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## **A 9-year study of academically and vocationally educated parents' perceptions of their children's general abilities**

### **Abstract**

*Although parents' beliefs in their children's specific academic competencies have been investigated extensively, parental perceptions of the children's general abilities have received little attention. This study examined changes in parents' perceptions of their children's problem-solving skills, social skills, dexterity and creativity and investigated whether parents' perceptions differentiated according to their education and the children's gender. The participants were a group of academic and vocational parents ( $N = 326$ ) who were asked to assess their children's abilities in a 9-year longitudinal study of the children's formal schooling years. We found that the assessments carried out in the children's preschool year correlated fairly strongly with those carried out even at the end of junior high school. Throughout the follow-up period, the academic parents ascribed more problem-solving skills to their children than the vocational parents and tended to emphasize these skills in relation to dexterity and creativity, whereas the vocational parents emphasized their children's sociability. Girls were seen as better than boys in social skills, dexterity and creativity, while there was no gender difference in the perceived problem-solving skills. The parents seemed to have fairly established views of their children's abilities from the beginning of the children's schooling, and the formation of these views were associated with the parents' education and the children's gender.*

### **Keywords**

*Parental perceptions; Abilities; Gender and educational differences; Longitudinal study*

## **Eine 9 Jahre umfassende Studie zur Wahrnehmung der generellen Fähigkeiten ihrer Kinder von Eltern mit akademischer und nichtakademischer Ausbildung**

### **Zusammenfassung**

*Obwohl die Überzeugungen von Eltern bezüglich der akademischen Fähigkeiten ihrer Kinder bereits ausführlich untersucht wurden, wurde wenig Augenmerk auf die Überzeugungen der Eltern bezüglich der allgemeinen Fähigkeiten ihrer Kinder gelegt. Diese Studie untersuchte Veränderungen in der elterlichen Wahrnehmung der Problemlösefähigkeiten, sozialen Fähigkeiten, Geschicklichkeit und Kreativität ihrer Kinder und ging der Frage nach, ob sich diese elterlichen Einschätzungen systematisch nach der elterlichen Bildung und dem Geschlecht des Kindes unterscheiden. Die Versuchsteilnehmer waren eine Gruppe akademisch und nichtakademisch ausgebildeter Eltern (N = 326), die im Laufe der 9 Jahre umfassenden Längsschnittstudie während der formalen Schulzeit der Kinder gebeten wurden, Einschätzungen zu den Fähigkeiten ihrer Kinder abzugeben. Dabei zeigte sich, dass die zum Vorschuljahr getätigten Einschätzungen ziemlich stark mit den Einschätzungen zum Ende der Sekundarstufe I korrelierten. Während der Follow-up-Phase schrieben die akademisch ausgebildeten Eltern ihren Kindern bessere Problemlösefähigkeiten zu als Eltern mit nichtakademischer Berufsausbildung und tendierten dazu, diese Fähigkeiten, im Vergleich zu Geschicklichkeit und Kreativität, zu betonen. Eltern mit nichtakademischer Berufsausbildung hingegen tendierten dazu, die sozialen Fähigkeiten ihres Kindes in den Vordergrund zu stellen. Mädchen wurden in Bezug auf soziale Fähigkeiten, Geschicklichkeit und Kreativität als besser als Jungen eingeschätzt, während es keine Unterschied zwischen den Geschlechtern für die wahrgenommenen Problemlösefähigkeiten gab. Die Eltern schienen bereits zum Beginn der Schulzeit der Kinder relativ feststehende Einschätzungen der Fähigkeiten ihrer Kinder zu haben, welche mit ihrer Bildung und dem Geschlecht des Kindes verknüpft sind.*

### **Schlagworte**

*Elterliche Wahrnehmung; Fähigkeiten; Geschlecht und Bildungsdifferenzen; Längsschnittstudie*

## **1. Introduction**

Parents' notions about their child's development, including their perceptions of the child's personality, abilities and other inclinations, are usually regarded as factors that influence the rearing of the child and, hence, the child's development. The present study examined parents' perceptions of their children's abilities in a 9-year longitudinal survey, from the children's preschool year until the end of their compulsory education. We were interested in discovering changes and consistencies in

the parental perceptions and in examining the links of these perceptions with the parent's education and the children's gender.

Theoretically, we adopted a social-psychological approach to the conceptions of abilities. Accordingly, the interpretations of abilities are influenced by historically formed and institutionally established representations of intelligence (von Cranach, 1992) that contain distinctions related to education and gender (Aronson & Steele, 2004). Thus, parents with a diverse education and parents of boys and girls have a different relationship to the predominant cognitive-verbal representation of intelligence, and this representation is maintained by the institution of the school (Rosenholtz & Simpson, 1984). In the study of parental perceptions of their children's abilities, gender and education are relevant factors to consider.

