for most of the variables also indicated that most of the observed variance in effect sizes reflected differences in true effect sizes rather than sampling errors.

Next, moderator analyses were conducted to examine the sources of the heterogeneity in the effects sizes. These analyses pertained to types of cultural capital, student and contextual characteristics, achievement domains, and methodological characteristics (see Table 2).

Types of Cultural Capital

Two moderator analyses were performed to compare the magnitude of effect sizes for different types of cultural capital. First, the different cultural capital variables were classified as objectified only (*k* = 1; home educational and cultural resources), embodied only (*k* = 22; child or parent cultural participation, child or parent reading, parent-child discussions, child or parental educational expectations, parental home or school involvement), institutionalized only (*k* = 8; parental education), or a combination of more than one form of cultural capital (*k* = 21). The mean effect size was .22, and it differed significantly from zero, *p* < .001. In particular, the mean effect sizes for objectified and institutionalized cultural capital were .22 and .28 (both small effect sizes) respectively, *p* < .001. However, the mean effect size for embodied cultural capital was not significantly different from zero, *p* = .12. One-way ANOVA results showed that the effect sizes for the four categories of cultural capital differed significantly from each other, *Q*(3) = 14.72, *p* < .01. However, owing to the fact that there was only one study which had effect size data on only objectified cultural capital, it could be concluded that only institutionalized cultural capital was more associated with student achievement than embodied cultural capital.

Another comparison was made between highbrow arts participation (*k* = 8; cultural participation, home cultural resources) and linguistic competence (*k* = 10; reading, home educational resources) as different forms of cultural capital. There were six effect sizes involving both types of cultural capital in the studies reviewed. The mean effect sizes for highbrow arts (*M* ES = .19, small ES, *p* < .001) and linguistic competence (*M* ES = .14, small ES , *p* < .05) differed significantly from zero. However, one-way ANOVA results showed that the two types of cultural capital did not differ significantly from each other, *Q*(2) = 0.89, *p* = .64.

Student and Contextual Characteristics

Five moderator analyses were performed to compare the magnitude of effect sizes for different student demographic variables (sex, age, grade levels, SES) and national contexts.

Student sex. First, results comparing whether sex moderated effect sizes showed that the

Table 2

Moderator Analyses

Moderators	Categories	Number of studies	Effect sizes				ANOVA	
			Mean	-95% CI	+95% CI	Z	Q between	df
Forms of cultural capital		52	.22	.22	.22	98.76***	14.72**	3
	Objectified only	1	.22	.22	.22	98.47***		
	Embodied only	22	.07	-.02	.15	1.56		
	Institutionalized only	8	.28	.16	.39	4.45***		
	Combination	21	.20	.14	.25	7.06***		
Highbrow arts vs. linguistic competence		24	.17	.14	.21	8.73***	0.89	2
	Highbrow arts	8	.19	.14	.24	7.35***		
	Linguistic competence	10	.14	.03	.25	2.55*		
	Combination	6	.15	.08	.23	4.07***		
Student sex		52	.16	.13	.20	9.34***	5.89#	2
	Boys	4	.15	-.06	.34	1.39		
	Girls	2	-.12	-.35	.11	-1.02		
	Mixed	46	.17	.14	.21	9.49***		
Child grade levels		41	.16	.13	.20	9.52***	3.83	2
	Kindergarten	4	.24	.15	.31	5.59***		
	1st-6th grade	20	.14	.09	.19	5.24***		
	7th-12th grade	17	.16	.11	.21	5.99***		
Child SES		13	.13	.06	.19	3.91***	1.54	2
	Low	6	.18	.00	.34	1.98*		
	Middle	2	.09	-.00	.18	1.87		
	Middle to high	5	.16	.06	.26	3.07**		
Countries		49	.06	.04	.07	8.74***	925.63***	14
	Canada	1	.12	-.15	.38	0.87		
	Chile	1	.31	.28	.34	17.29***		
	China	2	.04	.02	.05	3.75***		
	Greece	1	.14	-.10	.36	1.14		
	Hong Kong	4	.12	-.05	.28	1.34		
	Hong Kong & China	1	.19	.12	.26	5.34***		
	Israel	1	.23	.02	.42	2.13*		
	Jordan	1	-.30	-.33	-.27	-18.91***		
	Netherlands	1	.02	-.04	.08	0.71		
	New Zealand	1	-.06	-.14	.03	-1.31		
	Norway	1	.13	-.00	.26	1.91		
	Singapore	1	.28	.15	.41	4.00***		
	Sri Lanka	1	.43	.37	.48	13.25***		
	Sweden	1	-.05	-.22	.12	-0.58		
	US	31	.17	.14	.20	9.84***		
Subjects		52	.18	.17	.19	25.89***	31.71***	4
	Mathematics	19	.07	-.02	.15	1.57		
	Science	1	.14	.12	.16	12.84***		
	Reading	11	.21	.14	.29	5.45***		
	More than 1 subject (originally coded in studies)	7	.21	.19	.23	21.57***		
	Combination	14	.21	.15	.27	6.28***		
Cross-sectional vs. longitudinal		52	.17	.14	.19	10.65***	2.14	1
	Cross-sectional	32	.14	.10	.18	6.69***		
	Longitudinal	20	.19	.15	.23	8.41***		

