The relationship between adolescent academic capability beliefs, parenting and school grades

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The purpose of this study was to examine the interplay between parenting, adolescent academic capability beliefs and school grades. First, we examined how aspects of parenting and adolescent’s cognitive ability predicted adolescent academic capability beliefs and school grades at 6th grade, which, in turn, predicted adolescent school outcomes at 9th grade. Second, we examined how configurations of adolescents (based on cognitive ability, parental involvement, and capability beliefs) at 6th grade, related to their school grades at 9th grade. The sample included 641 German adolescents. The first set of analyses suggest that parents who demonstrated more warmth, engaged in more discussions concerning academic and intellectual matters with their adolescents, had higher school aspirations for their adolescents, and reported more interest/involvement in their adolescent’s schooling, had adolescents with higher capability beliefs at 6th grade, and this, in turn, related to better school grades for adolescents at 9th grade. In the second set of analyses, results show that adolescents who were characterized by the configuration of having above average ability, parental school involvement and capability beliefs, received the best school grades. In contrast, adolescents who were characterized by below average ability, parental school involvement and capability beliefs, demonstrated the worst school performance.

Introduction

Having positive personal agency beliefs motivates adolescents to set goals, to persevere, and to ultimately achieve what is needed in order to succeed in life, for example, by doing well in school (Ford, 1992). The purpose of this paper is to investigate the relationship between several aspects of parenting to adolescents’ personal agency beliefs and academic performance as measured by school grades. The specific kind of personal agency beliefs that we focus on is how adolescents perceive their academic capabilities. Although these types of beliefs have been studied from differing perspectives such as self-efficacy (Bandura, 1993), expectancy beliefs (Eccles et al., 1983), confidence beliefs (Dweck and Legget, 1988) and agency beliefs (Ford, 1992), they all deal with self-judgements of one’s abilities.

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Ford (1992) defines capability beliefs as “evaluative expectancies about whether one has the personal capabilities needed to attain [a] goal,” (p. 74). He has argued that personal agency beliefs may be “more fundamental than the actual skills and circumstances they represent in the sense that they can motivate people to create opportunities and acquire capabilities they do not yet possess” (p. 124). Thus, not only must adolescents possess the capabilities and resources needed to effectively reach a goal (such as succeeding academically), adolescents must also believe that they have the capabilities to do so. In other words, “a person with the same knowledge and skills may perform poorly, adequately, or extraordinarily” depending on the variations of one’s self-beliefs (Bandura, 1993).

As background for our study, we draw from two bodies of literature to understand the development of adolescents’ capability beliefs. One has focused on how an individual’s beliefs about his or her ability influence his or her school performance (e.g. Bandura, 1993; Pekrun, 1993; Oettingen et al., 1994; Helmke and van Aken, 1995). The other body of literature has focused on how family variables, more specifically, how parenting practices, beliefs, and expectations, relate to how well the adolescents does in school, for instance, as measured by school grades (e.g. McGillicuddy-DeLisi, 1985; Helmke et al., 1991; Eccles et al., 1998). Studies that combine these two lines of research has been scarce. For instance, we know less about how parenting is related to adolescents’ beliefs about their specific capabilities than we do about how parenting is related to adolescents’ academic performance. In this study we bring together these two bodies of research by examining the relationship between an adolescent’s capability beliefs, their school performance, and level of parental involvement and interest in their child’s academic activities.

There is ample evidence for the belief–performance relationship, as demonstrated by the extensive theorizing and research on how self-beliefs are linked to academic success (Bandura, 1993; Pekrun, 1993; Oettingen et al., 1994; Helmke and van Aken, 1995). Research has shown that children’s beliefs about their competencies and capabilities in school determine to a significant degree their success in school (Berry and West, 1993). A meta-analysis of studies with a wide variety of samples, research designs, and assessment methods, demonstrate a positive relationship between self-efficacy beliefs to academic outcomes (Multon et al., 1991). In general, adolescents who have higher academic capability beliefs also be better academically, as measured, for instance, by school grades or achievement tests.

