

Parents' expectations and students' achievement in two western nations

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The present study compares the relations of family SES and parents' educational expectations during early adolescence with students' self-concept of ability and academic achievement in mathematics and language in two western countries, Switzerland and USA. Participants were drawn from two US longitudinal samples, The Michigan Study of Adolescent Life Transitions (1983) and the Childhood and Beyond study (1990) and a representative sample of Swiss sixth graders (2002). Results from a series of structural equation models indicate a high predictability and stability across nations indicating the broad usefulness of the model for understanding the role of parents' expectations on student's self-concepts and achievement.

Keywords: achievement; culture comparison; expectation; family; self-concept

Both policy makers and developmental scientists are interested in the association between family social class and the educational progress of children in these families. This association is quite high in most countries of the world (Haveman & Wolfe, 1995). A wide variety of explanations for this have been offered ranging from the macro-political/sociological, focusing on the inequitable distribution of resources and opportunities across social class (Haveman & Wolfe, 1995; Klebanov, Brooks-Gunn, & Duncan, 1994), to the micro/psychological, focusing on day-to-day interactions within the family that influence children's developing psychological and intellectual capital (Conger et al., 2002; Marjoribanks, 2002; Schneider & Coleman, 1993).

In this paper, we draw upon theory conceptualized in the expectancy-value family socialization model proposed by Eccles Parson et al. (1983) and others like it (e.g. Bronfenbrenner & Morris, 1998; Entwisle & Alexander, 1990; Goodnow & Collings, 1990; Grolnick & Slowiaczek, 1994; Marjoribanks, 2002). We focus on parents' general educational expectations, their relation to early adolescents' self-concepts of ability in math and language, and their effect on achievement in those domains one year later. Although various aspects of the expectancy value family socialization model have been tested, this is the first study in which the structure of some of its components is replicated in two different countries. The objective of this study is to test the generalizability of the Eccles' parenting model across cultures. Do parents' educational

expectations for their children relate to students' educational achievement in a similar fashion in different educational systems?

Parental expectations as mediator of social class effects on academic outcomes

Research of family influence on academic outcomes by and large shows that children raised in families with more financial and social resources do better academically (Brooks-Gunn & Duncan, 1997; Magnuson, 2003; Marjoribanks, 2002; Yeung, Linver, & Brooks-Gunn, 2002; meta-analysis by Sirin, 2005). Family financial resources are a strong indicator of social class. Additionally, research shows that both parents' educational level and family income positively correspond with parents' expectations for their children's education (Alexander, Entwistle, & Bedinger, 1994; Davis-Kean, 2005; Davis-Kean, Malanchuk, Peck, & Eccles, 2003; Teachman, Paash, & Carver, 1997). These expectations are based on prior student achievement and social norms (DeBaryshe, Patterson, & Capaldi, 1993; Englund, Luckner, Whaley, & Egeland, 2004; Schneider & Coleman, 1993;). Compared to achievement tests, grades are an important source of information for parents, but grades are related to the reference group of the classroom whereas achievement tests refer to a large, classroom-independent sample. We included grades as a predictor and achievement test scores as the outcome measure.

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Parents, as well as researchers, use this available information about their students' prior academic achievements to make predictions about their students' future achievement. These parental expectations are directly and powerfully related to children's academic success, even in financially impoverished contexts (Brooks Gunn, Linver, & Fauth, 2005; Davis-Kean, Eccles, & Schnabel, 2002; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999). In this way parental expectations can serve as a mediator of social class effects on academic outcomes.

Parental expectations' influence on student's ability self-concepts

Parental expectations' influence is not limited to academic outcomes. Parents can also influence student's ability self-concepts (Bandura, 1997; Schunk & Pajares, 2002). Parsons et al. (1982) and Jacobs (1991) found that parents' expectations for their children fully mediated the association between grades and test scores and children's own math ability self-concept. In fact, the children's math self-concept was more directly related to their parents' perceptions than to their own past performance.

Self-concept as a mediator of parent's expectations effect on academic outcomes

Self-concept of ability plays an important role as a mediator between early adolescents' former grades, parents' expectations, and student's future academic achievements (Eccles, 1993; Marsh, Koeller, Trautwein, Luedtke, & Baumert, 2005). Gonzalez-Pineda, Carlos Nunez, & Gonzalez-Pumariega (2002) found that among 12- to 18-year-old adolescents parental involvement had a positive and significant influence on student's self-concept and that self-concept was causally related to academic achievement. More direct tests of this mediation suggest that parental expectations are most powerfully mediated by self-concept in academically-tracked, high academic achievers (Neuenschwander, Garrett, & Eccles, 2006).