Parental perceptions of their children's abilities are of educational significance as there is convincing evidence that parents' beliefs about their children's academic abilities influence the children's performance at school. For instance, parents' views of their children's competencies contribute to the children's own beliefs about their competence, their attitudes towards the school and even their subsequent academic achievement (Parsons, Adler, & Kaczala, 1982; Galper, Wigfield, & Seefeldt, 1997; Frome & Eccles, 1998; Pomerantz & Dong, 2006; Chamorro-Premuzic, Arteche, Furnham, & Trickot, 2009). Findings have also shown that when parents have high perceptions of their children's ability, the decline in the children's academic self-image is less dramatic over time (Fredricks & Eccles, 2002). Moreover, parents' causal attributions of their children's academic achievement tend to contribute to the children's cognitive-verbal performance at school (Rytkönen, Nurmi, & Aunola, 2005). An important underlying factor for positive parental perceptions seems to be their confidence in the children's internal potential (Fredricks & Eccles, 2002). Similarly, parents seem to base their view of their children's educational resilience on the perceptions of their children's success in verbal-cognitive subjects in particular (Kärkkäinen, Rätty, & Kasanen, 2009).

Although parents' notions of their children's development, including their views of the children's specific academic proficiencies, have been investigated extensively (e.g., Siegel, 1985; Goodnow & Collins, 1990), parental perceptions of the children's general abilities have received little attention (see Furnham, 2000). It is important to note that parental perceptions are not just more or less neutral descriptions of the child, but are influenced by a host of social expectations. As evinced in previous research, parental perceptions of a children's abilities are gender-bound (e.g., Eccles, Jacobs, & Harold, 1990; Bhanot & Jovanovic, 2005). In line with our culturally prevailing representation of intelligence, parents are apt to expect boys to excel girls in the cognitive domain and girls to be better in the verbal-social domains (Tiedemann, 2000; Furnham & Valgeirsson, 2007). Our own previous longitudinal findings on parents' perceptions of their children's performance in different academic subjects also showed that girls were seen as better than boys in Finnish (i.e., the mother tongue), handicrafts and learning motivation as early as the pre-

school stage, and these differences tended to persist over the school years (Rätty, Kasanen, & Honkalampi, 2006).<sup>1</sup>

There was one important exception: in mathematics, boys were already considered to be better than girls in preschool. This general gender-of-the-child effect persisted over the primary school years, despite the fact that girls actually do equally well as boys in mathematics. The effect disappeared from the parental attributions only when the children had advanced to the end of the seventh grade (Rätty & Kasanen, 2013). Presumably, when children enter junior high school, feedback from the school becomes clear enough to induce the parents of boys to adjust their evaluations. Thus, in the present study, we examined whether there were gender-of-the-child differences in the parents' perceptions of their daughters' and their sons' abilities, particularly regarding problem-solving and social skills, and whether the perceptions changed during the follow-up period.

In addition, we were interested in a little-researched issue: How are parents' views of their children's competencies related to their education? Our previous findings on parents' perceptions of their children's academic competencies in mathematics and Finnish suggested that highly educated parents attributed greater cognitive-verbal competencies to their children than less educated parents did at the preschool stage (Rätty, 2003a). These education-related differences in parental perceptions tended to persist and even become wider during the children's comprehensive school years (Rätty & Kasanen, 2013). Accordingly, the academically educated parents' expectations for their children's verbal-cognitive competencies were already higher at the preschool stage and were fulfilled to a greater extent during the compulsory school years than those of the vocationally educated parents. 'The ideology of natural giftedness' adopted by the academically educated parents was, thus, reinforced and presumably added to their confidence in their children's potential. Likewise, research has shown that highly educated parents tend to explain their children's success in mathematics and the mother tongue in reference to the children's talent more so than low-educated parents (Rytkönen et al., 2005; Rätty, Kasanen, & Kärkkäinen, 2006).

Through their own education, parents relate to the predominant representation of intelligence in our culture, which values cognitive competencies, particularly mathematics (Mugny & Carugati, 1989). Highly educated parents presumably adhere more closely to the prevailing notion of intelligence represented by the school and endorsed by the teachers (Rätty & Snellman, 1998), for that notion accords with the very definition of the kind of education they have attained themselves; the emphasis on cognitive competence can also be seen as an important part of their educational and social identity (Bourdieu & Passeron, 1977). Indeed, research has demonstrated that highly educated parents are inclined to support a

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1 Finnish comprehensive school is divided into primary school (Grades 1–6, the corresponding ages being from 7 to 12 years) and junior high school (Grades 7–9, the corresponding ages being from 12 to 15 years). Finnish children start their 9-year-long comprehensive education at the age of 7, after a year of nonschool-like preschool; preschool is a voluntary option but is usually chosen by a great majority of parents.

cognitive view of intelligence (Okagaki & Sternberg, 1993). Moreover, as revealed in our previous cross-sectional study of a group of parents with a 12-year-old child, they apply this view in their assessments of their own school-aged children, drawing a clear-cut distinction between cognitive and other abilities (Räty, Snellman, & Vainikainen, 1999). The present longitudinal data made it possible to cross-validate this particular result and also to examine whether the education-related distinction would be present even before the children began their formal schooling.