The importance of beliefs to schools outcomes leads us to examine potential factors that may relate to the development of these beliefs. One important factor is the parents’ behaviour towards the adolescent. Nurturing parenting has been linked positively to adolescents’ agency beliefs while rejecting/punitive parenting has been linked negatively with adolescents’ agency beliefs (Hoeltje et al., 1996). More recently, Silbereisen and Wiesner (2000) report that adolescents of parents who were sensitive, supportive and involved in their adolescents’ schooling, had high levels of academic self-efficacy over a span of several years. Other characteristics of the family, such as having parents who encourage their adolescent to participate in cultural activities with parents (e.g. going to the theatre), also contribute to adolescents’ positive capability beliefs (Schneewind, 1995). Finally, a recent review by Eccles et al. (1998), concluded that parenting practices are one of the critical factors linked to children’s and adolescents’ beliefs in their academic capabilities, and that these beliefs act as a mediator linking parenting to adolescent school success.
Research has also focused on other, related mediators such as achievement strategies, that link parenting style and adolescent academic achievement. For example, Aunola et al. (2000) found that adolescents with authoritative parents use the most adaptive achievement strategies, such as the frequent use of self-enhancing attributions. These researchers argue that this type of parenting may positively encourage adolescents’ control beliefs, which may then enhance an adolescent’s motivation to succeed in school. Similarly, in this study we hypothesize that certain parenting behaviors (e.g. parental warmth) and beliefs (e.g. parental aspirations for their adolescent’s schooling) are related positively to an adolescent’s academic beliefs, and that these beliefs act as a mediator linking parenting to adolescent academic achievement.

While few studies have specifically investigated the relationship between parents’ beliefs and expectations for their adolescent’s academic pursuits with their adolescent’s capability beliefs, many studies offer evidence for the link between parental belief systems and their children’s academic performance. For example, studies in the U.S. and Germany reveal that parents who believe strongly that their children will be successful in school have children who actually do better in school (McGillicuddy-DeLisi, 1985; Helmke et al., 1991; Eccles et al., 1998). A study with 6th and 7th graders also demonstrates a positive link between parent’s academic aspirations and adolescent’s academic efficacy (Bandura et al., 1996). The authors suggest that “parents who convey positive educational aspirations and act on the behalf that they can help their children achieve them…enhance their cognitive efficacy and raise their academic and occupational sights”, (p. 1216). All of these studies have been correlational. Therefore, it is possible that adolescents who strongly believe in their capabilities and also succeed in school, prompt their parents to hold correspondingly higher expectations for them. In this study, we hypothesize that parents’ beliefs relate positively to their adolescents’ academic capability beliefs.

Characteristics of adolescents themselves also contribute to the development of their academic capability beliefs. Several studies have suggested a mutually influential relationship, where adolescents’ school performance influences self-beliefs just as school performance is itself influenced by self-beliefs (Meece et al., 1990; Schmitz and Skinner, 1993; Helmke and von Aken, 1995; Marsh and Yeung, 1997). Thus, adolescents’ past experiences (successes and failures) contribute to an adolescents’ continuing assessment of their capabilities.

In sum, there is evidence that particular parenting behaviours and beliefs, along with characteristics of the adolescents themselves, are linked to the adolescent’s academic capability beliefs which, in turn, are related to their school performance. The purpose of this study, then, is to investigate further the relationships between parenting and adolescent capability beliefs with school grades. First, we consider how several aspects of parenting and an adolescent’s cognitive ability at Grade 6, contribute to adolescent capability beliefs and school grades at Grade 9 (see Figure 1 for the path model). This variable-oriented approach assumes that the predictor variables act incrementally (as main effects) on adolescent school performance. The question that remains is whether school performance is predicted only by a linear relationship to parenting, an adolescent’s cognitive ability, and capability beliefs.