Note. # p < .10 *p < .05 **p < .01 ***p < .001.

effect sizes for boys (k = 4, M ES = .15, p = .16) and girls (k = 2; M ES = -.12, p = .31) did not differ significantly from zero, but that for heterogeneous samples was significantly different from zero (k = 46, M ES = .17, small ES, p < .001). One-way ANOVA results showed that the three categories of cultural capital differed significantly from each other, Q(2) = 5.89, p < .10. However, owing to the small number of effect sizes for either boys or girls only, the results here should be interpreted with caution.

Student age. There were 79 effect sizes with information on student age (28.50 to 193.68 months) which was coded as a continuous variable and entered as a covariate in regression analysis on effect sizes. Results showed that effect sizes were higher for older students (β = .002, p < .001, Model Q(1) = 2,945.44, Residual Q(77) = 7,620.14, total Q(78) = 10,565.58).

Student grade levels. Results of moderation analysis for student grade levels showed that the effect sizes for all three categories of grade levels were significantly different from zero at the .001 level (kindergarten, k = 4, M ES = .24, small ES; 1st to 6th grade, k = 20, M ES = .14, small ES; 7th to 12th grade, k = 17, M ES = .16, small ES). However, one-way ANOVA results showed that the three categories of effect sizes did not differ significantly from each other, Q(2) = 3.83, p = .15.

Student SES. Student SES were classified as low (k = 6), middle (k = 2), and middle-to-high (k = 5) according to author(s)' report in the studies reviewed. There was no study which examined high SES students only. Results showed that the effect sizes for low (M ES = .18, small ES, p < .05) and middle-to-high (M ES = .16, small ES, p < .01) SES students were significantly different from zero. However, the effect size for middle SES students (M ES = .09) was not significantly different from zero (p = .06). One-way ANOVA results showed that the effect sizes for the three categories of students did not differ significantly from each other, Q(2) = 1.54, p = .46.

Countries. The studies reviewed covered a total of 15 different countries. Results showed that the effect sizes for only eight countries differed significantly from zero. One-way ANOVA results showed that the effect sizes for the different countries differed significantly from each other, Q(14) = 925.63, p < .001. However, the results need to be interpreted with caution owing to the small number of effect sizes for each country other than the US.

Achievement domains. A moderator analysis was conducted to examine if effect sizes differed according to different subjects. The studies reviewed examined student achievement domains in mathematics only (k = 19), science only (k = 1), reading only (k = 11), or an overall combination of two or more of these subjects (k = 7). In addition, there were 14 other effect sizes that were computed from averaging the effect sizes across subjects in studies/subgroups reporting more than one effect size. Results showed that the effect sizes of all but mathematics (M ES = .07, p = .12) were significantly different from zero. In particular, the effect sizes for science and reading were .14 and .21 (both small ES's) respectively, p < .001. One-way ANOVA results showed that the effect sizes differed significantly across achievement domains, Q(4) = 31.71, p < .001. However, owing to the fact that the effect size data for science came from only one study, it could be concluded that only student reading achievement was more susceptible to cultural capital effects than was mathematics achievement.

Methodological Characteristics

Two analyses were performed to examine whether the research design and year of publication of the studies moderated cultural capital effects on student achievement.

