

Effort, Ability, or Difficulties? Parents' and Teachers' Explanations of the Malleability of Children's Competences

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Received: September 12, 2016

Accepted: November 1, 2016

Online Published: January 11, 2017

doi:10.5539/jedp.v7n1p146

URL: <http://dx.doi.org/10.5539/jedp.v7n1p146>

Abstract

This study set out to examine parents' and teachers' explanations of the malleability of children's competences. Parents and teachers were asked in which aspect of schoolwork the child could improve his/her competence most and to explain why. The participants were parents and teachers of third- and sixth-grade boys and girls (n=97). The parents and teachers were found to refer to the amount of effort, motivation, and ability in their explanations of the malleability of children's competences. The explanations concerning ability divided into those in which the child was seen as possessing ability and those in which the child was seen as lacking ability or having difficulties that prevented her/him from succeeding. The teachers perceived sixth-graders as needing more effort and motivation than third-graders did, and girls as somewhat more competent and motivated than boys. The teachers also seemed to explain children's potential for improvement in more complex ways than the parents did.

Keywords: children, competences, explanations, grade-level, malleability, parents, teachers

1. Introduction

This study affords a novel approach to examining parents' and teachers' perceptions of children's academic achievement. First, the study was concerned with parents' and teachers' explanations of the malleability of children's competences, i.e., children's potential for improving their competences. Second, parents' and teachers' explanations of the malleability of children's competences were examined in regard to several specific aspects of schoolwork. Third, the explanations were elicited with open-ended questions, which allowed the respondents to better bring forth their own views. It has been observed in previous work that parents' and teachers' responses are more likely to reflect their own perceptions when there are no ready-made options to choose from, whereas ready-made options may steer the responses in a certain direction and thus reduce their variation (cf., e.g., Hewstone & Fincham, 1996).

The explanations given by parents and teachers for the malleability of children's competences may be consequential for the children's achievement and learning (cf., e.g., Butler, 2000; Pomerantz & Dong, 2006; Spinath & Spinath, 2005; Wigfield et al., 1997): for example, parents and teachers who believe that achievement comes from effort may encourage children to go on practicing even if the task is demanding, whereas parents and teachers who believe that abilities are rather unchangeable are likely to focus on evidence of good performance, such as test results and grades, to take the child's failures in learning more seriously, and to exhort the child to reach for good grades.

Our first aim in this study was to examine the parents' and teachers' views as to the aspects of schoolwork in which the child could improve his/her competence the most. The aspects of schoolwork included in the study were mathematics, Finnish (=mother tongue), handicrafts, sports, and diligence and attention, which are all important skills for school-aged children. Since academic school subjects, mathematics in particular, are traditionally seen to reflect "real" or innate intelligence, available to only a few (Mugny & Carugati, 1989), we hypothesised that the parents and teachers would perceive the child's potential for improvement as lower in mathematics and Finnish than in other aspects of schoolwork.

The second aim was to examine what kinds of explanation the parents and teachers would give for the malleability of children's competences. Earlier studies have shown that children tend to refer both to the amount

of effort and practice and to ability or talent in their explanations for their potential for improvement (e.g., Droege & Stipek, 1993; Nicholls, 1990; Rätty, Kärkkäinen, & Kasanen, 2010; Stipek & Gralinski, 1996). Explanations referring to effort and ability reflect the theory of the malleability of intelligence presented by Dweck (1999). According to this theory, intelligence is seen either as rather a changeable property that can be increased through effort and practice or as rather a permanent property, i.e., a talent that cannot be changed. Although the theory of the malleability of intelligence has been tested among children in particular (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Henderson & Dweck, 1990), it seems to lend itself to parents' and teachers' perceptions as well (cf., Butler, 2000; Matteucci, 2007; Pomerantz & Dong, 2006; Rautiainen, Rätty, & Kasanen, 2016). We therefore expected the parents and teachers in this study to spontaneously bring forth at least the amount of effort and ability in their explanations for children's potential for improvement in different aspects of schoolwork.