Thus, second, we consider how configurations of adolescents (based on parental involvement, cognitive ability and capability beliefs) at Grade 6 relate to school grades at Grade 9. This “person-oriented” approach (Magnusson and Bergman, 1990; Gustafson and Mumford, 1995; Magnusson, 1998) is used to answer the question of whether the combined effects of the predictor variables to school grades is more than the additive main effects.
By testing the interaction between the predictor variables, we are able to identify a particular group of adolescents who may be more or less at risk for receiving poor grades. If this is indeed the case, this would offer useful information for possible intervention purposes.

**Method**

**Participants**
The data in this archival data set were collected by the former *Zentralinstitut für Jugendforschung* (Central Institute for Research on Youth), which was located in Leipzig, a large city in formerly communist East Germany. Twenty-eight elementary schools from within the city were randomly chosen to participate. All sixth graders who were present in these schools at the time of data collection participated. Questionnaires were administered in the classrooms. Data collection began in 1985 and continued approximately every year until 1995. For the purpose of this study the first and fourth (out of a total of nine) waves are used as these had information on the variables of interest.

At Time 1 of data collection, the adolescents were in the 6th grade. The majority of students were 12 years of age at this time. The participants included 307 males and 334 females (*N* = 641). At Time 4 the students were in 9th grade with a majority age of 15 years. In the former East German school system all students attended a comprehensive track from the 1st to the 10th grade. At the 11th grade, students continued on either a vocational school track (*Berufschulen*) or academic school track (*Universitäten Hochschulen*).

Data were gathered from three sources—the parent, the teacher, and the adolescent. All data were collected through self-report questionnaires. Data from parents were only collected at Time 1. Adolescent variables and parental involvement as reported by the teacher, were assessed at Times 1 and 4.

**Measures**

*Parent occupational training.* Mothers and fathers were asked to report the highest level of occupational training they had completed. Responses were dichotomized and dummy coded so that (0) indicated blue-collar job training and (1) indicated white-collar job training. Because there was a high correlation (*r* = 0.89, *p* < 0.001) between mothers’ and fathers’ level of occupational training, we used the highest level completed between the two to create an aggregate parent occupational training variable.

*Parental academic expectations for adolescent.* Mothers and fathers were asked, “What school degree do you want your child to complete?” They could answer (0) = up to 8th or 10th grade, or (1) = *Abitur* (this is equivalent to a U.S. high school diploma in the sense that it allows the student to continue onto university studies).

*Parental warmth.* Mothers and fathers responded separately to 5 items that addressed the level of warmth parents demonstrated to their adolescent. A sample item was “I give help and support to my child, as much time as is necessary”. Responses ranged from (1) = always to (4) never. Responses were recorded so that a higher score indicated more warmth. Cronbach’s alpha was 0.67 for mothers and 0.72 for fathers.
Discussion with parents. Adolescents were asked to report how often in the past month they discussed four kinds of intellectual/cultural topics—films, books, politics, and school performance—with their parents. Responses ranged from (1)=never to (4)=more than 5 times. The responses were averaged so that a higher score indicated higher levels of discussions with parents. Cronbach’s alpha=0.67.

Parental Involvement/Interest in School. Teachers\(^1\) were asked to rate the parents of the students regarding the parents’: (1) educational encouragement and stimulation; and (2) interest in the adolescent’s schooling and education. The responses to the two items ranged from (1)=very much above average to (5)=a lot below average. The two items were recorded and averaged so that a higher score indicated more involvement/interest by parents. There was a significant correlation between the two items (\(r=0.77, p<0.001\) at both Times 1 and 4).

