Teacher-child relationship and learning behavior of young children
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CHAPTER 2

Quality of the Teacher-Child Relationship and Children’s Learning Behavior: A Meta-Analysis
Chapter 2: Quality of the Teacher-Child Relationship and Children’s Learning Behavior: A Meta-Analysis

Mirella G.P. van Leeuwen, Helma M.Y. Koomen and Aryan van der Leij

This Chapter reports 4 meta-analyses on the relation between the quality of the affective teacher-child relationship and children’s involvement and achievement in learning situations. The meta-analyses concerned the relations between respectively, the positive quality of the affective teacher-child relationship and involvement \( (k = 13, N = 1873) \), the negative quality of the relationship and involvement \( (k = 5, N = 1066) \), positive quality of the relationship and achievement \( (k = 23, N = 2056) \), and negative quality and achievement \( (k = 7, N = 656) \). According to Cohen’s (1988) criteria the associations between the quality of the relationship and involvement appeared to be medium to large. The associations between the quality of the relationship and achievement were small to medium. This difference in strength may be explained by involvement mediating between the quality of the relationship and achievement. Several other dimensions, such as children’s age, special educational needs and social economical status, were identified as important.
Chapter 2: Quality of the Teacher-Child Relationship and Children's Learning Behavior: A Meta-Analysis

2.1 Introduction

Until recently, little research was conducted concerning the association of the affective teacher-child relationship with children's learning behavior. In Brophy and Good's (1986) review of studies examining teacher behavior and student achievement only a few studies were included that made the connection between affectivity of teacher-child interaction and achievement at school. Several studies have examined teacher-child interaction. There is for example substantial literature on teachers' expectations for students' learning, going back to Rosenthal and Jacobson's (1968) *Pygmalion in the Classroom.* However, in the present meta-analyses the focus is on the impact of the affective teacher-child relationship on children's learning behavior, independent of what teachers think of children's capacities. Bowlby (1969/1984) argued that especially for young children the presence of a substitute caregiver, for example a teacher, is vital to make them feel well at school and to enable them to be involved with and perform well on school tasks. It is likely that the quality of the affective relationship children have with their teacher, influences the degree to which children feel well at school.

The last decennium the association between the affective teacher-child relationship and learning behavior has increasingly gained the attention of researchers. An important series of studies on this subject has been conducted by for example Pianta and his colleagues (e.g., Pianta & Bennet, 1991; Pianta, Nimet, & Bennet, 1997; Pianta & Steinberg, 1992; Pianta, Steinberg, & Rollins, 1995) and Ladd and colleagues (e.g. Birch & Ladd, 1997; Ladd, Birch, & Buhs, 1999). In addition, other researchers have contributed to the knowledge in this field of research (e.g., Murray & Greenberg, 2000; Murray & Greenberg, 2001; Skinner & Belmont, 1993). The performed studies are not in agreement about the extent to which the teacher-child relationship is of influence on learning behavior. The increased attention for the impact of the teacher-child relationship and the inconsistent results in this field of research emphasize the relevance of integrating the findings of empirical research, by means of a meta-analysis.

In the literature the quality of the affective teacher-child relationship has been described by several concepts. Mahoney and Wheeden (1999) wrote about the "supportiveness" of the teacher. Imber (1973) used the term "trust" of children towards teachers. Skinner and Belmont (1993) talked about "teacher involvement". Poulsen & Fouts (2001) studied teachers' "attunement" with the children. Bourdeau and Ryan (1978) distinguished four forms of relatedness teachers can have with children. They described children the teacher feels "attached" to, is "concerned" about, "rejects" and finally children where the teacher is "indifferent" about. Pianta and colleagues identified several factors representing aspects of the teacher-child relationship in their studies. In most articles they at least distinguished "Closeness", "Conflict" and "Dependency", although the terminology differs slightly between
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studies (Pianta and Nimetz, 1991; Pianta et al., 1997; Pianta and Steinberg, 1992; Pianta et al., 1995). Drawing upon the work of Pianta and colleagues, Birch and Ladd (1997) made use of the same three dimensions. Ladd et al. (1999) confined themselves to "Closeness" and "Conflict" in the teacher-child relationship. Finally, Murray and Greenberg (2000) used the terms "Affiliation with teacher" and "Dissatisfaction with teacher" to express the quality of the teacher-child relationship.