The specific model we test is presented in Figure 1: (1) Parents' expectations for their children are influenced by family socio-economic status and prior academic performance of the child; (2) children's academic ability self-concept is influenced directly by their own prior grades and by parents' expectations, and (3) children's academic achievement is influenced directly by their own prior academic achievement, by parents' expectations, and by their own academic ability self-concept. In addition, we hypothesize that (4) children's own academic ability self-concept partially mediates the effect of parents' expectations on academic achievement, and that parents' expectations and prior academic achievement mediate the effect of family socio-economic status on achievement.

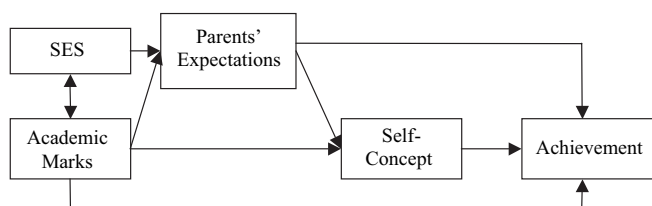


Figure 1. Hypothesized model.

Subject matter differences

There are theoretical reasons why parental expectations may have a stronger effect on academic outcomes in different school subjects. Math and language receive the most classroom time in elementary school classrooms, but it is not clear that these two main subject areas will operate, within the model, similarly. Epstein (1991) found that the effect of parental expectations on academic outcomes was stronger in English, hypothesizing that this was true because classroom feedback on performance in math is more explicit leaving less latitude for parental effects. However, it is also true that in elementary schools teachers in early grades spend more time on reading instruction than on math. We could reason that this more intense study of reading would provide students with more feedback on their performance and, therefore, leave less room for parental effects. These two alternative rationales both seem plausible and the literature does not yet lend clear support for either.

Possible cultural variation: Comparison of two different countries

School structure, family structure, and the relation between families and schools differ between the United States and Switzerland. The USA is a large, multicultural country with a comprehensive school structure. In most schools the transition from sixth to seventh grade marks a change from an elementary school to a middle school that houses students from several elementary schools. Parents are told they are responsible for their children's success and should engage in their children's school life (Henderson & Berla, 2004).

In contrast, Switzerland is a small, central European country with a large middle-class and about 20% immigrants. The Swiss school structure is fairly homogeneous across the country and mostly financed by the state. In Switzerland, students in sixth grade are selected for higher or lower tracks based on grades, achievement tests, and parents' recommendations. Parents typically attribute student achievement to the school (Neuenschwander et al., 2005).

These broadly conceived differences in national educational structure and culture are not reflected perfectly in our samples. The US samples are drawn from largely white, middle-class districts, from one mid-western state which at the time experienced minimal influence from immigration. In these respects, our US samples are more similar to our Swiss sample; however, the fundamental differences in the rigidity and transparency of the educational tracking system remain and set the two countries' educational systems apart.

Our three different samples allow us to test our model in Switzerland and the USA. A successful replication will indicate that the differences in school system, family environment, and parental expectations stably moderate students' achievements across these nations.

Method

Participants

Participants were drawn from three ongoing longitudinal studies from two different western countries: The Michigan Study of Adolescent Life Transitions (MSALT), the Study of Childhood and Beyond (CAB), and the Swiss Parents-Teacher-Collaboration Study (SPTCS). To make the samples as

comparable as possible, students' age, their grade in school, and the measures were selected to match as closely as possible. CAB data correspond with the Swiss data with regard to the grade level of the sample population; MSALT data and the Swiss data correspond according to age of participants. All data sets' mean age fell between 11.17 and 11.94.

Michigan Study of Adolescent Life Transition (MSALT)

The oldest data set used in the present study is MSALT from the USA. It is a large-scale, multi-wave, longitudinal study of early adolescents' transition from elementary school to middle school or junior high school. The study began when students were in sixth grade (1983–1984), attending twelve predominantly White (90%) and middle- to working-class school districts in Southwestern Michigan. Information was obtained from students, their parents and teachers, and their schools (see Eccles et al., 1989). We have used data collected in the fall of the students' seventh grade school year when students mean age was 11.5 years. Students completed questionnaires in their math classrooms and parents received questionnaires by mail. Participants' grades and test scores were collected from school record data. The final sample size in the analyses reported in this paper was 2535 (54.9% female).