Adolescent Academic Capability Beliefs. This 10-item scale measured an adolescent’s perception of his or her capabilities with respect to academic matters. Sample items were, “I can give a small speech about an area of interest in front of class”, and “With new class stuff I doubt whether I can succeed in it”. Negative items were recorded and the mean score was calculated, so that a higher score indicated a higher level of capability beliefs. In a study designed to examine the validity of the new scale (Juang et al., 2000), correlations between the Academic Capability Beliefs Scale and other, more established scales were \(r=0.42\) (\(p<0.001\)) with the Multi-CAMI (Little and Wanner, 1997) and \(r=0.42\) (\(p<0.001\)) with the Schulbezogene Selbstwirksamkeitserwartung [School-related self-efficacy] scale (Jerusalem and Satow, 1999). At the same time, a significant negative relationship \((r=-0.46, p<0.001)\) was found with the Schulbezogene Hilflosigkeit [School-related helplessness] scale by Jerusalem and Schwarzer (1993). More detailed information on the factor analysis and validation study can be requested from the first author. Cronbach’s alpha was 0.68 at Times 1 and 4. This variable was dichotomized and dummy-coded for the second set of analyses. The responses were divided into 0=average or below average capability beliefs and 1=above average capability beliefs.

School grades. Adolescents reported their grades from four classes—math, history, biology and German. In Germany, grades range from 1 to 6, with 1 being the best score and 6 the worst. The mean score was calculated. A lower average score indicated a better grade. Cronbach’s alpha=0.90 at both Times 1 and 4.

Cognitive ability. The Frankfurt Analogy Test (Belser et al., 1973), consisting of 95 items, was used to assess the adolescent’s cognitive ability. A higher score indicated higher cognitive ability. The reliability and validity of this widely-used scale has been demonstrated in previous studies of German children (Brucks-Christel, 1980; Schmidt 1991).

In sum, all the parenting measurements (with the exception of parental involvement as rated by the teacher) were available only at Time 1. The remaining adolescent measures were available at both Times 1 and 4.

\(^1\)In former East Germany there were regular group meetings between teachers and parents (Elternabende) that were organized per class, at least once per semester.
See Table 1 for the correlations between the study variables at Grade 6. Several parenting variables correlated significantly with one another, for instance, parents with higher school aspirations for their adolescents were also more likely to be interested and involved in their adolescent’s schooling and more likely to engage in discussions with their adolescents concerning academic/intellectual matters. Parents who showed more warmth toward their adolescents were also more likely to show interest/involvement in their schooling. The moderate correlations demonstrate that the measures chosen for parenting behaviours and beliefs were not redundant.

Adolescent’s academic capability beliefs correlated significantly with all the parenting variables. There was a significant, positive relationship between an adolescent’s capability beliefs with parental warmth, interest/involvement in schooling, discussions of academic/intellectual matters, and school aspirations. There was also a significant, positive relationship between an adolescent’s capability beliefs with the adolescent’s cognitive ability. Adolescent capability beliefs was also significantly correlated with school grades—those with higher beliefs also reported better school grades.

**Variable-oriented analyses**

In the first set of analyses, the hypothesized model (Figure 1) was subjected to path analysis. Parental occupation was used as a control variable and is not included in Figure 1. Amos 4.01 (Arbuckle, 1999) was used to obtain the maximum likelihood estimates of the model coefficients and a covariance matrix was analysed. The goodness of fit indices showed a reasonable fit of this model with data (chi-square=115.29, df=18, p<0.001; GFI=0.97; CFI=0.95; RMSEA=0.09). An examination of the modification indices showed that the model could be significantly improved by the addition of two parameters: (1) from gender to school grades at Grade 9; and (2) gender to capability beliefs at Grade 9. Because it made theoretical sense that gender would contribute to both capability beliefs and school grades at Grade 9, these two parameters were added. For the revised model, the chi-square was 89.43, df=16, p<0.001. The chi-square difference test indicated a significantly better fit compared to the original model (chi-square difference=25.86 df=2, p<0.001), and the goodness of fit indices showed this model fit the data reasonably well (GFI=0.98, CFI=0.96, RMSEA=0.08). The chi-square statistic is still significant for the revised model. However, because the sample size is rather large, the chi-square has a tendency to be

