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Gender Differences in the Self-Concept of Preadolescent Children

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ABSTRACT The aim of this study was to examine gender differences in academic and non-academic self-concept. Children's self-perceptions were compared with the perceptions held by others (parents and teachers). The SDQ1 was presented to 428 children. Parents and teachers completed an adapted form. Results show that boys exhibited a higher self-concept than girls in almost all areas. Mothers, fathers and also teachers, gave the abilities of the boys in mathematics a higher rating, whereas mothers and teachers rated the verbal abilities of the girls somewhat higher. By using regression analyses, the hypothesis was confirmed that the general self-concept of girls is heavily dependent on the judgements of teachers and parents, but this was not found to be the case with boys.

Introduction

Gender differences in self-concept or self-esteem [for the conceptual discrimination between self-concept and self-esteem see Brinthaupt and Erwin (1992); Harter (1999)] have been determined in a number of studies, an overview of which can be found in Crain (1996). The general consensus of the reports is that starting at an early age, boys exhibit a higher level of general self-esteem than girls (Block and Robins, 1993; Marsh, 1989a; Marsh et al., 1988; Sotelo, 2000; Wigfield et al., 1991; Wood et al., 1996). However, some studies have found no differences (e.g. Crain and Bracken, 1994; Mullis et al.). On the other hand, Lackovic-Grgin and Dekovic (1990) reported in a study of 13-year-old children in former Yugoslavia, that the girls had a higher level
of self-esteem. The reasons for gender differences have been considered to be primarily the different gender-stereotypical socialization of girls and boys (Block and Robins, 1993). Other suggested possible causes have been greater social and economic dependence, actual differences in ability or lower status (Hattie, 1992).

Looking at differences in individual areas of self-concept, one finds consistent results with respect to the areas of mathematics and language. Boys have higher self-concepts in mathematics, while girls show a higher self-concept in languages (e.g. Burnett, 1996; Lepola et al., 2000; Marsh, 1989b; Marsh et al., 1985; Wigfield et al., 1991). In general-academic self-concept, according to Lau et al. (1998a) and Marsh et al. (1988), girls rate themselves better, while in a later paper Marsh (1989a) suggests more advantages for boys. With respect to non-academic self-concept, boys also generally exhibit a higher self-concept (Wigfield et al., 1991). There are significant differences in the area of physical abilities, in which boys rate themselves better than girls (Eccles et al., 1993; Faria, 2001; Hattie, 1992; Marsh, 1998; Marsh et al., 1985).

These differences in self-concept can already be observed among six- to ten-year-old children (Jacobs and Eccles, 1992). Since at this age there are hardly any actual differences in ability on objective testing or according to the assessment of teachers, the differences could for the most part be attributed to motivational factors or gender stereotypes which conform to roles (Seegers and Boekaerts, 1996; Skaalvik and Rankin, 1994). In the area of physical appearance, boys also have a more positive self-concept than girls, starting approximately at the age of eleven. Among younger children, on the other hand, girls exhibit the higher self-concept in this area (Marsh, 1989a). A higher self-concept among girls is also reported with regard to relationships with same-age peers (Marsh, 1989a).

These differences in various self-concept dimensions can be observed relatively consistently starting in early childhood (between the ages of five and eight) (Marsh et al., 1991) and tend to increase with the onset of adolescence (e.g. Stevenson and Newman, 1986, found no differences in mathematics and reading self-concepts during primary school years, whereas older children showed the characteristic differences in self-concept). But the differences are generally small and explain – with the exception of physical abilities – only a very small part of the variance of all self-concept scores (Marsh, 1985).

Differences in self-concept are found not only in self-perception, but also in assessments by others. Parents especially tend to judge their children in a gender-stereotypical way, so that boys are rated better in the areas of mathematics and sports and girls are rated better in verbal areas (Cole et al., 1997; Furnham, 2000; Jacobs and Eccles,
Even if no differences in performance or grades can be determined (Frome and Eccles, 1994), sons are rated better than daughters. The influence of gender stereotypes is higher, the more the mothers themselves are bound up in gender stereotypes (Jacobs and Eccles, 1992). Similar results are also reported with regard to assessments by teachers (Jussim, 1989; Jussim and Eccles, 1992; Nottelmann, 1987). Girls are rated better than boys in social situations, for example (Nottelmann, 1987). Nottelmann was not able to determine any differences with respect to the assessment of cognitive competence, however. Lau et al. (1998b) reported a higher self-concept of girls in a Chinese population, which was also reflected in the assessments of teachers and parents. Stereotypical gender differences in self-concept are also reported with regard to inferred self-concept (where significant others such as teachers, parents or peers put themselves into the perspective of the persons to be assessed), e.g. by Marsh et al. (1998) for five-to-eight-year-old Australian school children.