Although researchers use different terms to refer to the affective teacher-child relationship, there seem to be two ends of a polarity, covering most of the terms. To put it simple, studies measure how good or how bad an affective relationship is, or both. Some studies only use positive descriptions to express the quality of the affective teacher-child relationship, such as security, closeness, warmth or attunement. Other studies express the quality of the affective teacher-child relationship with help of both polarities and also use negative descriptions for example conflict, rejection and dissatisfaction.

In literature (Brophy, 1986; Brophy & Good, 1986) it is suggested that positive and negative affect in the teacher-child relationship do not influence learning behavior to the same extent. In their review Brophy and Good (1986) summarize that negative affect seems to be substantially related to achievement, whereas the relation between positive affect and achievement seems to be fairly weak. For this reason, it is important to distinguish between positive relationship indicators and negative relationship indicators in this meta-analysis. With the term "positive quality of the teacher-child relationship" we aimed to cover all concepts that express the quality of this relationship by indicators of positive affect. With the term "negative quality of the teacher-child relationship", likewise, we intended to cover all concepts expressing the quality of the affective teacher-child relationship by indicators of negative affect.

In studies about the affective teacher-child relationship and learning behavior, a distinction is often made between children's involvement with school tasks, and children's actual performance (e.g., Birch & Ladd, 1997; Ladd et al., 1999; Pianta et al., 1997). Ladd et al. (1999) have presented a model in which the involvement of children within the classroom mediates the influence of teacher-child relationship quality on achievement. According to this model, a warm relationship with the teacher fosters greater involvement at school, which subsequently leads to better achievement. Other authors also considered involvement a precondition for learning, whereas achievement was considered a product of learning (Harskamp, Pijl, & Snippe, 1991; Ladd et al., 1999; Schonewille & Van der Leij, 1995; Skinner & Belmont, 1993). However, this mediating influence of involvement does not always appear in experimental studies and may therefore be less straightforward than assumed (Schonewille & Van der Leij, 1995). It is also conceivable that the teacher-child relationship has a more direct influence on achievement. Drawing upon attachment theory (Bowlby, 1969/1984) for example, one can argue that children with a close relationship with the teacher possess a secure base that benefits their exploration quality (Birch & Ladd, 1997; Bretherton,
1985). For this reason in this meta-analysis the associations of the quality of the teacher-child relationship with involvement and achievement are considered separately.

2.1.1 Hypotheses

In the present study four separate meta-analyses have been performed. These meta-analyses involve respectively the associations between (1) positive quality of the teacher-child relationship and involvement, (2) negative quality of the teacher-child relationship and involvement, (3) positive quality of the teacher-child relationship and achievement and (4) negative quality of the teacher-child relationship and achievement. Positive and negative qualities of the teacher-child relationship were treated as independent variables, involvement and achievement of children as dependent variables.

Several variables were expected to be relevant to the association between the quality of the teacher-child relationship, and involvement and achievement. These were included as predictor variables. In the following part, these variables are explained in more detail. First, variables will be discussed expected to be of influence based on theoretical considerations. Second, expectations are expressed concerning several other study features that may explain differences between study outcomes.

Theoretical Considerations

The first variable that was considered to be important was the age of the subjects. It was expected that studies with young children would show stronger associations between the quality of the teacher-child relationship and involvement or achievement than studies with older subjects. According to Bowlby (1969/1984), children from three years up become increasingly able to function in strange environments without their primary caregivers being immediately available. For young children this is still dependent upon several conditions, however. For instance, a familiar substitute caregiver, such as a teacher, must be present. For older children the presence of a teacher as a substitute caregiver is considered to be less important. As a result the quality of the affective teacher-child relationship may be of greater importance to young children's behavior and performance compared to older children.

Another factor believed to be of influence, was special educational needs. For children who are academically at risk, the quality of the affective teacher-child relationship was hypothesized to be of greater significance for their involvement and achievement at school than for children not at risk. This hypothesis is in line with the proposition that teachers' relationships with children may be particularly important in predicting school adaptation for children at the highest risk for school failure (e.g., Pederson, Faucher & Eaton, 1978; Pianta et al., 1995). It has been suggested that vulnerable children will be more influenced by experience in school contexts (see Entwisle and Alexander, 1998). Moreover, it is believed that these children more than anyone else are thrown back on extra attention from the teacher. In general the amount of attention students receive may depend on the quality of the teacher-child relationship. As a consequence, a positive affective environment is especially important
for children with special educational needs. On the other hand, a negative affective environment may result in lower involvement and lower performance of these children.