Cross-sectional versus longitudinal research designs. First, there were 32 effect sizes for cross-sectional and 20 effect sizes for longitudinal research designs. Results showed that the

effect sizes for both research designs were significantly different from zero, $p < .001$ (cross-sectional, M ES = .14, small ES; longitudinal, M ES = .19, small ES). However, one-way ANOVA results showed that the two mean effect sizes did not differ significantly from each other, $Q(1) = 2.14$, $p = .14$.

Year of publication. The effect sizes were regressed on the year of publication of the studies, as an indicator of theoretical and methodological advances, in regression analysis ($k = 155$). Results showed that the effect sizes were negatively associated with publication year, $\beta = -0.005$, $p < .001$, Model $Q(1) = 645.18$, Residual $Q(153) = 16,962.02$, Total $Q(154) = 17,607.20$).

Discussion

The meta-analysis of studies examining the relationship between cultural capital and student achievement involving 155 effect sizes from 41 studies published between 1981 and 2015 provided interesting findings.

Multidimensional Construct with Differential Effects

The pattern of findings suggests that cultural capital is not a unidimensional construct with unequivocal effects on achievement. Conversely, it can manifest in different forms, with some variables having a stronger association with achievement than others. More specifically, the more indirect forms of institutionalized cultural capital (as measured by parental education) had a stronger effect than embodied cultural capital. However, this does not mean that embodied cultural capital was not important. For example, institutionalized cultural capital might be more closely associated with student achievement, but the variable is not as malleable as embodied cultural capital which could be developed via school interventions (e.g., workshops for parents and school programs to raise student expectations).

The finding on higher effect size for parental education can be understood in terms of the mediating processes by which the variable contributes to student achievement, such as language stimulation, cultural participation, children's behavioural regulation, parenting, access to educational resources at home, and children's educational aspirations (Iruka et al., 2014; Sektnan, McClelland, Acock, & Morrison, 2010). However, the nonsignificant finding on embodied cultural capital is somewhat surprising given the argument that embodied dispositions, preferences, and tastes that higher SES parents possess and which are transmitted to their children are what advantage higher SES students in their learning.

The differential effects among the three forms of cultural capital also add to the burgeoning empirical literature demonstrating that they are related yet distinct manifestations of cultural advantage (Kraaykamp & van Eijck, 2010). In a related vein, the finding that both highbrow cultural participation and linguistic competence were similarly associated with achievement showed that cultural capital can assume different forms. This finding contributes to the debate on whether one form of cultural capital is more relevant than the other in different cultural contexts (De Graaf et al., 2000; Hvistendahl & Roe, 2004; Lareau & Weininger, 2003; Reay, 2004b).

In terms of specific aspects of cultural capital, results indicated that the effect sizes associated with home educational or cultural resources, parental educational expectations, and parental education (especially maternal) were larger than those for parent-child cultural participation and parent-child discussions. In contrast, other aspects of cultural capital such as child cultural participation, child/parent reading, and parental home and school involvement were all not

related to student achievement. These results are broadly consistent with those reported in some meta-analytic studies. For instance, Sirin's (2005) meta-analysis of the association between SES and student achievement found a large effect size for home resources (r = .51) and a medium effect size for parental education (r = .30). Results of published meta-analyses of parental involvement effects on student achievement showed that parental expectations had very high effect sizes and parent school involvement had very low effect sizes, while the effect sizes for parent-child communication about schools were in between the two (Castro et al., 2015; Jeynes, 2007). Investigating the reasons for the pattern of results while not within the research agenda of the present study is nonetheless an imperative avenue for future research.

The effect size magnitude of the individual variables and types (objectified, institutionalized, highbrow cultural participation, linguistic competence) of cultural capital ranged from small to medium. The range of effect size magnitude supports Kingston's (2001) cautionary advice to exercise care when deciding what indicators to use for measuring cultural capital in empirical studies. However, his assertion that cultural capital cannot adequately explain the relationship between SES and achievement must be qualified as the present study showed that some variables and types of cultural capital had larger effects on student achievement.

Social Reproduction or Mobility?