In our study, we wanted to examine whether the gender differences reported in the literature could be found in a Viennese sample. The type of school was also to be taken into account in the analysis of gender differences.

In Austria the transition from primary to secondary school occurs after grade four, when the children are about ten years old and have to continue on to either a ‘Hauptschule’ (HS) or an ‘Allgemeinbildende Höhere Schule (AHS)’, the latter being the prerequisite for university studies. The former is chosen more frequently when children want to start working directly after school without further education.

The type of school could be relevant in that, for example, in a Chinese sample it was found that the stereotypical gender differences with respect to mathematics and verbal ability only appeared in a regular school, but not in a key-school (Dai, 2001).

The central question to be examined was whether possible gender differences in the self-concept of 12–13 year-old school children would also be reflected in the perceptions of parents and teachers (Tiedemann, 2000; Wigfield et al., 1997). It was also expected that the academic self-concept of girls could be predicted to a greater extent than that of boys based on the assessments of others. There already exists some indications of support for this hypothesis in the literature. In a study by Granleese et al. (1989), it was shown that the person of the teacher was more important for girls in assessing their own physical competence than it was for boys. Cotterell (1992) found that only in the case of girls was there a connection between academic self-concept and support from parents or other non-related adult persons (see also Lackovic-Grgin et al., 1994).

Finally, it was assumed that the global self concept of girls is more...
heavily influenced by grades or teacher assessments than is the global self concept of boys. The results of Burnett and Demnar (1996), according to which the relationship to a teacher is more important for the self-esteem of a girls than that of boys, point in this direction.

**Methods**

**Subjects**

Data were collected from 428 six-grade children from four Viennese ‘Hauptschulen’ (HS) and four ‘Allgemeinbildenden Höheren Schulen’ (AHS). The data of the participants were gathered with the permission of their parents and the municipal school board. One hundred and ninety-nine (46.5 percent) of the children sampled were female and 229 (53.5 percent) were male. The ages ranged from 11 years and 1 month to 14 years and 6 months, whereby 92.5 percent were between the ages of 11 and 12 years (the average age was 12 years with a standard deviation of 6.2 months). 164 (38.3 percent) of the children attended the ‘HS’, 264 (61.7 percent) the ‘AHS’.

Of the 428 questionnaires administered to the parents, 338 (78.8 percent) were returned by mothers. For the fathers the percentage of participation was somewhat smaller. Two hundred and ninety-one (68 percent) completed a questionnaire. Gender and school type had no significant influence on the percentage of questionnaires returned.

The teachers of 350 children (81.8 percent) were willing to complete a questionnaire. The majority of the teachers were female (81.7 percent), 64 (18.3 percent) were male. The gender of the child had no effect on a teacher’s willingness to participate, while school type did: a larger percentage of AHS-teachers (90 percent participation) were willing to participate in the study, as compared to HS-teachers (68.3 percent participation) ($\chi^2 = 32.43, p < 0.001$).

**Measures and procedure**

All school children were given the Self-Description-Questionnaire I (SDQ1) of Marsh (1988) in German translation (Tanzer, 1995). This instrument is based on Shavelson’s multidimensional hierarchical model (Shavelson et al., 1976) and is designed for preadolescents. The SDQ1 consists of eight self-concept scales with eight positively worded items per scale (the 12 negatively worded items from the standard SDQ1 were not included, as previous research had shown that children had troubles with these items (Marsh, 1988). These scales are the following: Physical Abilities, Physical Appearance, Peer Relations, Parent Relations (these four scales belong to non-academic self-
concept), German, Mathematics (these scales form the academic self-concept), General School, and the last scale measures General Self-Concept. The children responded to each of the items on a four-point Likert scale with the categories ‘false’, ‘mostly false’, ‘mostly true’ and ‘true’. The factorial invariance of the scales with respect to gender was affirmed in studies carried out by Marsh (1993; 1994).