Furthermore, social economical status was considered important. The quality of the affective teacher-child relationship was expected to be especially influential for children within low social economical samples. Children from relatively low SES families are often not raised with an interest in academic subjects (e.g., Leseman, 1991). As a result these children may be less involved with school tasks and perform relatively poor (Entwistle & Alexander, 1998; Reynolds, 1991). According to Brophy and Good (1986) and Brophy (1986) low-SES students require warmth and support to be able to perform well at school, whereas high-SES students have less need for affection and thrive in an academically stimulating environment. It was therefore predicted that in studies with relatively low SES subjects, the associations between the quality of the teacher-child relationship and involvement or achievement would be stronger than in relatively high SES samples.

In addition, the source of information regarding the affective teacher-child relationship was expected to be of influence. It was investigated whether there was a difference in effect size between studies measuring the quality of the relationship by a questionnaire filled out by the teacher, compared to a questionnaire filled out by students. It was believed that both teachers’ and students’ evaluation of the relationship would suffer from a self-serving bias. The self-serving bias is part of attribution theory (Heider, 1958; Kelly, 1972) and refers to the tendency of people to attribute success to factors within themselves (internal factors), such as capacity and effort, and failure to external factors, such as a nasty teacher or bad luck. Moreover, people are considered to reverse this for other persons. Following this line of reasoning, in case of high involvement and achievement teachers more than students will be inclined to attribute this success to the quality of the relationship and evaluate the teacher-child relationship relatively positive. This results in a stronger association between positive quality of the teacher-child relationship and involvement or achievement if the teacher instead of the students has reported on the quality of the relationship. On the other hand, in case involvement and achievement are rather low, students are more likely to attribute this to the negative quality of the relationship than teachers. As a result, a stronger association between negative quality of the teacher-child relationship and involvement or achievement was expected if students instead of teachers evaluated the quality of the relationship.

**Methodological Considerations**

In addition to variables theoretically of interest, certain other study features may have led to different results between studies. First, the objectivity of the methods measuring the quality of the teacher-child relationship was considered. The expectation was that, the association with involvement or achievement would be weaker if the quality of the relationship was measured in an objective manner (e.g., Harris, 1993; Ladd et al., 1999; Poulson & Fouts, 2001) than in a subjective manner (e.g., Esposito, 1999; Imber, 1973; Pianta et al., 1997). The performances of the child at school may bias teachers’, children’s or parents’ view
of the teacher-child relationship. In case a child is involved and performs well at school, people may judge this relationship relatively positive. In contrast, when a child's learning behaviors are not good, teachers, children or parents are expected to evaluate this relationship relatively negative. If, however, the quality of the relationship was measured in an objective manner, for example by observation of interaction (Ladd et al., 1999) or an experimental manipulation (Harris, 1993; Poulsen & Fouts, 2001), the association between the quality of the teacher-child relationship and either involvement or achievement was expected to be less biased and, as a consequence, weaker.

In addition, the measuring unit with respect to the quality of the teacher-child relationship was considered. Some authors have measured the teacher-child relationship as a characteristic of specific teacher-child dyads (e.g., Birch & Ladd, 1997; Pianta & Steinberg, 1992) whereas other researchers used a generalized measure of the quality of the teacher-child relationship for an entire class (Christensen, 1960; Harris, 1993; Poulsen & Fouts, 2001). It was expected that the associations of both positive and negative quality of the teacher-child relationship with involvement and achievement would be stronger when the relationship was measured in dyads.

Furthermore, attention was paid to the objectivity of the measures of children's involvement. It was expected that the association between the quality of the relationship, either positive or negative, and involvement would be weaker if involvement was measured in an objective manner than in a subjective manner. An involvement measure was considered subjective if an evaluation by the teacher was asked, for example by a questionnaire (e.g., Birch & Ladd, 1997; Ladd et al., 1999; Pianta et al., 1997; Pianta & Steinberg, 1992). In case involvement was measured by means of observation by independent observers, this was considered an objective measure (Christensen, 1960; De Kruijf, McWilliam & Maher Ridley, 2000; Mahoney & Wheeden, 1999).