Our third aim was to examine whether there were differences between the parents' and the teachers' explanations for the malleability of children's competences. In an earlier study we had found that parents had a more optimistic view of their child's potential for improvement in mathematics and Finnish than teachers did (Kärkkäinen & Rätty, 2010). Generally, too, parents tend to see their child's learning in an optimistic light (cf., Goodnow & Collins, 1990), whereas teachers may duty-bound professionally to assess and rank the pupils' achievement in normative terms. We therefore expected the parents to make more references to the amount of effort and practice in their explanations for the malleability of children's competences than the teachers would and the teachers in turn to make more references to rather unchangeable properties, such as ability or talent.

The fourth aim was to examine whether the child's gender and grade-level and the parent's education made a difference in the parents' and teachers' explanations for the malleability of children's competences. We included the child's gender in the present study since parents' and teachers' perceptions of girls' and boys' school achievement are known to be gender-stereotyped: boys are usually seen as more talented in mathematics and sports than girls, who in turn are seen as more competent in the mother tongue and in other school subjects as well. Moreover, boys' success is more often seen as a consequence of talent and girls' success as due to hard work and diligence (Eccles, Jacobs, & Harold, 1990; Jussim & Eccles, 1992; Rätty, Kasanen, & Snellman, 2002; Yee & Eccles, 1988).

The parent's education was included in the analysis since it is known to be related to children's achievement at school (OECD, 2014). Moreover, highly educated parents perceive their children's cognitive-verbal skills in a more optimistic light than other parents do (e.g., Rätty, Kasanen, & Honkalampi, 2006). Lastly, we included the child's grade-level since it is related to their potential for improvement, at least in the perceptions of children themselves (e.g., Droege & Stipek, 1993; Rätty, Kasanen, & Honkalampi, 2006), and we therefore wanted to see if it was also associated with the parents' and teachers' explanations for the malleability of children's competences. However, we did not set any specific hypotheses concerning the possible differences between these groups.

Our fifth aim was to examine whether the parents' and teachers' explanations for the malleability of children's competences were associated with their assessments of the child's current performance in these areas. Earlier studies of parents' perceptions have shown that the child's good performance is seen as relating to rather permanent reasons, such as ability or talent, whereas the child's poor performance is seen as relating to rather changeable reasons, such as lack of effort (cf., Rätty, Kasanen, & Kärkkäinen, 2006; Rytönen, Aunola, & Nurmi, 2005; Yee & Eccles, 1988). In our earlier study (Kärkkäinen, Rätty, & Kasanen, 2010), too, we found that parents and teachers perceived those children as having more stable competences who were seen as doing well at school. And again, the children who were seen as doing not so well were perceived as more capable of improvement. We therefore hypothesised in this study that the parents' and teachers' explanations for the malleability of children's competences would relate to their assessment of the children's current competences, i.e., if the child was seen as doing well, the parents and teachers would refer to ability or talent more often, whereas if the child was seen as doing not so well, they would make more references to the amount of effort and practice.

2. Method

2.1 Participants

The study included 97 parents, of whom 50 were mothers and 46 fathers (with one respondent's gender not specified). The sample comprised parents of girls (n=48) and boys (n=49) and parents of third-graders (n=41) and sixth-graders (n=56). The third-graders were approximately nine years and the sixth-graders approximately 12 years of age. Of the parents, 59 were vocationally educated (including vocational school and vocational

institute education) and 33 were academically educated (including polytechnic and university education). One respondent's education was not specified and four had no post-primary education. These parents were excluded from the analysis concerning the parent's educational level.

The study included eight class teachers, who assessed a total of 103 children. Of the children, 52 were girls and 51 were boys, and 44 were third-graders and 59 sixth-graders. One half of the teachers worked on the third grade and the other half on the sixth. Five of the teachers were female and three male. The teachers' professional experience was 21 years on average, ranging from 8 to 33 years, and they had taught their current class an average of 2.7 years, ranging from just a few months to over 5 years.

2.2 Procedure

Teachers from four schools were asked whether they would be willing to participate in a study in which parents would answer questionnaires, pupils would be interviewed, and the teachers themselves would rate the pupils' achievement in different aspects of schoolwork. After eight teachers had consented to take part in the study, no more participants were sought.