Childhood and Beyond (CAB)

The second data set used in the present study came from another ongoing, longitudinal, US study 'Childhood and Beyond' (CAB). Data collection began in 1986. The original sample consisted of 361 children (48% female), their parents, and teachers. This sample came from middle- to upper-middle-class, predominantly white (98%) families. Surveys were administered to children, parents, and teachers in the spring of each year. The study began with three main cohorts of children in kindergarten, first, and third grades. Data used in this study were collected in 1989–1990 from the oldest cohort when students were in the sixth grade ($M_{\text{age}} = 11.17$; $N = 361$).

Swiss Parents–Teacher-Collaboration Study (SPTCS)

The SPTCS sample is from the only large, longitudinal data set focusing on educational variables in the state of Berne, Switzerland; it is representative of the state of Berne. The sample includes 454 sixth graders (52% females, mean age 11.94 years). Students completed standardized questionnaires in their classrooms in late fall 2002 which was focused on their ability self-concepts in math and German and their academic marks. Three weeks later students completed a math and German achievement test administered by a member of the project group.

Questionnaires were also sent home to parents in six different languages (German, Italian, Spanish, Turkish, Albanian, and Serbian). Four hundred and six parents completed questionnaires (response rate was 87%: 84% of whom were mothers, and 88% of whom were of Swiss nationality).

Measures

The framework of all three studies is based on a multi-perspective approach that included information from parents,

students, and school record data. The measures used in this report are as follows.

MSALT Measures

Most of the measures used in this study were developed and tested in previous studies by Eccles and her colleagues and have been shown to be reliable (Eccles, Adler, & Meece, 1984). Adolescents completed a survey during their mathematics class period twice in sixth grade (fall and spring) and twice in seventh grade (fall and spring).

Academic ability self-concept. The early adolescents were asked to rate separately their self-concept of ability in mathematics and English. Each measure was composed of three items (e.g. 'How good at mathematics [English] are you?' [1 = not at all good to 7 = very good]). The mean value for mathematic self-concept was 5.23, ($SD = 1.31$, $\alpha = .87$); English self-concept had a mean of 4.93 ($SD = 1.35$, $\alpha = .89$).

Grade point average and achievement tests. Grade point average in math and English, and scores for the Michigan Educational Assessment Program (MEAP) were collected from school records. The MEAP test is a criterion-referenced, minimal-competence test administered to all the students in Michigan public schools; scores ranged from 1 to 28 in math and 1 to 24 in English. The average value for MEAP math scores in this sample was $M = 22.55$ ($SD = 4.90$) and for English the average MEAP score was $M = 20.34$ ($SD = 3.73$). Fifth grade marks were used as an indicator of past academic performance in math and English. Grade point average was coded 1 to 16 (1 = F, 16 = A+); the mean values were 11.30 ($SD = 2.70$) for mathematics and 11.64 ($SD = 3.43$) for English.

Family income. The parents reported annual family income scores which ranged from less than \$10,000 to over \$40,000, with an average of \$28,000 in 1983.

Parents' educational expectation. We measured parents' educational expectation with five items: "Right after school, do you expect your child (a) to get vocational training or a 2-year college training program, (b) to get a full time job, (c) to go into the military, (d) to go to a four-year college, (e) to get married right after high school (definitely not; probably not; probably yes; definitely yes)?" Items were recoded into two categories (yes, no), and then collapsed into one variable with three hierarchically ranked categories based on amount of education earned (1 = full time job or married, 2 = vocational training, military, or 2-year college training program, 3 = 4-year college), $M = 2.20$ ($SD = .85$). Such expected educational attainment has often been used as a measure of parental expectation in elementary school (see, e.g. Englund et al., 2004).

CAB measures

General academic ability self-concept. Sixth graders rated their self-concept of ability in mathematics and English. Each measure was composed of the same three items as in MSALT (e.g. 'How good at mathematics [English] are you?' [1 = not at all good to 7 = very good]). The average value for math self-concept was $M = 5.52$ ($SD = 1.13$; $\alpha = .85$); the average value for English was $M = 5.67$ ($SD = 1.09$; $\alpha = .85$).

Grade point average and achievement tests. We collected Grade Point Average (GPA) and Michigan Educational Assessment Program (MEAP) test scores from school records. Fifth grade GPA in math and English was the indicator of past academic performance in each subject. GPA was coded 1 to 16 (1 = F, 16 = A+); the mean value for mathematics was 12.1 ($SD = 2.16$) and 12.3 ($SD = 2.06$) for English. Sixth grade MEAP test scores were the indicator of current academic achievement. Scores ranged from 1 to 28 with an average percentage of correct answers of 80.4 ($SD = 19.8$) for math and 71.6 ($SD = 20.2$) for English.