The next design aspect concerns the objectivity of the measures of achievement. Measures were considered subjective if they involved an evaluation by the teacher, such as marks (e.g., Imber, 1973), retention decisions (e.g., Pianta & Steinberg, 1992), or expressed beliefs of children's expected future achievement (e.g., Bourdeau & Ryan, 1978). If students' achievement was measured with an achievement test, this was considered an objective measurement (e.g., Esposito, 1999; Pianta et al., 1997; Poulsen & Fouts, 2001). It was expected that the relation between the quality of the teacher-child relationship and achievement would be stronger in studies measuring achievement in a subjective manner compared to an objective manner. The relationship of the teacher with students may very well affect his or her ideas of the performance of the children. This may result in biased judgments, leading to relatively positive evaluations when she has a positive relation with a child and relatively negative evaluations when she has a negative relation with a child. When achievement was measured in an objective manner, more moderate results were expected.

Differences in quality of the included studies were considered in two ways. First, the quality of the study was estimated in terms of the quality of the publication medium. For journal
articles, the *impact factor* of the journal, defined as the average number of citations to the papers in a journal was considered as a proxy of quality (Garfield, 1979). The impact of book chapters and dissertations was set at zero. The overall quality of studies was then included in the meta-analyses as a predictor. Second, the influence of *publication status* (published versus unpublished) was considered. Publication status was added not only as an indicator of the quality of the studies, but also to control for possible publication biases. A publication bias within a field of research implies that studies with significant results are more likely to be published than studies with no significant results. This widely recognized bias is induced by selective publication, in which the decision to publish is influenced by the results of the study (Begg, 1994).

Finally, *year of publication, sample size and the percentage of girls in the sample* were considered. The year of publication of the included studies was considered to control for time effects. For example, refined measuring methods and computerized data analysis might influence the magnitude of study results. Sample size was considered because in meta-analysis, it often is a significant predictor because smaller samples tend to show stronger effect sizes than larger samples (Begg, 1994). Finally, the percentage of girls in the sample was considered, to control for gender differences.

### 2.2 Method

#### 2.2.1 Selection of the Studies

To identify studies for inclusion in the meta-analysis, the following computerized abstracting services were used: PsychInfo (from 1887 on), Educational Resources Information Center (from 1966 on), Social Sciences Citation Index (from 1988 on). Unpublished dissertations were located by means of the Dissertation Abstracts (From 1980 on). The following keywords were used in different combinations: teacher-, caregiver-, child-, student-, pupil-, attachment, relationship, warmth, affect, security, emotional security, affective, responsive, trust, sensitive, liking, dislike, conflict, involvement, engagement, work behavior, motivation, school-adjustment, participation, attention, work-habits, achievement, performance, academic achievement, school-results, learning, cognitive development, kindergarten, preschool, elementary-, primary-, daycare, care-, early childhood.

To supplement these computer searches, manual search procedures were used. Reference lists from reviews (Brophy & Good, 1986; Elicker & Fortner-Wood, 1995; Kontos & Wilcox-Hertzog, 1997) and related articles were inspected, as well as reference lists of the collected articles.

The following three conditions were specified for inclusion of studies in the meta-analysis. The first criterion was that the study contained a measure for either positive quality or negative quality of the teacher-child relationship, or both. Most of the included studies used a questionnaire filled out by teachers (Birch & Ladd, 1997; Bourdeau & Ryan, 1978; Ferris, 1984; Pianta & Nimetz, 1991; Pianta et al., 1997; Pianta & Steinberg, 1992; Pianta et al., 1995; Skinner & Belmont, 1993). Some studies involved questionnaires filled out by students
(Christensen, 1960; Gathman, 1976; Imber, 1973; Murray & Greenberg, 2000; Skinner & Belmont, 1993; Tanners-Surace, 2000), and one study used parents’ evaluations of the teacher-child relationship (Esposito, 1999). A few studies used observation to obtain a measure for the affective relationship (Brophy & Evertson, 1974, as cited in Brophy & Good, 1986; De Kruijff et al., 2000; Ladd et al., 1999; Mahoney & Wheeden, 1999; Soar, 1973; Soar & Soar, 1978). In two studies the affective quality was manipulated in an experiment (Harris, 1993; Poulsen & Fouts, 2001).

The second condition for inclusion was that the study reported an association between the quality of the teacher-child relationship and either involvement or achievement, or both, in order to be able to calculate effect sizes. Even if no numeric information was provided, the study was included in the meta-analysis and the effect size was estimated (Mullen, 1989).