Subsequently, the pupils' parents were sent letters asking for a written permission to interview their child, to send them a questionnaire with questions about their child's schooling and competences, and to ask their child's class teacher about her/his views of the child's competences in different aspects of schoolwork. A total of 191 letters were sent asking both parents to participate, and 164 parents were willing to take part. They were parents of 106 children, since in some families both parents were willing to answer the questionnaire. Three of the children were excluded for various reasons, such as moving out of town.

We sent a total of 159 questionnaires to the parents, and 140 were returned, 93 of which were completed by mothers and 46 by fathers (with one respondent's gender not known). Since we wanted to compare parents' and teachers' ratings, only one parent per child was included in the study, even if both parents had taken part. To ensure an even gender distribution, we first included all the fathers who had filled in the questionnaire and finally included 97 parents in the study.

2.3 The Questionnaire

Explanations for potential for improvement: the parents and teachers were asked "In which of the above-mentioned aspects of schoolwork could your child/the pupil improve her/his performance the most? Why?" The aspects of schoolwork were mathematics, Finnish, handicrafts, sports, and diligence and attention. The Why-question was an open one, with a request to write out an explanation.

Assessment of the children's current competences: The parents and teachers were also requested to rate each child's current competences in different aspects of schoolwork with the question "How would you rate your child's/the pupil's performance in the following aspects of schoolwork at the moment?" Please circle the best alternative by using the following scale: 1) not so good, 2) fair, 3) fairly good, 4) good, 5) excellent. Out of the parents' and teachers' ratings of the child's current competences, sum variables were formed, which included the parent's/teacher's rating of the child's performance in mathematics, Finnish, handicrafts, sports, and diligence and attention. The Cronbach's alpha coefficients for both the sum variable formed out of the parents' ratings ($\alpha=.62$) and that formed out of the teachers' ratings ($\alpha=.73$) were acceptable. On average, the parents' ratings ($M=3.86$, $sd=.50$) and the teachers' ratings ($M=3.71$, $sd=.65$) of the children's current performance in the aspects of schoolwork were positive.

3. Results

3.1 In Which Aspect of Schoolwork the Child Could Improve Her/His Performance the Most

In their answers, the teachers cited mathematics the most often and Finnish the second most often. The parents cited mainly diligence and attention and, right after that, Finnish and mathematics (see Table 1).

Table 1. Frequencies and percentages of answers given to the question “In which aspect of schoolwork could your child/the pupil improve her/his performance the most?”

	Teachers		Parents	
	n	%	n	%
Mathematics	30	29.1	19	19.6
Finnish	24	23.3	20	20.6
Sports	18	17.5	10	10.3
Handicrafts	10	9.7	6	6.2
Diligence and attention	17	16.5	21	21.6
No response	4	3.9	21*	21.6
Total	103	100	97	100

*This frequency is high because many parents did not answer the open questions at all.

3.2 Classification of the Explanations

After several thorough readings of the answers, the parents’ and teachers’ answers to the why-question were classified into the following 5 categories:

- 1) **CONDITIONAL EFFORT AND MOTIVATION**: conditional references to effort and practice or to the need to work up more motivation or self-confidence or a better performance, e.g., “by trying harder, that is by practicing, the performance in maths can be improved”, “he/she could work harder”, and “we should find a way to motivate the child to the subject”.
- 2) **ABILITY AND MOTIVATION**: references to things going well and to the child’s being enthusiastic about the subject, e.g., “she/he is quite good already” and “is very keen on it (mathematics)”.
- 3) **LACK OF ABILITY, “DOESN’T COME EASY”, DIFFICULTIES**: references to lack of ability and difficulties, e.g., “Reading skills and reading comprehension are deficient. Text production is difficult and slow”, “poor performance at the moment”, “we have a case of dyslexia here, and that calls for a lot of work”.
- 4) **UNEVEN PERFORMANCE**: references to partial difficulties, e.g., “Reads and writes fairly well. Sentence structures, e.g., full stop, capitalisation, etc., do not yet click into place in the best possible way”. And “There are still a lot of spelling errors, such as the geminate consonant. There’s plenty of imagination for writing a story, but the sentence structures are still deficient”.
- 5) **OTHER EXPLANATIONS**: references to other explanations, e.g., “woodwork is a new thing this year”, “the teacher’s teaching style and the child’s learning style do not meet”, “large restless class”, and “nervousness in these exams (mathematics)”.