Given that parental perceptions of a child's general abilities have not been much studied, we designed a short questionnaire, consisting of 14 items, to tap four ability domains and learning motivation. The ability domains were problem-solving skills, social skills, dexterity and creativity. Creativity and dexterity represent more or less non-academic spheres, whereas social skills are associated with the standards of the good pupil who is able to adjust to the rules of the school (Mugny & Carugati, 1989). The problem-solving skills, such as those particularly well represented in mathematics, are closely related to cognitive competencies. These domains were originally derived from parents' spontaneous descriptions, which they employed to characterize a pupil they know and regarded as intelligent; these free descriptions were coded and systematized by means of factor analyses (Räty & Snellman, 1992; Räty et al., 1999). The psychometric properties of this multidimensional method were evaluated in an earlier study, which furnished a measure of empirical support for the reliability of the construct and the concurrent validity of the questionnaire measure (Räty, 2004). For instance, the factor structure seemed to be stable over a 3-year period, and the ability dimensions correlated meaningfully with parents' assessments of their children's competencies in different academic subjects.

To sum up, the major objective of the present study was to contribute to a little-studied domain by addressing the issues of change and stability in parental perceptions of their children's general abilities in the course of their compulsory education. This question is important because parental perceptions can be seen as reflecting their confidence in their children's educational potential and related prospects. While the views of abilities have social connotations, we were also interested in looking at the differentiation in the perception of ability in terms of the parents' education and the children's gender. Accordingly, our research questions were as follows: 1) Do parents' perceptions of their children's abilities change during his/her compulsory school years? 2) Are parents' perceptions of their children's abilities related to the parents' education and the children's gender? 3) Do highly educated parents draw a sharper distinction between problem-solving skills and other abilities than less educated parents?

Regarding the first problem, which derived from our previous findings on parental perceptions of their children's academic proficiencies (e.g., Räty et al., 2006), we expected the parents to show relatively established views of their children's potential even before the children's formal schooling had begun. In addition, as general abilities are not formally evaluated at school, with the exception of social skills, it was reasonable to assume that that lack of explicit feedback would

make the parental ability perceptions less liable to change than their perceptions of specific academic competencies. As to the second problem, also based on our previous findings, we expected culture-bound gendered expectations to be present in the parental perceptions, especially regarding their views of problem-solving skills (favoring boys) and social skills (favoring girls). In relation to the third problem, we assumed that there would be a distinction between cognitive vs. other (practical) skills, especially in the perceptions of highly educated parents, because they tend to value the prevailing cognitive notion of intelligence and perceive their children's academic achievement, particularly in mathematics and the mother tongue, to be higher than low-educated parents across the children's formal schooling.

## 2. Method

### 2.1 Participants

The present study is part of a larger research endeavor addressing the role of gender and the parents' education in children's schooling. A questionnaire concerning parents' views of their child's forthcoming education was posted to a nationwide random sample of parents who were judged on the basis of their current occupation to be either vocationally or academically educated and had a 7-year-old child ready to start school in autumn 2000. The questionnaire was sent to individual parents (mothers or fathers). The response rate was 66 %, providing a total of 850 responses. Not all of the respondents clearly represented one or the other of the two desired educational groups. Therefore, we omitted, in the present set of studies, those who did not (i.e., the parents with secondary-level education only and those with no post-primary education), ending up with two parent groups – vocationally educated and academically educated – who were internally homogeneous in terms of their post-primary education, giving a study group of 574 subjects. The vocationally educated parents had completed at least a one-year vocational course but usually had a 2–3 year vocational education, and the academically educated parents had obtained at least a lower academic degree (BA) but usually a higher degree (MA).

These parents were contacted again at the end of their child's 1st, 3rd, 5th, 7th and 9th school year, i.e., when the child was about 7–15 years of age. The response rates were 85 %, 88 %, 91 %, 92 % and 93 %, respectively. As found in the previous follow-up phases, more mothers (95 %) than fathers (89 %) responded,  $\chi^2(1) = 3.13, p < .08$ , and more academically educated parents (96 %) responded than vocationally educated parents (90 %),  $\chi^2(1) = 4.98, p < .05$ . There were no significant differences in this respect between the parents of boys (91 %) and of girls (94 %).

In the present follow-up of the group of parents ( $N = 326$ ), 69 % were mothers and 31 % fathers; these two gender groups did not differ in terms of their child's

gender. The group comprised 53 % vocationally educated and 47 % academically educated parents; these two educational groups did not differ in terms of their gender or their child's gender. Girls' parents made up 51 % and boys' parents 49 % of the group. The parents' average age was 47 years ( $SD = 5.29$ ) at the end of the last follow-up period.

## 2.2 Questionnaire

One part of the questionnaire was labelled 'Description of your child'. The instruction read as follows: 'Having closely observed your child's development, you have formed a clear picture of him/her and his/her distinctive characteristics. We now ask you to assess how well the following statements describe your child'. The task involved a set of short descriptions, which the parents were asked to judge on a 5-point scale anchored by 'very little' (1) and 'very much' (5). The following abilities were measured and corresponding mean scales computed: *problem-solving skills* ('solves problems quickly', 'is able to integrate different things', 'understands things quickly', and 'finds the gist of the matter easily'), *social skills* ('ready to help others', 'takes others into consideration', 'adaptive' and 'friendly'), *creativity* ('has a good imagination', 'artistic' and 'creative') and *dexterity* ('handy' and 'dexterous'). Over the six phases of the study, from the child's preschool to his/her 9th school year, the reliability coefficients (Cronbach's alpha) for the problem-solving skills were .82, .84, .88, .91, .91 and .92. Those for the social skills were .81, .86, .83, .88, .85 and .85; those for the creative skills were .71, .73, .77, .80, .78 and .83 and those for dexterity were .81, .84, .86, .88, .88 and .89.