The third criterion concerned the age of the subjects. Young children’s functioning at school partly depends on the presence of a teacher as a substitute caregiver (Bowlby, 1969/1984). Older children are better able to function on their own, without the presence of a substitute caregiver. The affective relationship children have with their teacher is therefore considered to become less important while children become older. For this reason these meta-analyses were limited to studies with children younger than 12 years. Studies with older subjects were excluded from the meta-analysis (e.g. Bennacer, 2000). In one case, a study contained subjects younger than 12, as well as older students (Gathman, 1976). For this study a distinct effect size was calculated for the subjects younger than 144 months.

No studies were excluded from the meta-analysis on the basis of flawed design. Instead, impact factor and publication status were included as predictors in the analyses as indicators of study quality (Mullen, 1989).

For the analysis regarding positive quality of the relationship and involvement, 13 studies were identified that together held 1873 subjects. This analysis included 12 published articles or chapters, and 1 unpublished dissertation (Harris, 1993). The analysis of negative quality and involvement included 5 studies; all of them published articles, together involving 1066 subjects. The analysis of positive quality of the teacher-child relationship and achievement bears upon 23 samples within 18 studies, together holding 2056 subjects. Seven studies in this analysis were part of unpublished papers, of which four were dissertations. The remaining eleven studies were published journal articles. For the association between negative quality and achievement 7 samples within 6 studies were identified containing 656 subjects. Five of the samples originated from published articles, the other two samples were part of an unpublished paper.

If a meta-analysis relies exclusively on published studies, this may result in an overestimation of population effect sizes due to a possible publication bias. Rosenthal (1979) identified this as the “file drawer” problem. For the meta-analyses described in this paper, unpublished papers were traced using Educational Resources Information Center (from 1966 on). In addition, unpublished dissertations were located through Dissertation Abstracts (from 1980 on).
Next to retrieving unpublished studies, the fail-safe number (Rosenthal, 1979) was estimated. The fail-safe number is the minimum number of studies with null results that would be required to turn a significant meta-analytic finding nonsignificant. In case this fail-safe number falls below the critical value of \(5^*k + 10\) (Rosenthal, 1991), where \(k\) is the number of studies in the meta-analysis, a file drawer problem may exist. The formula (Mullen, 1989) for the fail-safe number for the \(p = 0.05\) level of significance is:

\[
N_{fs}(p = 0.05) = \left( \frac{\sum Z_j}{1.645} \right)^2 - k
\]  

(2.1)

Where: 
\(k\) = number of hypothesis tests included in the meta-analysis

\(Z_j\) = \(Z\) associated with significance level of hypothesis test \(j\)

The denominator of 1.645 represents the \(Z\) corresponding to the "\(p = 0.05\)" level of significance.

2.2.2 Calculation of Effect Sizes

In these meta-analyses, Pearson's product-moment correlation coefficient (\(r\)) was used as the effect size estimate of each individual study. An effect size indicates the magnitude of the relation between two variables, regardless of sample size. If no correlation coefficient was reported in a study, the reported test statistics (\(t\), \(F\), or chi square) or the one-directional \(p\)-value were transformed into \(r\) with Mullen's (1989) computer program. The formulas used for this transformation are displayed in Table 2.1. If no association between the variables was supplied, but means and standard deviations were available, one directional \(t\) values were computed using Schwarzer's (1989) algorithms and transformed into \(r\). Conservative estimation procedures were applied if a study reported no numerical values. If a study mentioned a "significant effect", the \(p\)-value of the study was set to 0.05. If a study only reported "not significant", the \(p\)-value was set to 0.50. The individual effect sizes of the samples included in the analysis are presented in Appendix A.

**Table 2.1 Transformation of Inferential Statistics into \(r\)'s**

<table>
<thead>
<tr>
<th>Transformation</th>
<th>Formula</th>
</tr>
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<tbody>
<tr>
<td>for (t)</td>
<td>(r = \left( \frac{t^2}{t^2 + df} \right)^{1/2})</td>
</tr>
<tr>
<td>for (F(1, df))</td>
<td>(r = \left( \frac{F}{F + df} \right)^{1/2})</td>
</tr>
<tr>
<td>for (\chi^2(1))</td>
<td>(r = \left( \frac{\chi^2}{N} \right)^{1/2})</td>
</tr>
<tr>
<td>for (Z)</td>
<td>(r = \left( \frac{Z^2}{N} \right)^{1/2})</td>
</tr>
</tbody>
</table>
Combining estimates of effect sizes across studies is reasonable if the studies are homogeneous. Homogeneity of the dataset means that the studies involved have a common population effect size. In this case, estimates of effect sizes will differ only because of unsystematic sampling error. The combined effect size for heterogeneous clusters constitutes problems for the estimation of the population effect size. In case of a heterogeneous dataset one needs to be careful with interpreting the data. To test to what extent effect sizes are relatively constant across studies, a homogeneity test was applied (Mullen, 1989). In case of heterogeneity, we tried to find homogeneous subsets of studies using disjoint cluster analysis (Mullen).