Family Income. Parents reported annual household income; in 1990 it ranged from \$40,000 to over \$70,000 per year, with an average between \$50,000 and \$59,000 per year.

Parents' Educational Expectation. Parents were asked how much education they expected their child to receive out of nine hierarchically ranked possibilities (range: 2 = some high school, 3 = high school, 4 = some college, 5 = associate's degree, 6 = college graduate, 7 = some graduate work, 8 = master's degree, 9 = Ph.D., 10 = advanced degree). The mean for this measure was 6.46 ($SD = 1.43$).

SPTCS adolescent measures

General academic ability self-concepts. The Swiss adolescents reported their ability self-concept in mathematics and German with seven items in each subject area (e.g.: "I am a good student in math/German") with a 4-point Likert scale that ranged from 1 = not true at all to 4 = completely true (Neuenschwander, Böni, Bärtschi, Gerber, Holder et al., 1998). The mean values were $M = 3.00$ ($SD = .62$, $\alpha = .91$) for mathematics and $M = 3.05$ ($SD = .51$, $\alpha = .85$) for German. For structural equation analysis the items were parceled into three indicators (Kishton & Widaman, 1994) to arrive at more reliable measures and so the measurement model was similar to those in the other samples.

Grades. Students' self-report of grades in mathematics and German for the previous school year (fifth grade) was used as the indicator for past academic performance. Mathematics GPA ranged from 1 (very poor) to 6 (excellent); ($M = 4.67$, $SD = .75$); German GPA ranged from 1 to 6 ($M = 4.89$, $SD = .60$).

Standardized mathematics achievement test. Current math achievement was assessed with 19 questions of graded difficulty. Scores ranged from 1–42 points ($M = 17.42$, $SD = .8.2$); Two month retest reliability was .83 and the inter-coder reliability *Kappa* was .98 (see Neuenschwander et al., 2003a).

Standardized German achievement test. This test consisted of three sections: listening, writing, and grammar/vocabulary. In the listening section, students answered 10 multiple-choice-questions about a short story (max. 13 points). In the writing section, students read a short story and wrote a short response to three questions (max. 31 points). These responses were analyzed based on explicit criteria related to content, sentence structure, expression, and formal grammar. The grammar section consisted of three tasks: listening comprehension (max. 8 points), formal grammar (max. 16 points), and vocabulary

(max. 18 points). The total mean for the German test measures was 42.4 ($SD = 10.5$; range 1–86). Test–Retest reliability for whole test was $r = .84$ with an inter-coder reliability in the subtest writing of $r = .93$ (see Neuenschwander et al., 2003b). The administration of the German and math tests lasted 90 minutes with a short break.

Family income. Parents reported annual family income before taxes. Family income ranged from sFr 30,000 to 210,000 ($M =$ sFr 84,796; $SD =$ sFr 40,145) in 2002.

Parents' educational expectations. Parents indicated the level of education they expected their child to complete out of nine hierarchically ranked possibilities, e.g. (1) middle-school with low demands, (2) middle-school with high demands, (3) 10th grade, (4) basic apprenticeship, (5) apprenticeship, (6) vocational baccalaureat, (7) high-school diploma, (8) university of applied science, and (9) university, $M = 4.79$, $SD = 2.21$.

Data analysis

Data were analyzed in 2 steps (correlational analyses followed by structural equation modeling), and separately by study and academic subject (mathematics and German or English). We calculated the structural equation model for math and English with MSALT data first, and then did the same analyses with the CAB data and SPTCS data. To test the model presented in Figure 1, we used the AMOS 5 Program (Arbuckle, 2003). With achievement test scores as the outcome in all three studies, six structural equation models were tested, two models (math and language) for each of the three data sets. We defined a measurement model for self-concept with three indicators whereas the other concepts were measured by single indicators. For all indicators an independent measurement error was estimated. The structural model included indicators and one latent variable with three indicators for self-concept. For each indicator and the latent variable an independent measurement error was estimated. The parameters were estimated based on all available data.

The models' fit with the data was compared in two steps: first, the models were fitted separately to each sample with full information maximum likelihood estimation to handle missing data. Maximum likelihood estimation has been shown to outperform most common methods of handling missing data including listwise and pairwise data deletion and mean substitution (Allison, 2003; Duncan, Duncan, & Li, 1998).