## 2.3 Analyzing procedures

We examined the data in three ways. First, to determine the temporal stability of the parental assessments, we computed the intercorrelations among the six phases of measurement. Second, we conducted separate repeated measure ANOVAs for the four different ability perceptions to determine whether there were differences among the six phases of the parental assessments. We chose this method because it enabled us to also scrutinize group-specific changes. The model applied was a mixed one in that the parent's education and the child's gender were included as between-subjects factors, and also a fully factorial one, i.e., all of the main effects and interactions were determined. In cases where the condition of sphericity, as measured by Mauchly's test, was not met, the Greenhouse and Geisser correction was used. In cases of significant associations, effect sizes ( $\eta^2$ , partial eta squared) were computed. For a post hoc test, we applied the Bonferroni method. As our preliminary analyses indicated that parents' gender did not have any significant main or interactional effects, it was not included in the final analyses. Third, by means of a repeated-measured analysis of variance, accompanied by the Bonferroni meth-

od for post hoc testing, we examined the differentiation in the profiles constructed by the academically and vocationally educated parents of their child's abilities in three phases of the follow-up period: at the child's preschool, i.e., prior to the potential impact of formal schooling; at the end of the 5th grade, at which time the pupil's level of academic success as measured by the grades in his/her report card is fairly stabilized (Kuusinen, 1992); and at the end of his/her compulsory education, i.e., at 9th grade.

### 3. Results

#### 3.1 The temporal stability of the parental assessments of their child's abilities

The intercorrelations of the parents' assessments of their child's abilities among the different phases of the study were statistically significant (Table 1). The assessments conducted as early as the child's preschool tended to anticipate the later assessments, even those conducted at the end of the child's 9-year-long schooling, clearly better than by chance, varying between .46 and .57. Further, the anticipatory power of the earliest parental assessments became stronger with time. Thus, the evaluations conducted in the child's third school year were notably associated with the corresponding evaluations conducted in the child's ninth grade, with the correlations hovering around .60; and the intercorrelation coefficients obtained between the end of the child's primary school and the beginning of junior high school were well over .70, with the exception of social skills, in which the coefficient remained somewhat lower. We also noted that the intercorrelations were quite similar for the academically educated and the vocationally educated parents.

#### 3.2 Assessments of abilities

For *problem-solving skills*, the tests of within-subject effects showed that the phase of the assessment had no significant effect,  $F(4, 1315) = 1.24, p > .28$ , nor had it any significant interaction with the parent's education or the child's gender (Table 2). The tests of between-subjects associations showed that the parent's education had a significant effect,  $F(1, 315) = 7.35, p < .01, \eta^2 = .023$ . Throughout the follow-up period, the academically educated parents ( $M = 4.06$ ) ascribed more problem-solving skills to their children than the vocationally educated parents did to theirs ( $M = 3.88$ ).

In terms of *social skills*, the tests of the within-subject effects indicated that the phase of the assessment had a significant effect,  $F(4, 1401) = 3.42, p < .01, \eta^2 = .011$ , indicating that the attribution of social skills tended to increase from the child's preschool to the first few years of school and then to stabilize. The between-

Table 1: Intercorrelations among the parents' assessments of abilities across the children's grades

	Ps0	Ps1	Ps3	Ps5	Ps7	Ps9	So0	So1	So3	So5	So7	So9	De0	De1	De3	De5	De7	De9	Cr0	Cr1	Cr3	Cr5	Cr7	Cr9	
Ps0																									
Ps1	.63																								
Ps3	.60	.67																							
Ps5	.57	.61	.75																						
Ps7	.53	.58	.71	.78																					
Ps9	.46	.53	.65	.71	.77																				
So0	.22	.10	.10	.12	.12	.12																			
So1	.11	.14	.04	.06	.04	.06	.66																		
So3	.09	.07	.12	.11	.12	.13	.58	.64																	
So5	.16	.13	.09	.21	.14	.17	.48	.55	.61																
So7	.15	.17	.11	.15	.22	.19	.49	.49	.61	.62															
So9	.17	.16	.12	.18	.19	.31	.48	.51	.57	.63	.67														
De0	.17	.15	.14	.10	.15	.19	.16	.06	.09	.09	.15	.21													
De1	.11	.17	.13	.04	.10	.11	.05	.04	.02	.04	.10	.14	.62												
De3	.13	.16	.26	.10	.18	.19	.04	.00	.14	.05	.12	.18	.55	.68											
De5	.15	.15	.19	.20	.20	.20	.10	.06	.09	.13	.15	.18	.56	.66	.74										
De7	.05	.09	.15	.10	.29	.22	.08	.06	.12	.04	.17	.20	.48	.60	.69	.74									
De9	.08	.12	.17	.15	.23	.29	.08	.12	.10	.11	.15	.24	.55	.59	.65	.72	.75								
Cr0	.31	.20	.18	.16	.21	.21	.22	.18	.14	.18	.15	.22	.51	.33	.31	.28	.28	.32							
Cr1	.23	.25	.19	.14	.17	.16	.06	.11	.08	.06	.10	.10	.39	.52	.39	.32	.33	.31	.70						
Cr3	.18	.12	.29	.15	.22	.21	.08	.06	.19	.09	.17	.12	.41	.40	.49	.35	.36	.36	.63	.70					
Cr5	.18	.18	.27	.28	.30	.25	.14	.11	.18	.26	.22	.23	.42	.42	.46	.52	.45	.45	.56	.60	.70				
Cr7	.16	.15	.25	.20	.29	.33	.15	.12	.21	.14	.19	.30	.46	.46	.46	.52	.56	.51	.57	.62	.68	.74			
Cr9	.08	.12	.16	.15	.23	.29	.05	.12	.10	.15	.15	.24	.52	.46	.44	.45	.46	.58	.57	.63	.68	.68	.80		