The parents’ and teachers’ explanations were assigned to the coding categories dichotomously (0=not mentioned, 1=mentioned). The classification was not exclusive, i.e., if the parents and teachers gave many different explanations for one rating, these were each assigned to separate categories. However, if the parents and teachers gave many explanations that belonged to the same category, these were coded only once. To examine the inter-rater agreement of the codings, two raters classified 20 randomly chosen answers (10 for parents, 10 for teachers) independently. The raters reached a 88 % agreement on the classifications.

3.3 The Most Frequent Explanations for the Malleability of Children’s Competences Given by the Parents and Teachers

The teachers gave a total of 109 explanations and the parents 66 explanations in response to the why-question. As the parents and teachers assessed the same child, a paired-samples t-test was used. According to the paired-samples t-test the teachers gave statistically significantly more explanations than the parents did ($t(56)=2.18$, $p<.05$). Both the teachers and the parents made the most references to the category *Conditional effort and motivation* (see Table 2). The teachers failed to give an explanation in the case of 9 children and the parents in the case of 12 children though they had mentioned an aspect of schoolwork in which the child could improve the most.

Table 2. Parents' and teachers' explanations in reply to the why-question

	Teachers		Parents	
	n	%	n	%
Conditional effort and motivation	47	43.1	28	42.4
Ability and motivation	10	9.2	3	4.5
Lack of ability, difficulties	26	23.9	15	22.7
Uneven performance	15	13.8	2	3.0
Other explanations	11	10.1	18	27.3
Total	109	100	66	100

According to the McNemar test for paired samples, the teachers' and the parents' explanations differed only in regard to the category *Uneven performance*, which was offered more often by the teachers than by the parents ($\chi^2(1)=8.10$, $p<.005$; see Table 2).

3.4 The Associations of the Explanations with the Child's Gender and Grade-Level, with the Parent's Education, and with the Parents'/Teachers' Assessment of the Child's Current Competences

To examine whether the child's gender and grade-level, the parent's education and the parents'/teachers' assessment of the child's current competences were associated with the explanations given by the parents and teachers, a set of logistic regression analyses with the enter method were used. The logistic regression analyses were run separately for the parents' and the teachers' explanations, with the five explanation categories as dependent variables one at a time. To assess the regression models obtained, the Omnibus Tests of Model Coefficients was used, and to indicate the amount of variation in the dependent variable accounted for by the model, the Nagelkerke R-square values were used.

In regard to the parents' explanations of the malleability of children's competences, none of the regression models reached statistical significance.

In regard to the teachers' explanations, the following regression models were statistically significant: first, the category *Conditional effort and motivation* ($\chi^2(4)=10.89$, $p<.05$) explained 18.8% of the variance and correctly classified 55.6% of the cases. In this model, the child's grade-level was a statistically significant predictor ($\beta(1)=1.72$, $p<.005$), indicating that the teachers perceived the sixth-graders as needing more effort and motivation than the third-graders did (see Table 3).

Second, the category *Ability and motivation* ($\chi^2(4)=11.53$, $p<.05$) explained 28% of the variance and correctly classified 87.5% of the cases. In this model, the child's gender was a marginally significant predictor ($\beta(1)=2.16$, $p=.069$), indicating that in their explanations for girls' potential for improvement the teachers made more references to the presence of ability and motivation than they did in the case of boys (see Table 3).