Second, the models' fit to the data were evaluated using the following goodness-of-fit indices: Chi-square (χ^2), Root Mean Square Error of Approximation (*RMSEA*), Bentler & Bonett's (1980) Normed Fit-Indices (*NFI*) and Comparative Fit Indices (*CFI*). *RMSEA* is usually accepted for values below .05; for *NFI* and *CFI* fit indices are usually considered acceptable for scores higher than .90 (Loehlin, 1987). A generally accepted standard of the goodness-of-fit of the χ^2 statistic is in comparison to the degrees of freedom where a value of between one and three is reported to be an acceptable fit (Jöreskog & Sörbom, 1993). However, as Bollen (1989) points out, the χ^2 measure is sensitive to sample size; therefore, the value of the χ^2 as a measure of goodness-of-fit is ambiguous.

Results

MSALT

Table 1 presents the correlations among MSALT variables. Most correlations were significant and positive. The highest correlations were between GPA and standardized achievement tests (.45 < *r* < .56).

The hypothesized SEM model fits well with the MSALT data (see Table 2 and Figure 2). As hypothesized, students' standardized achievement test scores were predicted by parents' educational expectations ($\beta = .14/.14$) even after controlling for prior grades ($\beta = .43/.43$) in both math and English. Similarly, students' ability self-concept was significantly related to prior math and English GPA ($\beta = .43/.30$) and to parents' expectations ($\beta = .06\ddagger/.13$). Math and English standardized test scores were weakly related to the congruent ability self-concept ($\beta = .16/.04$). Parents' expectations were related to parents' income ($\beta = .33/.34$) and student GPA ($\beta = .32/.33$).

CAB

Most correlations among CAB variables were significant (Table 1). Only self-concept of English ability did not correlate with prior academic grades, achievement, and self-concept in math. As in MSALT, prior grades and standardized test scores were highly correlated. The correlations of ability self-concepts with both prior grades and standardized test scores

were also high. In contrast to MSALT, parents' educational expectations were not correlated with students' self-concept of English ability. Furthermore, family income was not correlated with any of the student variables.

As with the MSALT data, the structural model fit well with the CAB data (Table 2, Figure 3), though the fit was stronger for math than for English. As hypothesized, most path coefficients were significant. Both math and English standardized achievement test scores were predicted by parents' educational expectations ($\beta = .15/.33$). In contrast, the path from parents' educational expectation to self-concept of English ability was not significant ($\beta = .09, p = .30$), but it was for math ($\beta = .22$). Contrary to our hypothesis, students' English ability self-concept was not related to parents' educational expectations. In line with our hypotheses, students' math ability self-concept was related to parents' educational expectations. Additionally, the error correlations between family income and GPA in English and in math failed to reach significance ($\phi = .13\ddagger/.10$ ns). Possibly, the homogeneity of family income in the CAB study led to a very small covariance with GPA.

SPTCS

The correlations among SPTCS data (Table 1) were similar to those for the MSALT and CAB samples; the relations were positive and significant; the strongest correlations were between measures of achievement and between constructs within subject areas.

Table 1
Descriptive statistics and correlations

	N	M	SD	1	2	3	4	5	6	7	8
MSALT											
1 Family income	1352	3.94	1.46	1	.41	.18	.21	.12	.10	.18	.19
2 Parent expectation	916	2.20	.85		1	.38	.38	.23	.26	.32	.29
3 GPA-Math (0)	2223	11.38	2.63			1	.77	.41	.29	.56	.45
4 GPA-English (0)	2266	11.74	2.34				1	.32	.34	.52	.50
5 Self-concept Math	2496	5.23	1.32					1	.35	.38	.25
6 Self-concept English	2475	4.93	1.35						1	.22	.22
7 MEAP Math	2533	80.54	17.49							1	.64
8 MEAP English	2533	88.42	16.20								1
CAB											
1 Family income	167	7.80	1.96	1	.32	.12 ^a	.08 ^a	.08 ^a	.11 ^a	.13 ^a	.08 ^a
2 Parent expectation	170	6.46	1.43		1	.25	.25	.26	.09 ^a	.30	.41
3 GPA-Math (0)	348	12.08	2.16			1	.57	.35	-.01 ^a	.47	.42
4 GPA-English (0)	350	12.31	2.06				1	.22	.20	.47	.49
5 Self-concept Math	361	5.52	1.13					1	.01 ^a	.36	.22
6 Self-concept Engl.	361	5.67	1.09						1	.00 ^a	.28
7 MEAP Math	277	80.43	19.75							1	.56
8 MEAP English	277	71.64	20.24								1
SPTCS											
1 Parent income	338	3.19	1.35	1	.23	.23	.20	.09 ^a	.10 ^a	.17	.16
2 Parent expectation	364	4.79	2.21		1	.38	.42	.27	.36	.39	.40
3 GPA-Math (0)	420	4.68	.76			1	.64	.57	.30	.69	.56
4 GPA-German (0)	420	4.89	.60				1	.17	.50	.53	.64
5 Self-concept Math	451	3.00	.62					1	.23	.50	.23
6 Self-concept German	453	3.05	.51						1	.28	.40
7 Achievement Math	442	.42	.20							1	.58
8 Achievement German	440	.64	.16								1