Note. Ps = Problem solving; So = Sociability; De = Dexterity; Cr = Creativity. 0 = preschool; 1 = first grade; 3 = third grade; 5 = fifth grade; 7 = seventh grade; 9 = ninth grade. All correlations above .15 are statistically significant at  $p < .01$ .

subjects associations revealed that the child’s gender had a significant effect,  $F(1, 315) = 10.49, p < .001, \eta^2 = .032$ , suggesting that the parents rated their daughters’ ( $M = 4.16$ ) sociability higher than their sons’ ( $M = 3.96$ ) throughout the follow-up period.

In relation to *dexterity*, the tests of the within-subjects effects revealed that the phase of the assessment had a significant effect,  $F(4, 1376) = 6.11, p < .0005, \eta^2 = .019$ , showing that the attribution of dexterity remained stable from the child’s preschool until the end of his/her 7th grade and then decreased. The between-subjects associations indicated that the child’s gender had a significant effect,  $F(1, 315) = 33.32, p < .0005, \eta^2 = .096$ , suggesting that the parents rated their daughters’ dexterity ( $M = 4.01$ ) as better than their sons’ ( $M = 3.55$ ) across the follow-up period.

Regarding *creativity*, the tests of the within-subjects effects showed that the phase of the assessment had a significant effect,  $F(4, 1324) = 5.28, p < .0005, \eta^2 = .016$ , indicating that the attribution of creativity remained stable from the child’s preschool until the end of his/her 7th grade and then decreased. This effect was further specified by its significant interaction with the child’s gender,  $F(4, 1324) = 3.09, p < .02, \eta^2 = .010$ . Group-bound tests showed that the decreasing trend applied to the parents of boys,  $F(4, 636) = 6.19, p < .0005$ , but not to the parents of girls,  $F(4, 680) = 1.72, p > .14$ . The means for the boys were 3.65, 3.70, 3.71, 3.61, 3.59 and 3.45, and for the girls, 4.08, 4.10, 4.18, 4.16, 4.16 and 4.08, respectively. The between-subjects associations indicated that the child’s gender had a significant effect,  $F(1, 315) = 56.84, p < .0005, \eta^2 = .153$ , suggesting that

**Table 2:** Means of the parents’ perceptions of their children’s abilities in different phases of the study (standard deviations, ranges as well as minimum and maximum values are displayed in brackets)

Ability domain	Phase					
	Preschool	1st grade	3rd grade	5th grade	7th grade	9th grade
Problem-solving	3.93 (.62; 2.9; 2.2 – 5.0)	3.96 (.65; 3.0; 2.0 – 5.0)	3.96 (.70; 3.5; 1.5 – 5.0)	3.97 (.75; 3.5; 1.5 – 5.0)	4.01 (.75; 3.7; 1.2 – 5.0)	3.97 (.76; 4.0; 0 – 5.0)
Sociability	3.98 <sup>b</sup> (.66; 2.7; 2.2 – 5.0)	4.03 <sup>ab</sup> (.69; 3.5; 1.5 – 5.0)	4.09 <sup>a</sup> (.66; 3.0; 2.0 – 5.0)	4.08 <sup>ab</sup> (.68; 3.5; 1.5 – 5.0)	4.08 <sup>ab</sup> (.65; 3.0; 2.0 – 5.0)	4.09 <sup>a</sup> (.64; 3.2; 1.8 – 5.0)
Dexterity	3.84 <sup>a</sup> (.83; 4.0; 1.0 – 5.0)	3.77 <sup>ab</sup> (.87; 4.0; 1.0 – 5.0)	3.87 <sup>a</sup> (.89; 4.0; 1.0 – 5.0)	3.78 <sup>a</sup> (.88; 4.0; 1.0 – 5.0)	3.79 <sup>a</sup> (.92; 4.0; 1.0 – 5.0)	3.65 <sup>b</sup> (.98; 4.0; 1.0 – 5.0)
Creativity	3.86 <sup>ab</sup> (.75; 3.3; 1.7 – 5.0)	3.90 <sup>a</sup> (.73; 3.0; 2.0 – 5.0)	3.94 <sup>a</sup> (.76; 3.0; 2.0 – 5.0)	3.88 <sup>a</sup> (.78; 3.3; 1.7 – 5.0)	3.88 <sup>a</sup> (.77; 3.7; 1.3 – 5.0)	3.77 <sup>b</sup> (.85; 3.7; 1.3 – 5.0)