Table 3. Frequencies (and percentages) of the explanations by the child's gender and grade-level and the parent's education

	Teachers						Parents					
	Child's gender		Child's grade-level		Parent's education		Child's gender		Child's grade-level		Parent's education	
	Girl	Boy	3 rd	6 th	Acad.	Vocat.	Girl	Boy	3 rd	6 th	Acad.	Vocat.
Conditional effort and motivation	25 (47.1)	22 (39.3)	14 (26.4)	33 (59.0)	14 (38.9)	27 (45.0)	14 (45.2)	14 (40.0)	14 (50.0)	14 (36.8)	8 (33.3)	17 (44.7)
Ability and motivation	9 (17.0)	1 (1.8)	9 (17.0)	1 (1.8)	4 (11.1)	5 (8.3)	1 (3.2)	2 (5.7)	-	3 (7.9)	2 (8.3)	1 (2.6)
Lack of ability, difficulties	6 (11.3)	20 (35.7)	12 (22.6)	14 (25.0)	11 (30.6)	12 (20.0)	7 (22.6)	8 (22.9)	9 (32.1)	6 (15.8)	5 (20.8)	9 (23.7)
Uneven performance	6 (11.3)	9 (16.1)	10 (18.9)	5 (8.9)	3 (8.3)	11 (18.3)	-	2 (5.7)	-	2 (5.3)	-	2 (5.3)
Other explanations	7 (13.2)	4 (7.1)	8 (15.1)	3 (5.4)	4 (11.1)	5 (8.3)	9 (29.0)	9 (25.7)	5 (17.9)	13 (34.2)	9 (37.5)	9 (23.7)
Total	53 (100)	56 (100)	53 (100)	56 (100)	36 (100)	60 (100)	31 (100)	35 (100)	28 (100)	38 (100)	24 (100)	38 (100)

4. Discussion

In all, the results of this study indicate that parents and teachers refer to effort and ability when they explain, in their own words, the malleability of children's competences in specific aspects of schoolwork. Moreover, the explanations seem to divide into those in which the child is seen as possessing ability and motivation and those in which the child is seen as lacking ability or having difficulties that prevent him/her from succeeding.

The first aim of this study was to examine the parents' and teachers' views as to the aspects of schoolwork in which the child could improve his/her competence the most. Since academic school subjects, especially mathematics, are usually considered to reflect rather unchangeable intelligence, real or innate (cf., Mugny & Carugati, 1989), we hypothesised that the parents and teachers would perceive the other competences, i.e., sports, handicrafts, and diligence and attention, as more malleable than mathematics and Finnish. Rather surprisingly, however, the parents and teachers referred precisely to the academic subjects when picking an aspect of schoolwork in which the child could improve the most. The result may reflect the circumstance that due to their responsibility as fosterers, parents and teachers may be inclined to perceive children's achievement as good in these particular school subjects, which are regarded as the most important ones at school and also in the defining of the child's educability (cf., Carugati & Selleri, 1998; Mugny & Carugati, 1989).

The result also accords with earlier results, which have shown that parents usually consider mathematics or the mother tongue as their child's strongest school subject (Räty, Kasanen, & Kärkkäinen, 2006). It may also be the case that for some pupils the parents and teachers perceive precisely the academic subjects as strong and improvable still, whereas for other children the parents and teachers may perceive the academic school subjects as weak and less improvable, i.e., the parents' and teachers' explanations may contain polarisation among pupils. It was further found in the present study that the parents included diligence and attention among the aspects of schoolwork in which the child could improve the most; this finding may relate to pupil behaviour such as attending to homework, which is often observable to parents.

Our second aim was to examine what kinds of explanation the parents and teachers would give for the malleability of children's competences. As hypothesised, the parents' and teachers' explanations included references to the amount of effort and practice and to ability or talent; that accords with earlier research on children's explanations for their potential for improvement (cf., e.g., Droege & Stipek, 1993; Stipek & Gralinski, 1996). Also, as in earlier research on children's explanations (Räty, Kärkkäinen, & Kasanen, 2010), the parents and teachers made the most references to the amount of effort and motivation.

The explanations for children's ability seemed to divide so that the parents and teachers perceived the child either as possessing ability and motivation or as lacking ability and having difficulties, which should be overcome to make achievement possible. Considering that significant adults' perceptions may be consequential for children's achievement (cf., Butler, 2000; Pomerantz & Dong, 2006; Spinath & Spinath, 2005; Wigfield et al., 1997), this result may also be considered to reflect the growing polarisation of children's competences: those children who are perceived as possessing ability may get further encouragement to do well from their parents and teachers, who believe in their abilities, whereas for those children who are perceived as lacking ability and having difficulties, the parents' and teachers' low expectations may weaken their performance further.