MSALT: all correlations are significant, *p* < .001; CAB: if *r* > .24, then *p* < .001, the other reported correlations are not significant; SPTCS: If *r* > .10, then *p* < .05, if *r* > .12, then *p* < .01, if *r* > .18, then *p* < .001.

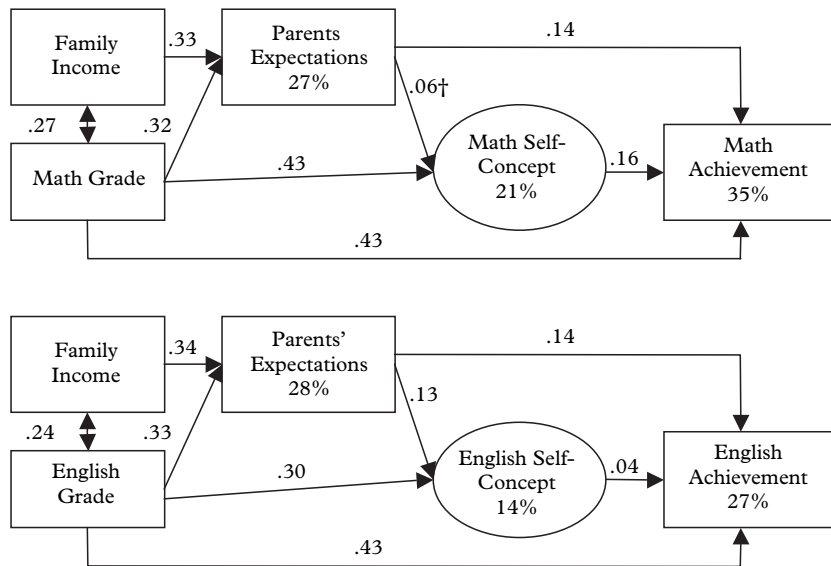


Figure 2. MSALT explanation of school achievements in math and in English (7th grade, † $p < .10$, ns: non significant).

Table 2
Model comparisons^a

	χ^2	df	p	χ^2/df	NFI	CFI
RMSEA						
Model 1: MSALT Mathematics	9.9	10	.45	.99	.998	1.0
Model 2: MSALT English	24.6	10	.01	2.43	.995	.997
Model 3: CAB Mathematics	16.5	10	.09	1.65	.969	.985
Model 4: CAB English	18.5	10	.05	1.85	.979	.992
Model 5: SPTCS Mathematics	18.4	10	.05	1.84	.988	.994
Model 6: SPTCS German	18.3	10	.05	1.83	.984	.992

^a Model 1 & 2: MSALT sample ($N = 2533$); Model 3 & 4: CAB sample ($N = 361$); Model 5 & 6: SPTCS sample ($N = 454$).

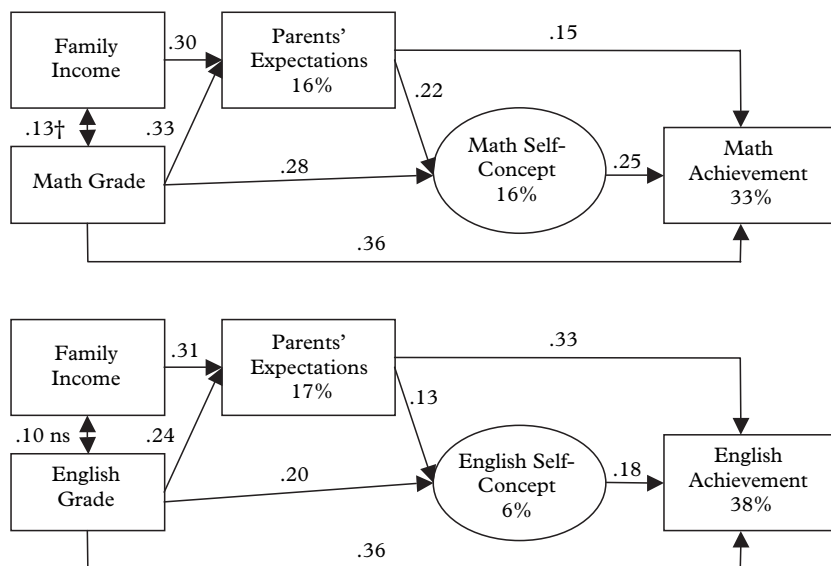


Figure 3. CAB explanation of school achievements in math and in English (6th grades, † $p < .10$, ns: non significant).