The analysis also compared effect sizes for students varying in age, grade levels, and SES. This comparison enables the investigation of the social reproduction versus mobility hypothesis for the sample (DiMaggio, 1982; Kingston, 2001). However, the evidence is mixed. On the one hand, the findings showed that the effect sizes for older children were larger than those for younger children. This suggests that family cultural influences can be persistent across student educational career. Socialization such as schooling then does not appear to moderate the effects of family cultural capital. These results are consistent with social reproduction theory. On the other hand, the findings also showed that the effect sizes did not increase across different grade levels. Furthermore, the effect sizes for lower SES students were not significantly different from those for higher SES students, thereby suggesting that lower SES students can also benefit from acquiring cultural capital that are valued in schools (i.e., nondominant cultural capital). These results support social mobility theory. Indeed, low SES students can still acquire cultural capital (from schools perhaps), such as positive learning habits, resilience, and independence, that can be affirmed by inspiring and supportive teachers and peers (Barrett & Martina, 2012; Goldthorpe, 2007). In turn, this cultural capital can benefit them in their academic achievement.

Differential Effects across Achievement Domains

Results indicated that the mean effect size for reading was higher than that for mathematics. In fact, mathematics had a nonsignificant effect size. These results are consistent with those reported by Hvistendahl and Roe (2004), and can be explained in terms of the relative natural ease of parents passing on their cultural dispositions, preferences, and tastes in daily interactions involving language (e.g., parent-child discussions) as opposed to mathematical or scientific concepts. The results can also be understood in terms of the influence of symbolic capital on reading assessment as compared to more objective assessment in mathematics or science (Espinosa et al., 2006; Hvistendahl & Roe, 2004).

The finding of a nonsignificant effect size for mathematics is paradoxically significant given

the importance of mathematical competencies in many fields of study in higher education and the myriad career opportunities in science, technology, engineering, and mathematics. If students cannot receive any cultural advantages from their parents, then their mathematics achievement is more susceptible to the quality of teaching and learning experienced in school and student own effort and ability. In a way, the playing field for students in mathematics is more even than that for reading.

Cross-National Applicability

The effect sizes analysed pertained to 15 different countries. However, only eight of them were significantly different from zero. A closer examination of these eight countries indicates that they were located in different parts of the world, thereby alluding to the intercultural application of cultural capital theory. However, it is difficult to extrapolate further in terms of country characteristics that may be associated with these significant effect sizes because of the small number of effect sizes corresponding to each country (other than the US), and the different ways that countries can be classified. For example, effect sizes were significant in both developed (US, Hong Kong, Singapore, Israel) and less developed (Chile, China, Sri Lanka, Jordan) countries. Furthermore, higher effect sizes were found in less developed countries such as Sri Lanka and Chile, thereby refuting the Heynemon-Loxley hypothesis that family relative to school effects were stronger in more developed countries (Baker, Goesling, & LeTendre, 2002). When countries were compared in terms of the level of equity in their education system (Perry, 2009), the nonsignificant effect size for Canada (an equitable education system) might be easily understood. However, it was less clear why effect sizes for countries with less equitable systems (e.g., Norway, Netherlands) were similarly nonsignificant. By the same token, it was understandable why effect sizes in countries with greater government intervention in mitigating socioeconomic differences in student achievement (e.g., Greece, Netherlands; Xu & Hampden-Thompson, 2012) were nonsignificant. However, it was less clear why the effect size for New Zealand, a country with minimum government intervention, was also nonsignificant.

Conclusion

This study examined the relationship between cultural capital and student achievement. Results of meta-analysis using the random effects model of 155 effect sizes, as measured by Pearson's correlation coefficients, involving a total sample of 685,393 K-12 students from 41 studies published in Education and Educational Research journals showed that cultural capital had a small-to-medium overall effect size. Furthermore, there was a large variation in the pattern of effect sizes for different individual cultural capital, with parental educational expectations and parental education having a greater effect size than other variables. Moderation analyses showed that the effect sizes were larger for older students and for reading achievement, and smaller for more recently published studies. Furthermore, effect sizes varied across countries. There was also some evidence of publication bias. However, there was no clear evidence that effect sizes differed across student sex, grade levels, SES, and cross-sectional versus longitudinal research designs.