Note. In each row, means with different superscripts are significantly different according to the Bonferroni test ( $p < .05$ ).

the parents rated their daughters' creativity ( $M = 4.12$ ) as better than their sons' ( $M = 3.62$ ) across the follow-up period.

### 3.3 Differentiation of ability profiles

At the child's preschool stage, the repeated-measures analyses of variance indicated that the means of the ability assessments differed from each other for the academically educated parents,  $F(3, 407) = 4.26, p < .01, \eta^2 = .027$ , and for the vocationally educated parents,  $F(3, 473) = 4.44, p < .005, \eta^2 = .025$ . The post hoc tests suggested that the academically educated parents attributed the most competence to their child in problem-solving skills, social skills and creativity and that they rated their child's problem-solving skills significantly higher than his/her dexterity. The vocationally educated parents ascribed the most competence to their child in social skills, dexterity and creativity, and they rated their child's social skills significantly higher than his/her problem-solving skills (Table 3).

At the end of the child's 5th grade, the means of ability assessments differed significantly for both the academic parents,  $F(3, 406) = 4.86, p < .004, \eta^2 = .031$ , and the vocational parents,  $F(3, 462) = 9.60, p < .0005, \eta^2 = .053$ . According to the post hoc comparisons, the academic parents rated their child's social and problem-solving skills significantly higher than dexterity and creative skills, whereas the vocational parents rated their child's social skills significantly higher than all of the other skills.

At the end of the child's 9th grade, the means of the ability assessments differed significantly for both the academically educated parents,  $F(3, 495) = 14.10, p < .0005, \eta^2 = .085$ , and the vocationally educated parents,  $F(3, 471) = 18.35, p < .0005, \eta^2 = .097$ . The post hoc tests indicated that the academically educated parents attributed significantly more problem-solving skills and social skills to their child than dexterity and creativity skills, whereas the vocationally educated parents rated their child's social skills significantly higher than all of the other skills.

As the grand and group means of the ability assessments in Tables 2 and 3 indicate, the scores were positively rather skewed, pointing to a possible ceiling effect. However, as suggested by the standard deviations and ranges, the distributions were not wholly concentrated on the positive end of the scales. Moreover, the share of the participants who rated their child's abilities as 5 (i.e., at the top of the scale) varied between 10 % and 15 %, with the exception of dexterity, in which the share varied between 15 % and 20 %.

**Table 3:** Means of the parents' perceptions of their children's abilities in the preschool and at the end of the 5th and 9th grades according to parents' education (standard deviations, ranges as well as minimum and maximum values are given in brackets)

Ability domain	Phase					
	Preschool		5th grade		9th grade	
	Academic parents	Vocational parents	Academic parents	Vocational parents	Academic parents	Vocational parents
Problem-solving	4.03 <sup>a</sup> (.62; 2.5; 2.5 – 5.0)	3.85 <sup>b</sup> (.62; 2.7; 2.2 – 5.0)	4.03 <sup>a</sup> (.71; 3.5; 1.5 – 5.0)	3.91 <sup>b</sup> (.68; 3.2; 2.0 – 5.0)	4.06 <sup>a</sup> (.76; 4.0; 1.0 – 5.0)	3.89 <sup>b</sup> (.72; 3.0; 2.0 – 5.0)
Sociability	3.93 <sup>ab</sup> (.71; 2.5; 2.5 – 5.0)	4.03 <sup>a</sup> (.62; 2.7; 2.2 – 5.0)	4.02 <sup>a</sup> (.66; 3.0; 1.5 – 5.0)	4.16 <sup>a</sup> (.66; 2.7; 2.0 – 5.0)	4.00 <sup>a</sup> (.67; 3.2; 1.8 – 5.0)	4.18 <sup>a</sup> (.61; 2.2; 2.8 – 5.0)
Dexterity	3.77 <sup>b</sup> (.88; 4.0; 1.0 – 5.0)	3.94 <sup>ab</sup> (.77; 3.0; 1.0 – 5.0)	3.76 <sup>b</sup> (.95; 4.0; 1.0 – 5.0)	3.82 <sup>b</sup> (.84; 3.5; 1.0 – 5.0)	3.59 <sup>c</sup> (1.06; 4.0; 1.0 – 5.0)	3.75 <sup>b</sup> (.87; 4.0; 1.0 – 5.0)
Creativity	3.89 <sup>ab</sup> (.78; 3.3; 1.7 – 5.0)	3.86 <sup>ab</sup> (.72; 3.3; 1.7 – 5.0)	3.89 <sup>b</sup> (.78; 3.0; 1.7 – 5.0)	3.90 <sup>b</sup> (.73; 3.0; 2.0 – 5.0)	3.77 <sup>b</sup> (.90; 3.7; 1.3 – 5.0)	3.79 <sup>b</sup> (.79; 3.3; 1.7 – 5.0)

*Note.* In each column, means with different superscripts are significantly different according to the Bonferroni test ( $p < .05$ ).