The next step in combining effect sizes was to transform each correlation coefficient of each individual study to a Fisher's Z to make the sampling distribution of \( r \) more approximate to a Gauss curve. This transformation was necessary because the distribution of \( r \) becomes nonlinear at the extreme ends of the scale. The transformation was achieved using the following formula (Mullen, 1989):

\[
Z_{\text{Fisher}} = 0.5 \left( \log((1 + r) / (1 - r)) \right)
\]  

(2.2)

Next, the effect size of the combined studies was computed. The individual effect sizes were weighted by sample size, because correlations tend to become more stable as sample size increases and, in addition, effect sizes based on large samples deviate less from the population effect size than those based on smaller samples (Mullen, 1989; Rosenthal, 1991). The mean magnitude of effect for the \( k \) hypothesis tests included in the meta-analysis was estimated with the following formula (Mullen, 1989):

\[
Z_{\text{Fisher}} = \frac{\sum w_j Z_{\text{Fisher}j}}{\sum w_j}
\]  

(2.3)

Where:
- \( w_j \) = weight assigned to the results of hypothesis test \( j \)
- \( Z_{\text{Fisher}j} \) = \( Z_{\text{Fisher}} \) associated with effect size for hypothesis test \( j \)

Finally, the \( Z_{\text{Fisher}} \) was transformed to \( r \) using the algorithm (Mullen, 1989):

\[
r = \frac{e^{2Z_{\text{Fisher}}} - 1}{e^{2Z_{\text{Fisher}}} + 1}
\]  

(2.4)

2.2.3 Predictors

Mullen (1989) has advised to search for significant predictors, regardless of the outcome of the homogeneity test. In case of heterogeneity it is important to search for theoretically relevant predictors that explain variability in the research domain. On the other hand, a homogeneous dataset does not mean that there is no interesting variability left to explain.
Several practically important or theoretically interesting variables were selected to examine their influence on the variation between studies. To examine which variables were responsible for variation in effect sizes among studies, Rosenthal's method of focused comparison of effect sizes for continuous variables was used (Mullen, 1989). Categorical predictors were transformed to continuous variables to make it possible to examine them with the same method. These continuous variables represented the presence or absence of a particular category of the original variable.

With help of focused comparison of effect sizes the influence of several study features on the effect sizes of the studies was regarded. A significant focused comparison of effect sizes indicates that the magnitudes of effect of the included studies, covaried with the predictor under examination (Mullen, 1989). In focused comparison of effect sizes, the $Z_{\text{FISHER}}$ representing the effect-size in each individual study is multiplied by a contrast weight, $\lambda$. Each contrast weight captures the variability in the predictor being tested in a study $j$. Together these weights sum up to equal zero. The weighted $Z_{\text{FISHER}}$'s were integrated using a formula (Mullen, 1989):

$$Z = \frac{\sum \lambda_j Z_{\text{FISHER}_j}}{\sqrt{\sum \left(\frac{\lambda_j^2}{N_j - 3}\right)}}$$

(2.5)

Where: $\lambda_j = \text{contrast weight assigned to results of hypothesis test } j$  
$Z_{\text{FISHER}_j} = \text{Fisher's Z associated with effect size of hypothesis test } j$  
$N_j = \text{sample size associated with hypothesis test } j$.

The probability associated with this $Z$ for focused comparison is the likelihood that the $k$ study outcomes varied as a function of the predictor represented by the included $\lambda$s.

In addition, we used blocking to reveal predictors in the dataset. Blocking involves grouping study outcomes on the basis of a potential explanatory variable. Within each level of the explanatory variable, a combined effect size can be computed, and the significance of the differences can be tested (Mullen, 1989).