An adapted form of the SDQ1 was also administered to the mothers and fathers of the children. Each item of the children's questionnaire was re-stated in the third person (e.g. the item 'I am good at Math' was changed to 'My child is good at Math'). The answer format of the parents was identical to that of the children (four-point Likert scale from false to true).

The teachers rated each of the children on the eight scales of the SDQ1, based on a single score among the four-point Likert scale and the option of declaring that one was not able to provide a judgement for each self-concept scale. Before rating, the teachers read detailed instructions with definitions of the scales and how to complete the questionnaire.

In addition, academic achievement was measured in terms of the children's grades earned in Mathematics, German, Sports, Biology, English, Geography, Art and Music. Some social data were also gathered from children, parents and teachers.

All children were given the questionnaire during a school period. At the end of the school period the children were given envelopes with separate questionnaires for their fathers and mothers. The teachers completed a separate questionnaire.

Results
All statistical analyses were conducted using SPSS (Norusis, 1993). First, the reliability of the scales was examined. The internal consistency coefficients (Cronbach's Alpha) for the respective scales were generally high and ranged between 0.76 and 0.96. For the children, the range of the consistency coefficients lay between 0.83 (for General Self) and 0.95 (for Mathematics). For mothers, the coefficients were between 0.79 (for Parent Relations) and 0.96 (for Mathematics) and for fathers between 0.76 (for Parent Relations) and 0.96 (for Mathematics).

Differences in self-concept and school grades between children with regard to gender and type of school
To examine the differences in self-concept of the children with regard to gender and type of school, we performed two separate $2 \times 2$ MANOVAs with the factors gender (female/male) and type of school (AHS/HS) for non-academic self-concept and academic self-concept. For the single
factors general school self-concept and general self-concept we calculated 2 × 2 ANOVAs respectively. The multivariate analysis for non-academic self-concept with the dependent variables Physical Abilities, Physical Appearance, Peer Relations and Parent Relations revealed a significant multivariate effect of gender, \((F(4,421) = 15.73, p < 0.001)\). The effect of type of school and the two-way interaction between gender and type of school was not significant. At the univariate level, the effect of gender emerged for all scales. Cell means and \(F\)-values are displayed in Table 1. All differences pointed in the same direction, that boys have a higher self-concept in the areas physical abilities, physical appearance, peer relations and parent relations. Not surprisingly, the strongest effect emerged for physical abilities.

For academic self-concept (German and Mathematics), we found a significant multivariate effect of gender \((F(2, 423) = 20.00, p < 0.001)\) and a significant two-way-interaction between type of school and gender \((F(2,423) = 3.48, p = 0.032). At the univariate level, the effect emerged for German as well as Mathematics, although the effect was much stronger for Mathematics than for German (Table 1). In accordance with the existing literature, boys showed a more positive self-concept in Mathematics and girls a more positive self-concept in German. Interestingly, for Mathematics the interaction between type of school and gender was also significant, demonstrating that gender differences were only present at the HS. Here, the Mathematics self-concept scores for the boys were actually as high as those of the pupils from the AHS. In contrast, the girls of the HS had a much lower self-concept in Mathematics than their male peers (Table 1).

For general school self-concept, no significant effect of gender or type of school was found (univariate analysis of variance). This suggests that on the whole, boys and girls have very similar self-concepts across schools.

However, general self-concept differed to a large extent between the genders. After performing an univariate analysis of variance (ANOVA), a significant main effect for gender resulted \((F(1,424) = 31.49, p < 0.001)\), again suggesting that boys (mean = 3.18) have higher general self-concept scores than girls (mean = 2.90). The effect of type of school and the interaction between type of school and gender was not significant.