As in the MSALT and CAB samples, there was an acceptable fit of the hypothesized model to the SPTCS data (see Table 2, Figure 4). As hypothesized parents' educational expectations were related to children's achievement ($\beta = .12/.33$) after controlling for their academic marks in math and German ($\beta = .56/.56$) and for self-concept ($\beta = .16/.08\ddagger$). Similarly, students' ability self-concepts were predicted by prior academic marks ($\beta = .56/.47$). Parental educational expectations were related to children's ability self-concept in German ($\beta = .19$) but not in math ($\beta = .05$ ns). If the direct path from the prior grades to the students' math ability self-concept was deleted, parents' educational expectation was significantly related to math ability self-concept, but the χ^2 decreased significantly (χ^2 change = 124, $df = 1$, $p < .001$). This indicated students' self-concept of math ability was more closely related to prior grades than to their parents' educational expectations. Parental expectations were related to prior grades ($\beta = .35/.40$) and family income ($\beta = .16/.17$).

General summary

In summary, the results for all three data sets supported our hypotheses that parents' educational expectations predict students' standardized achievements in both math and native language, even after controlling for prior performance in each of these subject areas. Students' self-concepts of abilities mediated the links between students' current performance on standardized achievement tests with parents' educational expectations and with their own prior academic achievement. The link between family income and students' standardized achievement tests was mediated by both parents' expectations and students' own self-concepts of ability.

Discussion

The main aim of the present study was to test a model that explained students' achievement in two school subjects and two different western nations. We aimed to demonstrate that

parents' general educational expectations and students' domain-specific academic ability self-concepts predict school achievement despite variations in school structure, cultural milieu, and academic subject area. The model was tested for math and native language in two US and one Swiss sample of sixth and seventh graders. Although the measures were not precisely the same across studies, the pattern of results was the same on the level of constructs between the two nations. Parents' expectations, a core variable in the model, were measured by items focusing on the parents' predictions for the type of schooling students will receive prior to entering the labor market. These types of schooling are associated with differing levels of prestige and demands (Baumert & Schümer, 2001). Though operationalization differed slightly between the studies, each measured the length and level of education the parents expect their student to earn about eight years later. As hypothesized, parents' expectations for their child predicted students' math and language achievement even after controlling for prior grades. Like the self-fulfilling prophecy findings associated with teacher expectations (see Dusek & Joseph, 1983; Eccles & Wigfield, 1985; Jussim & Harber, 2005), parents' educational expectations predicted subsequent performance: high parent expectations predicted increased performance and low parent expectations predicted lowered performance. Our findings suggest some of this effect likely reflects the correlation of parents' educational expectations with their child's domain specific ability self-concepts, as suggested by Parsons et al. (1982) and Jacobs (1991). The mediating role of parents' educational expectations between prior grades and children's academic ability self-concepts found in four of the six SEM models is in line with prior research (Eccles Parsons et al., 1983) that shows parents help interpret the meaning of elementary school grades for their children and that optimistic or mastery oriented interpretations rather than pessimistic or performance-oriented interpretations help to maintain high academic ability self-concepts. Some of the paths between parents' educational expectations and achievement in our findings, however, were direct.