<table>
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<tr>
<th>Table 1</th>
<th>Correlations between study variables at grade 6</th>
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<tr>
<td>1. Gender</td>
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<tr>
<td>2. P Warmth</td>
<td>−0.03</td>
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<tr>
<td>3. P Involve</td>
<td>0.07</td>
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<tr>
<td>4. P Discuss</td>
<td>−0.04</td>
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<tr>
<td>5. P Aspir</td>
<td>0.03</td>
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<tr>
<td>6. Ability</td>
<td>−0.03</td>
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<tr>
<td>7. CapBelief</td>
<td>−0.05</td>
</tr>
<tr>
<td>8. Grades</td>
<td>−0.17***</td>
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* p<0.05, ** p<0.01, *** p<0.001.
significant even if the model reasonably fits the data (Bollen, 1989). Thus, we have relied on other goodness-of-fit indices to evaluate the model. See Figure 2 (only significant paths are shown).

As hypothesized, both parenting behaviours and beliefs significantly predicted adolescent’s capability beliefs and school grades at Grade 6. For instance, parents who demonstrated more interest and involvement in their adolescent’s schooling and had higher school aspirations for their adolescents, had adolescents with higher academic capability beliefs and better school grades. Parents who demonstrated more warmth and engaged in more academic/intellectual discussion, also had adolescents with higher academic capability beliefs. The parenting behaviors that were specifically school related (parent interest/involvement in schooling and engagement in academic/intellectual discussions) were better predictors of adolescent capability beliefs compared to the non-school specific variable of parental warmth. The strongest predictor of capability beliefs was parental aspirations (standardized coefficient = 0.21, \( p = 0.001 \)). These results highlight how the beliefs of the parents themselves are linked to the adolescent’s capability beliefs and school performance.

Because capability beliefs and school grades were considered at both grades 6 and 9, the path model predicts residual change in these two variables over the two time periods. The analysis provides support for the reciprocal relationship between beliefs and school grades. Having more positive capability beliefs at Grade 6 predicted better school grades at Grade 9. Likewise, better school grades at Grade 6 predicted more positive capability beliefs at Grade 9. Concerning school grades at Grade 9, the variance explained
(68%) was much higher than for academic capability beliefs (25%). This is most likely due to the high stability of school grades across time (coefficient = 0.78). It is noteworthy, then, that capability beliefs at Grade 6 was an additional significant predictor of school grades at Grade 9.

As seen in Figure 2, at Grade 6, gender did not significantly predict capability beliefs. However, gender did predict school grades, with girls receiving better grades than boys. At Grade 9, gender still significantly predicted school grades (girls were still doing better), however, there is now also a significant relationship between gender and academic capability beliefs—boys reported significantly higher academic capability beliefs compared to girls.

**Person-oriented analyses**

Next, we examined the interaction between capability beliefs and other variables to school performance by using cluster analysis. We hypothesized that there would be four clusters based on the adolescent’s cognitive ability and parental school involvement at Grade 6.\(^2\) By crossing the two dimensions of ability and involvement there are four possible clusters: (1) high ability and high involvement; (2) high ability and low involvement; (3) low ability

\(^2\)We choose the “parental school involvement” measure for this set of analyses for two reasons. One, because this was a measure of parent’s involvement specifically concerning the school arena as opposed to a more general parenting measure such as parental warmth. Second, we chose this measure because this was a rating assigned independently by the teachers.
and high involvement; and (4) low ability and low involvement. We ran a k-means cluster analysis, specifying four clusters to be extracted. The four clusters that emerged corresponded reasonably to the ones we had conceived of (see Table 2 for the cluster centroids).