    The most significant contribution of the present study is that it clarifies our understanding of the cultural capital construct. More specifically, the larger effect sizes for some cultural capital variables (e.g., parental educational expectations, parental education) underscore the value and potential of cultural capital as a conceptual heuristic in explaining variation in student

achievement. However, the large variation in effect sizes from no significance to medium among different cultural capital variables underscores the need to re-examine our conceptualization of what constitutes cultural capital or how we can measure it. The second contribution is the identification of student (age), national, and outcome (e.g., reading versus mathematics) variables that moderate cultural capital effects. The third contribution is the identification of cultural capital variables that policymakers and teachers may want to focus on to improve student achievement. For example, policymakers may explore improving student access to library books and computer learning resources, providing study facilities, and providing opportunities to parents for lifelong learning to enable them to obtain university degrees. These strategies enhance student objectified cultural capital and parental institutionalized cultural capital. Schools may share with parents on the importance of more subtle aspects of parental participation involving demonstration of love and support (e.g., high educational expectations of children, spending time to interact with children on learning). Teachers must also understand that there are different ways that parents can support their children's learning besides overt school involvement (Jeynes, 2010). This enriched interpretation of parental participation as an aspect of embodied cultural capital is important in light of the increased expectations from schools of greater parental participation in education (Reay, 2004b).

The present study suffers from two limitations. First as with all meta-analyses, it involved predetermined decision on the types of studies to be included. More specifically, the studies reviewed only came from articles published in Education and Educational Research journals in JCR. It excluded studies that were published in other sources (e.g., books, chapters, dissertations, reports), studies published in more general sociology journals, and non-JCR studies. This inclusion criterion provided a clearly defined sampling universe of studies that were of reasonable, though not necessarily better, quality and that were more related to educational than other sociological outcomes. It also enabled journals to be meaningfully compared in terms of their impact factors in the same discipline, thereby facilitating the analysis of publication bias. However, this benefit must be weighed against the cost of excluding other plausible studies. Therefore, the results reported in the present study should be best understood to represent the studies published in peer-review journals in the Education and Educational Research category of JCR instead of the universe of all studies ever published.

The second limitation pertains to the exclusive focus on the relationship between cultural capital variables and student achievement. This focus assumes that SES is related to these cultural capital variables in the first place, and ignores the interactions of these variables with other constructs such as habitus and field in Bourdieu's complete theory (Winkle-Wagner, 2010). The cultural capital variables examined were also limited to more widely examined indicators instead of other variables such as having a cosmopolitan outlook or science interest examined in the literature.

Future research can address these limitations by including other types of publication in meta-analyses. It can also examine the relationships among less commonly examined cultural capital variables, habitus, field, and non-academic learning outcomes. Investigating how embodied forms of cultural capital and habitus mediate the effects of distal forms of cultural capital (objectified, institutionalized) is another avenue for future research. A mixed methods research design may be able to add insights for this research agenda.

Acknowledgements

References

References marked with an asterisk indicate studies included in the meta-analysis.

Ahn, S., Ames, A. J., & Myers, N. D. (2012). A review of meta-analyses in education: methodological strengths and weaknesses. *Review of Educational Research, 82*, 436-476.

Andersen, P. L., & Hansen, M. N. (2012). Class and cultural capital—The case of class inequality in educational performance. *European Sociological Review, 28*, 607-621.

*Aram, D., Korat, O., & Hassunah-Arafat, S. (2013). The contribution of early home literacy activities to first grade reading and writing achievements in Arabic. *Reading and Writing, 26*, 1517-1536.

Aschaffenburg, K., & Maas, I. (1997). Cultural and educational careers: The dynamics of social reproduction. *American Sociological Review, 62*, 573-587.

*Baker, C. E. (2014). African American fathers' contributions to children's early academic achievement: Evidence from two-parent families from the early childhood longitudinal study–birth cohort. *Early Education and Development, 25*, 19-35.

*Baker, C. E. (2015). Does parent involvement and neighborhood quality matter for African American boys' kindergarten mathematics achievement? *Early Education and Development, 26*, 342-355.

*Baker, C. E., Cameron, C. E., Rimm-Kaufman, S. E., & Grissmer, D. (2012). Family and sociodemographic predictors of school readiness among African American boys in kindergarten. *Early Education and Development, 23*, 833-854.

Baker, D. P., Goesling, B., & LeTendre, G. K. (2002). Socioeconomic status, school quality, and national economic development: A cross-national analysis of the "Heyneman-Loxley Effect" on mathematics and science achievement. *Comparative Education Review, 46*, 291-312.