In order to analyse differences in grades between the genders, a MANOVA was carried out with gender and type of school as the independent variables and grades (in the subjects Mathematics, German, Sports, Biology, English, Geography, Art and Music) as the dependent variables. The multivariate differences as dependent on gender \((F(8,407) = 9.87, p < 0.001)\) and school type \((F(8,407) = 6.72, p < 0.001)\) were significant, no interaction between gender and school type was
observed. It was found that girls had significantly better grades in the subjects German, Sports, Biology, Art and Music (Table 2). Boys only rated significantly better in Mathematics. AHS children had significantly better grades than HS children in all subjects except Art and Music.

Table 2  Significant differences between the genders in grades

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Girls</th>
<th>Boys</th>
<th>F (1,417)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>2.99</td>
<td>2.68</td>
<td>8.01</td>
<td>0.005</td>
</tr>
<tr>
<td>German</td>
<td>2.76</td>
<td>3.11</td>
<td>13.05</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Sports</td>
<td>1.32</td>
<td>1.47</td>
<td>5.80</td>
<td>0.017</td>
</tr>
<tr>
<td>Biology</td>
<td>2.03</td>
<td>2.26</td>
<td>4.51</td>
<td>0.034</td>
</tr>
<tr>
<td>Art</td>
<td>1.32</td>
<td>1.62</td>
<td>19.20</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Music</td>
<td>1.37</td>
<td>1.57</td>
<td>7.01</td>
<td>0.008</td>
</tr>
</tbody>
</table>

Notes: Higher values indicate worse grades (grades from 1 to 5)
Differences in the inferred self-concept of parents or teachers as dependent on gender and type of school

To examine differential effects of gender and school type on the assessments of parents, 2 × 2 MANOVAs were calculated. The factors gender ($F(8, 280) = 7.42, p < 0.001$) and school type ($F(8, 280) = 4.39, p < 0.001$) of a child had a significant effect on the assessments of parents, but the interaction between gender and school type was not significant. The univariate results (between subjects) showed that fathers assessed physical abilities and self-concept in Mathematics better for sons than for daughters (Table 3). These stereotypical differences also manifested themselves among mothers. Mothers also rated self-concept in German and General Self-concept higher for daughters than for sons.

Table 3  Significant differences between the genders in the perceptions of parents

<table>
<thead>
<tr>
<th>Self-concept scale</th>
<th>Girls</th>
<th>Boys</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Abilities</td>
<td>3.04</td>
<td>3.39</td>
<td>25.32</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2.45</td>
<td>2.83</td>
<td>16.18</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Abilities</td>
<td>3.09</td>
<td>3.36</td>
<td>17.00</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2.49</td>
<td>2.86</td>
<td>16.26</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>German</td>
<td>2.73</td>
<td>2.45</td>
<td>9.96</td>
<td>0.002</td>
</tr>
<tr>
<td>General Self</td>
<td>3.47</td>
<td>3.37</td>
<td>3.99</td>
<td>0.046</td>
</tr>
</tbody>
</table>

A further 2 × 2 MANOVA with the factors gender and school type was carried out to examine whether gender and school type had an influence on assessments by teachers. The dependent variables were teacher assessments with respect to self-concept in Mathematics and German, General School, Physical Abilities, Physical Appearance, Peer Relations, Parent Relations and General Self-Concept. The effects of gender ($F(7, 280) = 7.14, p < 0.001$) and school type ($F(7, 280) = 4.26, p < 0.001$) were significant, and there was also a significant interaction between gender and school type ($F(7, 280) = 2.41, p = 0.021$). The univariate analysis shows that teacher assessments with respect to self-concept in Mathematics and German corresponded to gender stereotypes (Table 4).

School type had significant effects on Physical Appearance and General School Ability. Children from the HS received better ratings on Physical Appearance than children from the AHS, which was exactly the opposite of General Ability in school. The interaction between gender and school type is univariate significant for Physical Appearance ($F(1,286) = 8.27, p = 0.004$) and Peer Relations ($F(1,286) = 8.27, p = 0.004$).
10.02, \( p = 0.002 \). AHS teachers thus rate female school children as more attractive (mean = 3.20) than male school children (mean = 2.80), but this difference is not observed in the HS (mean values of 3.26 for girls and 3.38 for boys). Moreover, the quality of peer relations among girls in the AHS (mean = 3.19) is rated higher than among boys (mean = 2.73). In the HS the mean values for girls were 2.79, and 2.92 for boys.