## 4. Discussion

This study set out to scrutinize parents' perceptions of their children's abilities – problem-solving and social skills, dexterity and creativity – in a 9-year longitudinal survey, from the children's preschool year until the end of their compulsory education. We were interested in discovering changes and consistencies in the parental perceptions and in examining whether these perceptions were associated with the parent's education and the children's gender.

As to the first research question addressing the changes in parental perceptions, we found that the parents' assessments of their children's abilities as early as at the threshold of formal schooling were fairly strongly associated with their assessments in the middle of primary school (the correlations hovering around .60) and with their assessments at the end of junior high school (the correlations hovering around .50). These results concur with our findings on parents' assessments of their children's competencies in specific academic subjects (Rätty & Kasanen, 2013). As presumed, the changes in the parents' perceptions of their children's abilities were somewhat less frequent and less marked than their perceptions of their children's academic competencies. This may relate to the fact that general abilities are not evaluated at school as explicitly as subject-bound proficiencies. As parents seem to have fairly crystallized views of their children's important mental asset al-

ready at preschool, these are formed quite independently of the influence of the school but may well function as an important source of parental confidence and expectations of the children's academic achievement (see Fredricks & Eccles, 2002).

Interestingly enough, the attribution of sociability tended to increase once the children started their school and to remain at a relatively high level throughout the children's compulsory school years. In fact, social skills had the highest mean values in all of the six phases of measurement. These skills are evidently regarded as an important attribute for successful adaptation to school life and, subsequently, to the children's future role as a proper citizen. In addition, as sociability is a highly desirable property, the parents may have even overemphasized their children's social skills. Our finding that the attribution of dexterity and, with the parents of boys, creativity tended to decrease in upper primary school may be due to the increasingly academic approach, which tends to value cognitive-verbal proficiencies in particular (Stipek & McIver, 1989). Without much academic feedback, creativity and dexterity 'disappear' as appreciated domains.

We further noted that there were no marked changes in the parental perceptions of the children's problem-solving skills during the 9-year follow-up period and that the level of parental attributions remained relatively stable and high. This may suggest that parents understand problem-solving skills to be a trait-like ability, similarly to the notion of intelligence being regarded as a relatively fixed potential (Rosenholtz & Simpson, 1984).

This leads us to the second research problem pertaining to the differences among the parents. The finding that the academic parents had a consistently higher opinion of their children's problem-solving skills agrees with our previous results, which found that throughout the children's school years academically educated parents perceived their children's proficiency in cognitive-verbal subjects, mathematics and Finnish, to be higher than vocationally educated parents did (Räty & Kasanen, 2013). It may be that a consistently high opinion of the children's (cognitive) intelligence is an important factor in building the confidence that the academic parents have in their children's educational potential.

The finding that the vocationally educated parents were apt to highlight their children's social skills in relation to other skills may indicate that they appreciate conformism more so than highly educated parents do (Kohn, 1977). At any rate, the emphasis on the children's sociability does not imply much educational resistance or inconvenience among the vocationally educated parents. Finnish people, working-class parents included, have strong confidence in the benefits of education (Räty, 2003b; Jauhiainen & Alho-Mannelin, 2004). It is possible, though, that the present follow-up group of parents may have been self-selected according to their attitude towards schooling. However, we found in an earlier study that the parents' willingness to take part in the survey was not significantly related to their satisfaction with the functioning of their children's school (Räty, 2010).

As expected, the parents rated their daughters' social skills higher than that of their sons'. The same applied to the ratings of girls' creativity and dexterity. These findings may reflect the taken-for-granted assumption that girls are more kind and

considerate than boys, something that can also be employed to explain girls' better academic attainment in comparison with boys' performance (Gordon, Holland, & Lahelma, 2000). Given that the parents tended to rate boys' mathematical proficiency higher than that of girls', it was somewhat surprising to find that there were no significant gender differences in parental perceptions of children's problem-solving skills. This particular result has a parallel in research performed in the area of the stereotype threat: Labelling a set of tasks as a mathematical test makes a consequential difference to women and men by lowering the performance of women but not of men (Aronson & Steele, 2004). Thus, it seems that mathematics has strong gender-linked connotations, which are adopted early on in the course of socialization into gender stereotypes (Fiske & Stevens, 1993).

We can speculate further that the parents may have understood the descriptions of problem-solving skills as reflecting a general intellectual ability, which is required not only in the academic domain, but in all walks of life and that, as such, they did not link this general human ability to gender.

Parents' gender did not have any significant effects on the ability assessments. Yet we know that gender does make a difference, at least in parents' assessments of their children's specific academic competencies. For instance, academically educated fathers seem to emphasize their sons' mathematical proficiencies in relation to verbal and practical proficiencies (Rätty, 2003a).