2.2.4 Multiple Outcomes Within Primary Studies

Some studies within the meta-analyses had multiple outcomes for the different variables. Just like primary studies, meta-analysis assumes independent units of analysis. It was therefore necessary to deal with multiple outcomes from single studies to prevent a threat to this requirement (Mullen, 1989). There were 5 types of multiple outcomes.

First, in some studies variables were measured several times with the same instruments. In these cases we used the first measurement occasion of the quality of the relationship. For involvement or achievement we used the first measurement occasion that
was scheduled after or simultaneously with the affective quality of the relationship. This sequence was maintained because in these meta-analyses the quality of the teacher-child relationship was treated as the independent variable, whereas involvement and achievement were both treated as dependent variables. The decision for selecting these independent and dependent variables was based on the most frequent sequence in which these variables were measured in the retrieved studies. One study (Howes, Phillipsen & Peisner-Feinberg, 2000) had to be excluded from the meta-analyses for this reason. In this study, children’s involvement was measured in preschool while the quality of the teacher-child relationship was measured afterwards in kindergarten.

Second, because many studies assessed both positive quality and negative quality of the teacher-child relationship, or both involvement and achievement, separate meta-analyses were conducted for respectively positive quality and involvement, negative quality and involvement, positive quality and achievement and negative quality and achievement. Due to these separate analyses data from a single study sometimes were included in more than one of the conducted meta-analyses.

Third, several studies used more than one instrument to measure a certain dependent or independent variable. In these cases a combined effect size over these measurements was computed and treated as the outcome of a study. The study by Murray and Greenberg (2000) included two questionnaires for involvement, one for the teachers and one for the students. Not for all subjects both measurements were returned, resulting in a large difference in sample size between the two measuring instruments. In this case an effect size was computed the same way as in the other studies but the sample size was estimated conservatively by using the smallest of the two sample sizes.

Fourth, some studies distinguished between several non-overlapping sub samples when reporting results. For example Gathman (1976) reported the results for separate age groups and Harris (1993) reported the relation between affective quality and performance separately for two experimental groups, i.e. children working on a difficult task, and children working on a less difficult task. In cases where sub samples did not overlap, the sub samples were entered as separate samples in the meta-analysis.

Fifth, two studies were conducted by the same research team and included the same samples (Murray & Greenberg, 2000; Murray & Greenberg, 2001). In this case, the most extended report was used. The other report was excluded from the meta-analysis.

2.2.5 Coding the Variables

A number of study characteristics were coded. First, some variables theoretically of interest were registered. The mean age of the children in the sample in months was coded, as well as the age group (below or above 72 months). In addition the percentage of the sample having special educational needs and the social economic status of the sample (low or average/mixed) was registered and, if applicable, the source of information with respect to the quality of the teacher-child relationship (teacher or student). Second, we coded several
characteristics of the designs of the studies. The objectivity of the measurement of the quality of the teacher-child relationship was noted (objective or subjective), the unit of measurement of the affective quality of the teacher-child relationship (dyad or general) and finally the objectivity of measurement (objective or subjective) of the dependent variable, either involvement or achievement. Third, a couple of variables important with regard to meta-analysis were coded. The impact factor, publication status (published or unpublished) and the sample size of the studies were noted. Additionally, the year of the study and the percentage of girls in the sample were coded. In Appendix B the study characteristics of all included studies are represented.

2.3 Results

2.3.1 Positive Quality of the Teacher-Child Relationship and Involvement

Central Tendency and Variability.

Table 2.2 presents the mean weighted effect sizes for all meta-analyses, as well as homogeneity tests, and fail-safe numbers. The combined effect size for the association between positive quality of the teacher-child relationship and involvement was \( r(1871) = 0.28 \) \((k = 13, N = 1873)\). The fail-safe number (608.43) exceeded Rosenthal’s (1991) value \((5k + 10)\). The effect size can therefore be considered robust. It would require 608 studies with null results to make the effect size for the association between positive quality of the teacher-child relationship and involvement non-significant.

Table 2.2 also presents the test statistic chi-square, which indicates that the effect size for positive quality on involvement was heterogeneous, \( \chi^2(12, N = 1873) = 61.86, p < 0.05 \). Therefore, it was tried to find homogeneous subsets of studies using disjoint cluster analysis (Mullen, 1989). However, it appeared that the study consisted of only one cluster that contained all the studies in the meta-analysis (alpha was set at 0.05).

Predictors.