Barrett, B. D., & Martina, C. A. (2012). Towards a non-deterministic reading of Pierre Bourdieu: habitus and educational change in urban schools. *Policy Futures in Education, 10*, 249-262.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis.* New York, NY: Wiley.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258). New York, NY: Greenwood Press.

Castro, M., Expósito-Casas, E., López-Martín, E., Lizasoain, L., Navarro-Asencio, E., & Gaviria, J. L. (2015). Parental involvement on student academic achievement: a meta-analysis. *Educational Research Review, 14*, 33-46.

*Chiu, M. M., & Khoo, L. (2005). Effects of resources, inequality, and privilege bias on achievement: Country, school, and student level analyses. *American Educational Research Journal, 42*, 575-603.

*Chiu, M. M., & McBride-Chang, C. (2006). Gender, context, and reading: A comparison of students in 43 countries. *Scientific Studies of Reading, 10*, 331-362.

*Chiu, M. M., & McBride-Chang, C. (2010). Family and reading in 41 countries: Differences across cultures and students. *Scientific Studies of Reading, 14*, 514-543.

*Ciping, D., Silinskas, G., Wei, W., & Georgiou, G. K. (2015). Cross-lagged relationships between home learning environment and academic achievement in Chinese. *Early Childhood Research Quarterly, 33*, 12-20.

*Claro, M., Cabello, T., Martín, E. S., & Nussbaum, M. (2015). Comparing marginal effects of Chilean students' economic, social and cultural status on digital versus reading and mathematics performance. *Computers & Education, 82*, 1-10.

*Clinton, J., & Hattie, J. (2013). New Zealand students' perceptions of parental involvement in learning and schooling. *Asia Pacific Journal of Education, 33*, 324-337.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Erlbaum Associates.

Cooper, H., M., & Hedges, L. V. (Eds.). (1994). *Handbook of research synthesis*. New York, NY: Russell Sage Foundation.

*Cunningham, M., Corprew, C. S., & Becker, J. E. (2009). Associations of future expectations, negative friends, and academic achievement in high-achieving African American adolescents. *Urban Education, 44*, 280-296.

De Graaf, N. D., De Graaf, P. M., & Kraaykamp, G. (2000). Parental cultural capital and educational attainment in the Netherlands: A refinement of the cultural capital perspective. *Sociology of Education, 73*, 92-111.

DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of U.S. high school students. *American Sociological Review, 47*, 189-201.

*Driessen, G. W. J. M. (2001). Ethnicity, forms of capital, and educational achievement. *International Review of Education, 47*, 513-538.

*Espinosa, L. M., Laffey, J. M., Whittaker, T., & Sheng, Y. (2006). Technology in the home and the achievement of young children: findings from the Early Childhood Longitudinal Study. *Early Education and Development, 17*, 421-441.

*Ethington, C. A. (1992). Gender differences in a psychological model of mathematics achievement. *Journal for Research in Mathematics Education, 23*, 166-181.

*Evans, G. W., & Rosenbaum, J. (2008). Self-regulation and the income-achievement gap. *Early Childhood Research Quarterly, 23*, 504-514.

*Gauvain, M., Savage, S., & McCollum, D. (2000). Reading at home and at school in the primary grades: Cultural and social influences. *Early Education and Development, 11*, 447-463.

Glass, G. V. (1976). Primary, secondary, and meta-analysis of research. *Educational Researcher, 5*(10), 3-8.

*Goforth, K., Noltemeyer, A., Patton, J., Bush, K. R., & Bergen, D. (2014). Understanding mathematics achievement: An analysis of the effects of student and family factors. *Educational Studies, 40*, 196-214.

Goldthorpe, J. H. (2007). "Cultural capital": Some critical observations. *Sociologica, 2*, 1-22.

*Hammouri, H. (2004). Attitudinal and motivational variables related to mathematics achievement in Jordan: Findings from the Third International Mathematics and Science Study (TIMSS). *Educational Research, 46*, 241-257.

Hattie, J. (2009). *Visible learning: a synthesis of over 800 meta-analyses relating to achievement*. London, UK & New York, NY: Routledge.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. New York, NY: Academic Press.