**Predictors of preadolescent self-concept**

In order to examine the different effects of grades, teacher assessments and parents assessments on gender-specific self-evaluation, regression analyses were then carried out with regard to General School and General Self for boys and girls separately. Three models were tested in each case:

**Model 1**: The independent variables were grades (in Mathematics, German, Sports, Biology, English, Geography, Art and Music).

**Model 2**: The independent variables were teacher assessments [oriented towards the model of Shavelson et al. (1976) for General School assessments of Mathematics and German were used, for General Self assessments in the variables Physical Ability, Peer Relations, Physical Appearance, General School and Parent Relations were chosen].

**Model 3**: The independent variables are the attributed Self-Concept Scores of the Parents (for General School the attributed self-concept scores in Mathematics and German were used, for General Self all self-concept scores except Mathematics and German).

Looking at the results for General School self-concept, one sees that grades, teacher assessments and parent assessments represent significant predictors of General School self-concept. The differences between the genders are lower than was assumed. Grades are a relatively stronger predictor of school self-concept for boys than for girls, while for girls the predictive accuracy of the assessments of teachers and parents is better, but on the whole the differences are relatively small (Table 5).

<table>
<thead>
<tr>
<th>Subject</th>
<th>Girls</th>
<th>Boys</th>
<th>F (1,274)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-concept in Mathematics</td>
<td>2.41</td>
<td>2.75</td>
<td>8.67</td>
<td>0.004</td>
</tr>
<tr>
<td>Self-concept in German</td>
<td>2.80</td>
<td>2.41</td>
<td>12.30</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Notes: The assessment was made on a four-point Likert scale (higher values indicate more competence in this area)
The results for General Self were similar. The best predictors of General Self of girls were grades, teacher assessments and parent assessments. For boys, General Self is only predicted to a limited extent by grades. In contrast to girls, teacher assessments and parent assessments do not represent a significant predictor of boys' General Self.

In order to find out whether the school self-concept of boys really is determined by mathematical self-concept and that of girls by verbal self-concept, regression analyses were calculated with the independent variables of academic self-concept (Mathematics and German). The hypothesis was not confirmed. The regression coefficients are of approximately the same magnitude for both genders (Table 6). The differences of the beta-coefficients (which are standardized z-scores) between the genders were tested for significance (Clauss and Ebner, 1982). The critical difference, the starting point for a significant differ-

Table 5  Results of the regression analysis for 'General School' and 'General Self'

<table>
<thead>
<tr>
<th>Regression Analysis for 'General School'</th>
<th>R</th>
<th>R-Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.47</td>
<td>0.22</td>
<td>6.46</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Male</td>
<td>0.53</td>
<td>0.28</td>
<td>10.22</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Assessments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.46</td>
<td>0.21</td>
<td>20.89</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Male</td>
<td>0.34</td>
<td>0.11</td>
<td>10.92</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent Assessments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.56</td>
<td>0.29</td>
<td>14.77</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Male</td>
<td>0.47</td>
<td>0.20</td>
<td>10.18</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regression Analysis for 'General Self'</th>
<th>R</th>
<th>R-Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.36</td>
<td>0.13</td>
<td>3.43</td>
<td>0.001</td>
</tr>
<tr>
<td>Male</td>
<td>0.31</td>
<td>0.09</td>
<td>2.78</td>
<td>0.006</td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Assessments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.34</td>
<td>0.11</td>
<td>3.52</td>
<td>0.005</td>
</tr>
<tr>
<td>Male</td>
<td>0.21</td>
<td>0.04</td>
<td>1.33</td>
<td>n.s.</td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent Assessments</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.44</td>
<td>0.19</td>
<td>2.38</td>
<td>0.009</td>
</tr>
<tr>
<td>Male</td>
<td>0.37</td>
<td>0.14</td>
<td>1.81</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Notes: Model 1 = independent variables were grades; Model 2 = independent variables were teacher assessments; Model 3 = independent variables were the self-concept scores (Academic self-concept + General school) based on the perceptions of parents.
ence, is 0.19 for the five percent significance level for the samples of boys and girls and is thus considerably larger than the differences. Mathematics and German are equally good predictors of academic self-concept for girls and boys.