One-way analyses of variance comparing the four clusters on parental school involvement ($F(3, 637)=396.88$) and adolescent’s ability ($F(3, 637)=561.49$) were significant at the $p<0.001$ level.

Cluster 1 indicates the high ability, low involve group—those who were above average cognitive ability but had below average parental school involvement ($n=174$, 27% of the sample). Cluster 2 indicates the low ability, high involve group—those who were below average in their cognitive ability but had slightly above average parental school involvement ($n=108$, 17%). Cluster 3 indicates the low ability, low involve group—those who were below average in their cognitive ability and had below average parental school involvement ($n=74$, 12%). Finally, Cluster 4 indicates the high ability, high involve—those who were above average in cognitive ability and had above average parental school involvement ($n=285$, 44%).

The best way to validate clusters is to compare them to “external variables”, in other words, to other variables that were not used to generate the clusters (Aldenderfer and Blashfield, 1984). Figure 3 shows the school grades at Grade 9 for these four clusters.

As expected, those in the high ability, high involve cluster received the best school grades at Grade 9 and the low ability, low involve cluster the worst, with the other two clusters falling somewhere in between. Post-hoc Bonferonni contrasts reveal that all four clusters, with the exception of the high ability, low involve and low ability, high involve clusters, differed significantly from one another concerning school grades. Those in the low ability, high involve cluster performed significantly better than those in the low ability, low involve cluster. These two clusters were defined by having similar cognitive abilities, yet differing levels of parental involvement (the low ability, high involve cluster had significantly higher levels). Similarly, those in the high ability, high involve cluster performed better than those in the high ability, low involve cluster. These two clusters had above average ability, but differed greatly in parental involvement (high ability, low involve cluster; almost 1 S.D. below the mean, versus the high ability, high involve cluster; almost 1 S.D. above the mean). Taken together, these findings underscore the importance of parental involvement in predicting an adolescent’s academic performance.

Finally, in the last part of our analyses we further distinguished the four clusters by adolescent capability beliefs. A mean split was done on the entire sample (before clustering) to distinguish between adolescents who were above average versus average/below average in their academic capability beliefs. See Table 3 for the distribution of adolescents with above average capability beliefs within each cluster. Thus, for this set of analyses we first divided

<table>
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<th>Cluster</th>
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<tbody>
<tr>
<td>Ability</td>
<td>0.39</td>
<td>-1.09</td>
<td>-1.29</td>
<td>0.57</td>
</tr>
<tr>
<td>Parental school involvement</td>
<td>-0.87</td>
<td>0.19</td>
<td>-1.37</td>
<td>0.81</td>
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</table>
adolescents into two groups of capability beliefs and then, within each cluster, compared the school grades of these two groups of adolescents. We did not include capability beliefs in the previous cluster analysis as we wanted to examine how beliefs specifically contributed to school grades after taking the interaction between ability and parental involvement into account.

Results show that with the exception of the low ability, high involve cluster, the level of capability beliefs significantly contributed to school grades (see Figure 4). For instance, in the high ability, low involve cluster, those who had above average capability beliefs had better than average school grades, compared to those who had below average capability beliefs, who had worse than average school grades ($t(172)=3.40$, $p < 0.001$). Thus, having strong, positive capability beliefs seemed to counter the lack of parental involvement in this cluster. In the low ability, low involve cluster, the same pattern emerged, with those having higher capability beliefs doing better in school compared to those with lower beliefs ($t(72)=3.24$, $p < 0.001$). Although capability beliefs contributed to better school grades, the adolescents in this particular cluster still performed poorer than average. Finally, in the high ability, high involve cluster, adolescents with higher levels of capability beliefs also received significantly better grades compared to those with lower beliefs ($t(283)=5.57$, $p < 0.001$). Again, adolescents’ beliefs in their academic capabilities contributed significantly to their school performance, over and above their ability and level of school involvement of their parents. In sum, adolescents who were characterized by the configuration of having above average ability, parental school involvement, and capability beliefs, had the best school grades (almost 1 S.D. better than the average). In sharp contrast,
adolescents who were characterized by below average ability, parental school involvement, and capability beliefs, had comparatively the worst school performance (over 1 S.D. worse than the average).