In addition to the differences in the two countries' school

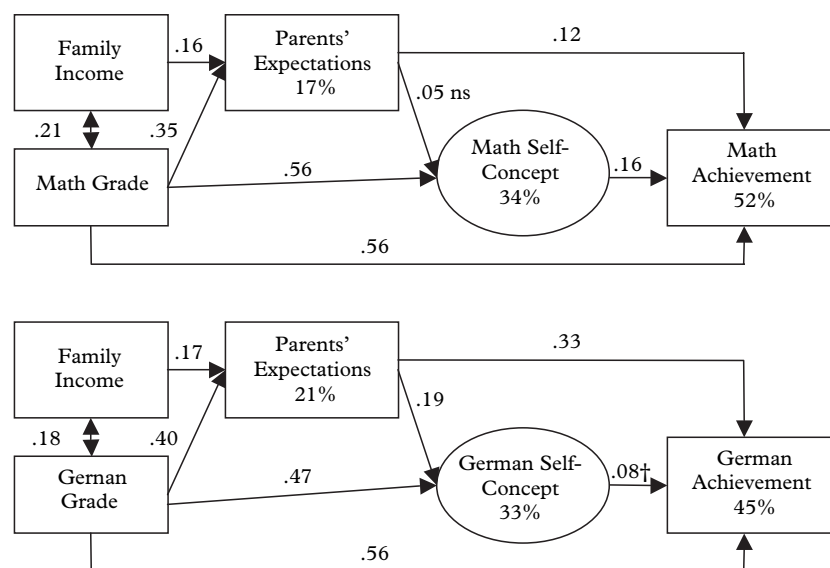


Figure 4. SPTCS explanation of school achievements in math and in German (6th $\ddagger p < .10$, ns: non significant).

systems, there have been historical changes in the United States in the past 20 years such as curriculum innovations (NCES, 2005), changes in teacher training (NCES, 2003), and increased parental involvement in the schools (NCES, 1998). By the 1980s the cultural ethos in the US made clear the need for higher education. The MSALT data we used in these analyses were collected in 1984 whereas the CAB data we used in these analyses stem from 1990. This time interval is relatively small, and so, though our model was replicated across this time interval, we would not conclude that the historical change does not impact the model, but only that the model proved reliable within the examined time interval.

Most importantly, these results confirm the Eccles family socialization model (1983) across countries. Does this indicate a universal rule? The MSALT model could be replicated with a slightly younger US sample and a Swiss sample. The fit indices were comparable and most coefficients corresponded within a narrow range. Thus, it is unlikely that the relations between constructs are substantially different from each other across the three samples. All three analyzed samples are from western cultures, and more diverse samples from more broadly different countries would need to be analyzed to conclude that the model is universal.

The mediating function of self-concept of ability between parents' expectations and students' achievements was only partially confirmed. Parents' expectations were related with student achievement indirectly through their effect on student's ability self-concepts; however, parents' expectations also maintained a significant direct effect on student achievement. In this paper we have modeled the prediction of parents' general academic expectations on student's domain-specific self-concepts and achievement; this allowed us to compare our results with the body of literature on parents' expectations (Eccles, Wigfield, & Schiefele, 1998). However, such general-to-domain-specific effects are not expected to be very strong. We would expect that modeling this mediation processes with either both domain specific parent and student constructs or both general parent and student constructs would garner stronger mediation effects. Our finding that parents' expectations are not only dependent on former grades but also on family socio-economic status is also consistent with the Eccles (1993) model and other research (Trusty, 2000). Socio-economic status explains students' achievements indirectly, mediated by parents' expectations and students' self-concept of ability.

The models could be replicated in two school subjects, confirming that the Eccles et al. socialization model is independent of school subject. In addition, however, we did find some support for Epstein's (1991) finding that parents' expectations explain actual achievement more strongly in language than in math. This was true in both the CAB and Swiss data sets but not in MSALT. But together the results suggest that subject matter differences are likely to be relatively minor.

In this study we have modeled the role of parents' expectations during the critical middle school transition period. However, as students seek more autonomy from their parents in adolescence, they begin to reflect upon and to disagree with their parents' attitudes and beliefs (review in Fend, 2000). We expect that parents' expectations may lose some of their predictive power across adolescence. The analyses should be replicated with different age groups to test this hypothesized developmental trajectory.

In this study only a subset of variables from the Eccles et al.

family socialization model (1993) was tested. We selected variables that were comparable between the samples and we wanted to test a model that was clearly interpretable. Therefore, we chose to omit parents' and students' values, though they are important aspects of the model. In future studies more model constructs should be included.

It is unclear to what extent the presented results indicate a similar relation between family and school in the USA and Switzerland. The findings could be interpreted in a way that suggests parents' expectations account for variance in school achievement independent from the school structure and the cultural environment. Future analyses should investigate how school structure and cultural environment moderate parents' influence on students' achievements. For example, it is unclear how programs of parental involvement regulate this interaction. Cross-cultural work is critical to our fundamental understanding of the interaction between home and school contexts in shaping human development.

Considering the data available in all three data sets and, in order to keep the data analogous, we chose to use only cross-sectional data, controlling for prior achievement; true longitudinal data would allow us to model causal relations among the variables with more precision. Soon, longitudinal data will be available in the Swiss data set and we hope to continue this line of inquiry with future analysis. Preliminary longitudinal analyses in the CAB and MSALT data sets suggest that the process outlined in this paper holds longitudinally.

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