It must also be noted that even if the parents and teachers referred to effort and ability in their explanations for the malleability of children's competences, these categories included variation and combinations of explanations: for example, motivation was included in the explanations referring to effort and practicing, and the category *Uneven performance* contained explanations referring to both ability and lack of ability, i.e., partial difficulties. Indeed, this study afforded a more comprehensive picture of the parents' and teachers' views by asking them to answer open-ended questions in their own words than it would have if ready-made options had been used (cf., Hewstone & Fincham, 1996; Räty & Kärkkäinen, 2011).

The third aim was to examine whether there were differences between the parents' and the teachers' explanations for the malleability of children's competences. Since parents are usually motivated to perceive their child's learning in an optimistic light (cf., Goodnow & Collins, 1990; Kärkkäinen & Räty, 2010) whereas teachers have the professional duty to assess and rank pupils' achievement, we hypothesised that the parents would refer to the amount of effort and motivation more frequently and that the teachers would make more references to rather permanent properties, such as ability, in their explanations for the malleability of children's competences. Our hypothesis, however, did not hold true but only one difference between parents' and teachers' explanations was found when the teachers perceived pupils as having more partial difficulties than the parents did. It may be the case that because of the teachers' double duty to both rank pupil performances and promote

them, they assessed pupil performance in more complex ways than the parents did. This notion is also supported by the finding that the teachers gave more explanations for the malleability of children's competences than the parents did.

Our fourth aim was to examine whether the child's gender and grade-level and the parent's educational level made a difference in the parents' and teachers' explanations for the malleability of children's competences. It was found that the teachers perceived the sixth-graders as needing more effort and motivation than the third-graders did. This finding may be associated with the notion that pupils work harder at the beginning of school but perhaps also with the notion that beginning pupils still have rather optimistic views of effort and practice as ways of improving their abilities (cf., e.g., Nicholls, 1990). The finding may also reflect developmental differences between the third- and sixth-graders: the sixth-graders have more mature cognitive abilities, and they may also be regarded as more mature to assess their own competences (e.g., Nicholls, 1990; Nicholls, Patashnick, & Gwendolyn, 1986). Moreover, the teachers were inclined to perceive girls as having somewhat more ability and motivation than boys had. This result may reflect the well-known circumstance that girls do generally better at school than boys (e.g., Rätty, Kasanen, & Snellman, 2002). In the parents' explanations, however, there were no such differences. This may be because teachers, who have to assess pupils' achievement in their every-day work, perceive the differences between boys' and girls' competences and those between beginning and more advanced pupils more clearly than parents do.

Our fifth and last aim was to examine whether the parents' and teachers' explanations for the malleability of children's competences were associated with their assessments of the children's current competences in the corresponding aspects of schoolwork. We hypothesised that if the child's competences were seen as good, the parents and teachers would more often refer to ability, whereas if the child's competences were seen as poor, they would refer to more changeable qualities such as effort and motivation. This hypothesis did not carry, however: the explanations did not relate to assessed competences, which may be an indication of the relative independence of parents' and teachers' explanations of malleability vis-à-vis school assessment. In other words, the explanations given for the malleability of competences may reflect the parents' and teachers' expectations for the child's future performance and may therefore be relatively independent from current performance. This finding seems to underline the importance of examining parents' and teachers' perceptions of the child's potential for improving his/her competences in the future.

This study has limitations. First, the number of teachers included was small and their experiences with their respective classes were quite varied. Second, the parents may have formed a select group, taking part because their child was doing well at school. Third, the parents in particular may have found the questions as difficult or burdensome, as some of them left the open-ended questions of the questionnaire completely unanswered and also because the category *other explanations* turned out to be relatively large. In further work it would be interesting to interview parents and teachers about their perceptions of the malleability of children's competences and also to include children's own perceptions in the analysis.

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