**Discussion**

In this study we first examined how parental behaviours and beliefs, along with the adolescent’s cognitive ability at Grade 6, related to adolescents’ academic capability beliefs and their school grades at Grade 9. Second, we adopted a person-oriented approach to the data analysis and examined how different configurations of adolescents at Grade 6 compared to one another concerning school grades at Grade 9.

The path model demonstrates that while ability significantly predicts school grades and capability beliefs, various aspects of parenting are also important factors to consider. For

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**Table 3** Proportion of adolescents with above average capability beliefs within each cluster

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<tr>
<th>Cluster</th>
<th>(%)</th>
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<tbody>
<tr>
<td>High ability, low parental involvement</td>
<td>76 (44)</td>
</tr>
<tr>
<td>Low ability, high parental involvement</td>
<td>54 (50)</td>
</tr>
<tr>
<td>Low ability, low parental involvement</td>
<td>28 (38)</td>
</tr>
<tr>
<td>High ability, high parental involvement</td>
<td>198 (70)</td>
</tr>
</tbody>
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**Figure 4.** School grades at 9th grade by cluster, with capability beliefs.

*P < 0.01; **P < 0.001
instance, more parental warmth, school involvement, academic discussions, and higher school aspirations, were all significantly linked to more positive capability beliefs for adolescents. These findings support previous longitudinal research (Silbereisen and Wiesner, 2000) that has also found positive parenting to be beneficial for encouraging and sustaining high capability beliefs in adolescents over time.

Finding that parental aspirations was one of the strongest predictors of adolescent school grades and capability beliefs corroborates other studies that also find expectations for higher education to be important in predicting adolescent’s school success. For instance, in a study of Swedish girls, Gustafson (1997) used cluster analysis to identity two groups of girls (Underachievers versus Overachievers) that she compared on various measures such as parental values—whether parents wanted their daughter to continue onto higher education and whether they thought she had the capability to do so. She found that parents’ expectations concerning educational attainment either inhibited or promoted their daughter’s adaptation concerning academic matters.

There was a reciprocal effect found between adolescent capability beliefs and school grades, however, the effect sizes were quite different. Two models have been proposed in explaining the causal ordering of academic self-beliefs and academic achievement—the self-enhancement model where self-concept is a primary determinant of academic achievement, and the skill development model where academic achievement is a primary determinant of academic self-concept (Marsh and Yeung, 1997). Studies have found evidence for both models (e.g. Marsh and Yeung, 1997), however, in our study, it appears that school grades have much stronger impact on capability beliefs than vice versa, supporting the skill development model.

Gender differences in academic capability beliefs, favoring males, did not emerge until the 9th Grade. That males tend to have higher capability beliefs than females during adolescence, has been documented elsewhere (Eccles et al., 1998). Results from the path analysis also suggest that gender seems to have an effect that is not transported through the stability of capability beliefs and school grades. For instance, concerning school grades, it may not be the same girls across time who do better than the boys (and vice versa).

The findings from the cluster analysis allow us to compare four groups of adolescents who are defined by a specific combination of ability and parental school involvement, offering different information from the path analysis. Comparing the below average ability clusters (the low ability, high involve and low ability, low involve groups) suggests that having parents who are involved in their adolescent’s schooling, makes a significant difference in improving school grades. Similarly, comparing the above average ability clusters (the high ability, low involve and high ability, high involve groups) indicates that involved parenting makes the difference between receiving above or below average school grades. Interestingly, the high ability, low involve cluster and the low ability, high involve cluster, did not significantly differ form one another in the school grades they received, suggesting that parental school involvement conceivably levels the field for the school performance of adolescents of differing abilities.