In the same way, regression analyses for General Self were calculated separately for each gender with the inputs of all remaining self-concept scale scores. Here there is also a high level of concurrence between the genders. For both genders, physical appearance is the most important predictor of general self-concept. Other factors which have a significant effect are peer relations, parent relations and general school self-concept (Table 6). The differences between the beta-coefficients do not differ significantly for girls and boys.

Discussion
The results of the study confirmed characteristic differences between adolescent boys and girls. Boys exhibit higher values in non-academic self-concept than girls. The most striking differences were found for the factor Physical Abilities. These results confirm the differences found in the literature (Eccles et al., 1993; Faria, 2001; Hattie, 1992; Marsh, 1998; Marsh et al., 1985). In the case of academic self-concept, no differences were found for general school concept. But boys showed a much higher self-concept in Mathematics and girls had a higher
self-concept in German. Here there is a certain correspondence to school grades, because girls really do have lower grades than boys in Mathematics, but they do better in all other subjects. This is contrary to the results of Marsh et al. (1985), where girls were found to have a lower self-concept in Mathematics, even though their mathematical achievements on standardized tests and according the assessments of teachers were better. In our study, the girls did worse both with respect to grades and teacher assessments. It must be noted, however, that grades and teacher assessments have a common source. One possible explanation for why the results were different from those of Marsh et al. (1985) might also be that the children in this study were already older (sixth-graders as opposed to fifth-graders in the study of Marsh et al., 1985), so that a possible (postulated by Marsh et al.) causal effect of self-concept may already be affecting achievement. What may refute this argument: when covariance analyses were carried out with age as a co-variate, the same gender-stereotypical differences in self-concept were found.

The interesting thing is that gender differences in mathematics self-concept were moderated by school type, so that the differences in self concept in Mathematics could only be found in the HS. It can be assumed that the social-emotional climate of this school type encourages gender-stereotypical roles. The children who attend a HS also come from families with a lower education level, through which gender-stereotypical views are promoted. Significantly fewer mothers and fathers of the HS children in our study had a high school diploma or university degree. Only 11.5 percent of these mothers had a diploma or degree, as opposed to 38.7 percent of AHS mothers ($\chi^2 = 26.5, p < 0.001$). Only 10.3 percent of HS fathers had a diploma or university degree, while 41.3 percent of AHS fathers had either a diploma or a degree ($\chi^2 = 28.8, p < 0.001$).

The different gender-dependent self-concepts were reflected in the assessments of the parents. Both mothers and fathers had a more positive view of their sons with respect to Physical Abilities and Mathematics. The latter result confirms the findings of Furnham (2000) and Tiedemann (2000), in whose studies both parents attributed greater ability in Mathematics to their sons. These findings also confirm the effect of gender stereotypes for children between preadolescence and adolescence. In our study, mothers also had a somewhat more positive view of their daughters in German and general self-concept. This indicates a somewhat more discriminating view on the part of the mothers as compared to the fathers. The results are primarily definite proof that the differences in the self-concept of children are reflected in the assessments of their parents.

Teachers only assess the two genders in a stereotypical way with
respect to mathematical and verbal abilities, whereby greater verbal ability is attributed to girls and greater mathematical ability is attributed to boys.

By means of regression analyses, it was shown that the differences in the academic self-concept of girls can also be explained to a somewhat greater extent by teacher and parent assessments, while for boys, grades tend to explain the variance of school self-concept (Wylie, 1979).

For general self-concept, the assessments of teachers and parents play no role for boys, while for girls the assessments of teachers as predictors of self-concepts are as significant as the assessments of parents. This result matches the findings of Granleese et al. (1989).

Looking at intra-individual predictors of school self-concept, it can be seen that Mathematics and German are very good predictors for both genders. Gender differences could not be found in this case. For General Self, Physical Appearance, Peer and Parent Relations are significant predictors, in agreement with Hay et al. (1998) for both genders. The general self-concept of girls and boys was also influenced by school self-concept (General School).

On the whole, it was shown that very definite gender-stereotypical differences can be observed during the transition from preadolescence to adolescence, which are also reflected in the assessments of parents and teachers or possibly caused by these gender-stereotypical views (the moderating role of school type in mathematical self-concept supports this).

References