Hedges, L. V., & Vevea, J. L. (1998). Fixed and random-effects models in meta-analysis. *Psychological Methods, 3*, 486–504.

Hernandez-Martinez, P., & Williams, J. (2013). Against the odds: Resilience in mathematics students in transition. *British Educational Research Journal, 39*, 45-59.

Huang, H., & Liang, G. (2016). Parental cultural capital and student school performance in mathematics and science across nations. *The Journal of Educational Research, 109*(3), 286-295.

Huang, J. (2013). Intergenerational transmission of educational attainment: The role of household assets. *Economics of Education Review, 33*, 112-123.

*Hvistendahl, R., & Roe, A. (2004). The literacy achievement of Norwegian minority students. *Scandinavian Journal of Educational Research, 48*, 307-324.

*Iruka, I. U., Dotterer, A. M., & Pungello, E. P. (2014). Ethnic variations of pathways linking socioeconomic status, parenting, and preacademic skills in a nationally representative sample. *Early

Education and Development, 25, 973-994.

Jæger, M. M. (2011). Does cultural capital really affect academic achievement? New evidence from combined sibling and panel data. *Sociology of Education, 84*, 281-298.

Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. *Urban Education, 42*, 82-110.

Jeynes, W. H. (2010). The salience of the subtle aspects of parental involvement and encouraging that involvement: Implications for school-based programs. *Teachers College Record, 112*, 747-774.

*Johnson, U. Y., & Hull, D. M. (2014). Parent involvement and science achievement: A cross-classified multilevel latent growth curve analysis. *The Journal of Educational Research, 107*, 399-409.

*Karbach, J., Gottschling, J., Spengler, M., Hegewald, K., & Spinath, F. M. (2013). Parental involvement and general cognitive ability as predictors of domain-specific academic achievement in early adolescence. *Learning and Instruction, 23*, 43-51.

Kingston, P. W. (2001). The unfulfilled promise of cultural capital theory. *Sociology of Education, 74*, 88-99.

Kraaykamp, G., & van Eijck, K. (2010). The intergenerational reproduction of cultural capital: A threefold perspective. *Social Forces, 89*, 209-231.

Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education, 60*, 73-85.

Lareau, A., & Weininger, E. B. (2003). Cultural capital in educational research: A critical assessment. *Theory and Society, 32*, 567–606.

*Lee, J. S., & Bowen, N. K. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal, 43*, 193-218.

*Lee, V. E., & Croninger, R. G. (1994). The relative importance of home and school in the development of literacy skills for middle-grade students. *American Journal of Education, 102*, 286-329.

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.

Lucas, S. R., & Beresford, L. (2010). Naming and classifying: theory, evidence, and equity in education. *Review of Research in Education, 34*, 25-84.

*Manolitsis, G., Georgiou, G. K., & Parrila, R. (2011). Revisiting the home literacy model of reading development in an orthographically consistent language. *Learning and Instruction, 21*, 496-505.

Marks, G. N., & McMillan, J. (2003). Declining inequality? The changing impact of socio-economic background and ability on education in Australia. *British Journal of Sociology, 54*, 453-471.

*Merlo, L. J., Bowman, M., & Barnett, D. (2007). Parental nurturance promotes reading acquisition in low socioeconomic status children. *Early Education and Development, 18*, 51-69.

*Moon, S. S., & Lee, J. (2009). Multiple predictors of Asian American children's school achievement. *Early Education and Development, 20*, 129-147.

*Nesbitt, K. T., Baker-Ward, L., & Willoughby, M. T. (2013). Executive function mediates socio-economic and racial differences in early academic achievement. *Early Childhood Research Quarterly, 28*, 774-783.

*Niia, A., Almqvist, L., Brunnberg, E., & Granlund, M. (2015). Student participation and parental involvement in relation to academic achievement. *Scandinavian Journal of Educational Research, 59*, 297-315.

*Niles, F. S. (1981). Social class and academic achievement: A third world reinterpretation. *Comparative Education Review, 25*, 419-430.

*Peng, S. S., & Wright. D. (1994). Explanation of academic achievement of Asian American students. *Journal of Educational Research, 87*, 346-352.

Perry, L. (2009). Characteristics of equitable systems of education: A cross-national analysis. *European Education, 41*(1), 79-100.