When adolescents’ capability beliefs are considered in addition to the clusters, results show that school grades are also linked to capability beliefs, beyond what the interaction between ability and level of parental involvement predicts. For instance, adolescents in the high ability, low involve cluster who report above average capability beliefs also report having better than average school grades, while those with below average capability beliefs report worse than average school grades. Perhaps having strong, positive capability
beliefs offsets some of the disadvantages of having parents who are not highly involved in one’s schooling.

Based on the results of the variable-oriented analyses, we concluded that adolescents whose parents were not very involved in their schooling would be more likely to do poorly in school. With the person-oriented analyses, however, we find that there are some adolescents who do indeed have low parental involvement and yet receive better than average school grades. These students were also characterized by having high cognitive ability and high capability beliefs. Thus, by considering the different configurations of adolescents, we get a different picture of the relationship between parenting with school outcomes. Positive parenting is linked an adolescent’s school performance, however, this relationship also depends on the particular characteristics of the adolescent.

Again based on the results of the variable-oriented analyses, we concluded that adolescents whose parents are very involved in their schooling, would be more likely to do better in school. However, we found some adolescents with highly involved parents who received below average school grades. These students were characterized by having low cognitive ability. Interestingly, adolescents in this cluster who had higher capability beliefs did not significantly differ in school grades compared to those with lower capability beliefs.

Why were capability beliefs in this cluster of adolescents inadequate in predicting school performance? First, it is important to reiterate that parental involvement was based on teachers’ perception. Perhaps teachers expect that the low-ability students are not capable of doing well in school because even though they have highly involved parents, they still receive below average school grades. Thus, even if these adolescents believe strongly in their capabilities and exhibit this in the classroom, this may be ineffectual in countering low teacher expectations, which may lead to poor grades. In contrast, in the low ability, low involve group, teachers may assume a latent potential in the student that has not been encouraged by his or her parents. Thus, capability beliefs in this group may matter—teachers will appreciate (and grade accordingly) students motivated by their high capability beliefs to do well in school. These findings suggest that it is important for teachers to be aware of their own perceptions of not only the adolescents themselves, but also of the parents of these adolescents.

There are several limitations to the study. One limitation is the availability of parent data only at the 6th grade. This does not make it possible to take into account the fact that parenting behaviours and beliefs themselves may change over time. For instance, a recent longitudinal study of German adolescents reported that the consistency of supportive parenting can vary over time (Juang and Silbereisen, 1999). Thus, in the present study we could not examine how potential changes in parenting may contribute to changes in adolescent capability beliefs and school performance. Furthermore, because parenting was only assessed at Time 1, we could not test the possibility that adolescents’ capability beliefs and school performance could also influence their parents' behaviours and beliefs. Presumably, those adolescents who have strong beliefs in their academic capabilities and who succeed in school may have parents that encourage and raise expectations for their success accordingly.

Another possible limitation is our use of a “general” academic capability belief measure. Several researchers have found that the particular domain of academics, such as math versus English, may be important in predicting adolescent school outcomes. For instance, adolescents’ perception of how capable they were in math related more consistently and
strongly to their school achievement, compared to their perception of how capable they were in English (Marsh and Yeung, 1997). Thus, our relatively general measure of academic capability beliefs may not be sensitive to potential differences in self-beliefs adolescents may have concerning different academic domains.

The importance of supportive, involved parenting reaches beyond the direct link to an adolescent’s school performance. Positive parenting is also linked to an adolescent’s beliefs in his or her academic capabilities. However, the relationships between parenting, capability beliefs and school grades are not straightforward. Having parents who are not involved in their adolescent’s schooling does not automatically imply that their adolescent will do poorly. Believing strongly in one’s academic capabilities may not only magnify benefits of having parents who are involved and interested in their adolescent’s schooling, but may also buffer the potentially negative effects of having uninvolved parents.

References