Regarding the third research question addressing the differences in the perceived ability profiles between the academically and vocationally parents, the results obtained concur with our previous findings from cross-sectional studies (Rätty et al., 1999). Accordingly, unlike the vocationally educated parents, the academically educated parents attributed significantly more problem-solving skills than dexterity to their children as early as the children's preschool, and this particular difference remained until the end the children's compulsory school years. Additionally, by the end of the children's 9th grade, the academically educated parents were inclined to separate problem-solving skills from creativity. It is important to note that we are dealing with relational differences among the attribution of abilities, which parents may well consider to be an important aspect of their perceived educational reality.

The dualistic notion of intelligence manifests the culturally predominant notion of intelligence, which is embedded in the ethos and practices of the school (Rosenholtz & Simpson, 1984). This particular representation seemed to be reproduced in the ability perceptions of the academic parents. As Lorenzi-Cioldi and Clémence (2003) stated, the self-representations of people with power and status match the culturally appreciated representations of the autonomous and competent individual more closely than those of people with less power and status. This implies that academic parents are entitled to define their child as a 'special one' i.e., naturally gifted (Reay, 2008).

Our study should be evaluated in the light of the following limitations. We set out deliberately to compare two socially and educationally contrasting groups. Still, it would be interesting to examine other groups who were not sampled in the pre-

sent study, such as parents with a lower secondary education and those with only a comprehensive-school education, who quantitatively represented roughly a half of the parents in the age cohort. Previous cross-sectional findings have suggested that vocationally educated and academically educated parents represent clearly contrasting groups in regard to the differentiation of their children's ability profiles; they have also indicated that parents with a lower secondary education are close to academically educated parents and that parents with a comprehensive education only are close to vocationally educated parents (Räty et al., 1999).

Parents are inclined to have rather positive views of their children's abilities, and these views manifest themselves in the positively skewed distributions of scores. To avoid the ceiling effect, it would be useful to further develop the rating scale, e.g., by providing more alternatives to respond or using more comparative alternatives (i.e., in relation to 'average'). As is usual in the case of surveys with a large number of respondents, the effect sizes of significant differences tend to remain small. This also applies to the present study, although there were a few medium size and even large size effects. Accordingly, further studies are needed to validate the present findings.

As the present group comprised a nationally and regionally representative sample of academically educated and vocationally educated parents, it was not possible for practical reasons to obtain external evaluations of the children's abilities, such as teachers' judgments. Such information would have allowed us to use those evaluations as a control variable (Chamorro-Premuzic et al., 2009). However, as has been shown in regard to children's academic competencies, parents' subjective views are stronger predictors of children's perceptions of their competence than children's actual achievement is (Frome & Eccles, 1998). Depending on the age of the child, parents' perceptions are occasionally more important for children's academic development than teachers' assessments are (Stipek & McIver, 1989; Entwistle, 1997). Thus, parents' subjective views, right or wrong, tend to shape their children's development and educational reality.

The finding that the differentiation of the children's ability profiles, as measured by *F*-values and effect sizes, seemed to become stronger over their school years suggests that the parents' perceptions of the children's academic achievements have probably affected their assessments of the children's abilities. Parents' perceptions of their children's performance in mathematics, languages and science have been shown to relate to their perceptions of the children's problem-solving skills, whereas their perceptions of the children's performance in art, music and handicrafts have been shown to relate to the children's practical creativity (Räty et al., 1999). In their attempt to understand their children's performance in school in different subjects, parents evidently also draw conclusions about the extent and quality of the children's abilities. We may speculate, for instance, that at the very beginning of school, parents' views of their children's general abilities set expectations for the children's performance in individual subjects, whereas later on, their perception of the children's subject-specific performance may contribute to their

views of their children's abilities. These issues, however, are beyond the scope of the present study.

Theoretically speaking, this study adopted a social-psychological approach to conceptions of abilities. Thus we were interested in scrutinizing the relations of parents' perceptions of their children's general abilities with their social position and the child's gender. The present results, backed up by our previous findings about parents' perceptions of their children's academic proficiencies, contribute to our understanding of the social reproduction of education. Academically educated parents' highly positive assessments of their children's cognitive-verbal abilities establish confidence in the children's educational potential, and parental confidence in turn tends to contribute positively to the children's academic performance and self-concept as learners.

In terms of parental conceptions of abilities, then, the children of highly educated parents seem to have a 'home advantage' (Lareau, 1987). Through their conceptions of abilities, academically educated parents bond themselves to the predominant representation of intelligence endorsed by the school institution and share with teachers the related ethos of educability. By explaining children's school performance in terms of these conceptions, academically educated parents also bolster up their social identity, which is founded on the assumption that the highly valued university education that they have requires precisely the sort of theoretical prowess that is possessed by precious few.

In sum, conceptions of abilities based on a very individualizing way of thinking offer in fact a vista on the construction of the social reality of education. In further research it would be worthwhile to measure parents' confidence in their children's abilities more directly, e.g., in terms of parental notions of educational resiliency and of the role of the 'ability self' in parents' educational and social identity.

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