*Phillipson, S. (2009). Context of academic achievement: Lessons from Hong Kong. *Educational Psychology, 29*, 447-468.

*Phillipson, S., & Phillipson, S. N. (2012). Children's cognitive ability and their academic achievement: The mediation effects of parental expectations. *Asia Pacific Education Review, 13*, 495-508.

Polanin, J. R., Tanner-Smith, E. E., & Hennessy, E. A. (2016). Estimating the difference between published and unpublished effect sizes: A meta-review. *Review of Educational Research, 86*, 207-236.

*Puccioni, J. (2015). Parents' conceptions of school readiness, transition practices, and children's academic achievement trajectories. *The Journal of Educational Research, 108*, 130-147.

Reay, D. (2004a). 'It's all becoming a habitus': Beyond the habitual use of habitus in educational research. *British Journal of Sociology of Education, 25*, 431-444.

Reay, D. (2004b). Education and cultural capital: the implications of changing trends in education policies. *Cultural Trends, 13*(2), 73-86.

*Reynolds, A. J. (1991). Early schooling of children at risk. *American Educational Research Journal, 28*, 392-422.

*Reynolds, A. J. (1992). Comparing measures of parental involvement and their effects on academic achievement. *Early Childhood Research Quarterly, 7*, 441-462.

Reynolds, D., Sammons, P., de Fraine, B., van Damme, J., Townsend, T., Teddlie, C., &Stringfield, S. (2014). Educational effectiveness research (EER): A state-of-the-art Review. *School Effectiveness and School Improvement, 25*, 197-230.

Rosenthal, J. A. (1996). Qualitative descriptors of strength of association and effect size. *Journal of Social Service Research, 21*(4), 37-59.

Schleicher, A. (2009). Securing quality and equity in education: Lessons from PISA. *Prospects, 39*, 251-263.

*Sektnan, M., McClelland, M. M., Acock, A., & Morrison, F. J. (2010). Relations between early family risk, children's behavioral regulation, and academic achievement. *Early Childhood Research Quarterly, 25*, 464-479.

Shulruf, B. (2010). Do extra-curricular activities in schools improve educational outcomes? A critical review and meta-analysis of the literature. *International Review of Education, 56*, 591-612.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*, 417-453.

*Stephenson, K. A., Parrila, R. K., Georgiou, G. K., & Kirby, J. R. (2008). Effects of home literacy, parents' beliefs, and children's task-focused behavior on emergent literacy and word reading skills. Scientific Studies of Reading, 12, 24-50.

Waithaka, E. N. (2014). Family capital: Conceptual model to unpack the intergenerational transfer of advantage in transitions to adulthood. *Journal of Research on Adolescence, 24*, 471–484.

*Walberg, H. J., & Tsai, S. L. (1985). Correlates of reading achievement and attitude: A national assessment study. *The Journal of Educational Research, 78*, 159-167.

Wilder, S. (2014). Effects of parental involvement on academic achievement: A meta-synthesis. *Educational Review, 66*, 377-397.

Winkle-Wagner, R. (2010). Revolutionary possibilities? The future of cultural capital in educational research. *ASHE Higher Education Report, 36*, 91-111.

Xu, J., & Hampden-Thompson, G. (2012). Cultural reproduction, cultural mobility, cultural resources, or trivial effect? A comparative approach to cultural capital and educational performance. *Comparative Education Review, 56*, 98-124.

*Yeo, L. S., Ong, W. W., & Ng, C. M. (2014). The home literacy environment and preschool children's reading skills and interest. *Early Education and Development, 25*, 791-814.

*Zhao, N., Valcke, M., Desoete, A., & Verhaeghe, J. (2012). The quadratic relationship between socioeconomic status and learning performance in China by multilevel analysis: Implications for policies to foster education equity. *International Journal of Educational Development, 32*, 412-422.

Cheng Yong Tan (PhD) is Assistant Professor in the Faculty of Education, The University of Hong Kong. His research interests include socioeconomic status, cultural and social capital, Asian and Western parenting, academic achievement, self-efficacy beliefs, and school leadership.

Correspondence concerning this article should be addressed to Cheng Yong Tan, Faculty of Education, the University of Hong Kong, Pokfulam, Hong Kong. Contact: tancy@hku.hk