In Table 2.3, the predictors and their \( z \) values for all conducted meta-analyses are reported. Neither publication status nor impact factor had significant effects on effect size. This indicates that there is no publication bias or quality problem. However, since only one unpublished study was included in the analyses, it is possible that a file drawer problem exists. Because the fail-safe number exceeded Rosenthal’s (1991) critical number this is not necessarily problematic.

The only significant predictor in this set was the social economical status of the subjects involved. The association between positive quality of the teacher-child relationship and involvement was stronger for low SES samples, than for averaged or mixed SES samples \((z = 2.37, p < 0.01)\). This is in accordance with the formulated expectations.
Table 2.2 Quality of the Teacher-Child Relationship and Learning Behavior: Meta-Analytic Findings

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Studies (k)</th>
<th>Participants (N)</th>
<th>Effect size (r)</th>
<th>Homogeneity $\chi^2$</th>
<th>Fail Safe (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Quality / Involvement</td>
<td>13</td>
<td>1873</td>
<td>0.28 **</td>
<td>61.86 a</td>
<td>608.43</td>
</tr>
<tr>
<td>Negative Quality / Involvement</td>
<td>5</td>
<td>1066</td>
<td>-0.32 *</td>
<td>9.35 a</td>
<td>171.94</td>
</tr>
<tr>
<td>Homogeneous Subgroup</td>
<td>4</td>
<td>896</td>
<td>-0.35 *</td>
<td>4.88</td>
<td>136.99</td>
</tr>
<tr>
<td>Positive Quality / Achievement</td>
<td>23</td>
<td>2056</td>
<td>0.18 **</td>
<td>49.53 a</td>
<td>403.00</td>
</tr>
<tr>
<td>Negative Quality / Achievement</td>
<td>7</td>
<td>656</td>
<td>-0.14 *</td>
<td>10.84 b</td>
<td>30.85 c</td>
</tr>
<tr>
<td>Homogeneous Subgroup</td>
<td>6</td>
<td>601</td>
<td>-0.12 *</td>
<td>4.75</td>
<td>10.89 c</td>
</tr>
</tbody>
</table>

*p < 0.05; ** p < 0.01

aData set is heterogeneous ($p < 0.05$)

bData set is heterogeneous ($p < 0.10$)

cFile drawer problem is indicated

2.3.2 Negative Quality of the Teacher-Child Relationship and Involvement

Central Tendency and Variability.

As can be derived from Table 2.2, the combined effect size for the association between negative quality of the teacher-child relationship and involvement was $r(1064) = -0.32$ ($k = 5$, $N = 1066$). The fail-safe number (171.94) exceeded Rosenthal’s (1991) value ($5k + 10$). The effect size can therefore be considered robust. The effect sizes within the domain were found to be heterogeneous, $\chi^2(4, N = 1066) = 9.35, p < 0.05$. It was tried to find homogeneous subsets of studies using disjoint cluster analysis (Mullen, 1989). Again, it appeared that the dataset consisted of only one cluster that contained all the studies in the meta-analysis (alpha was set at 0.05). A closer look at the dataset with help of predictor analysis revealed that leaving out the study by Murray and Greenberg (2000) resulted in a homogeneous subset. The study by Murray and Greenberg involved older subjects than the other studies in this analysis. It is plausible that age of the sample was the factor that differentiated this individual study from the others. Further analyses have been performed on the subset without the study by Murray and Greenberg. The remaining studies constituted a homogeneous set ($\chi^2(3, N = 896) = 4.88, p = 0.18$), and their combined effect size was $r(894) = -0.35$ ($k = 4$).

Predictors.

Within this set of studies none of the predictors was of significant influence on the effect size (see Table 2.3). Several predictors could not be considered in this analysis because of a lack of variance in the predictor variables. This concerned age group, source of information with regard to the quality of the relationship, the unit of measurement of the
teacher-child relationship, the objectivity of the measurement of involvement and publication status. Publication status could not be considered because the meta-analysis only contained published documents. This fact may point at a publication bias. Impact factor did not have a relation with effect size, indicating that there are no quality problems, in this respect.

Table 2.3 The Effect (z-scores) of Predictors in the Different Analyses

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Pos. Quality / Involvement</th>
<th>Neg. Quality / Involvement</th>
<th>Pos. Quality / Achievement</th>
<th>Neg. Quality / Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication Status</td>
<td>0.31</td>
<td>-b</td>
<td>4.60***</td>
<td>0.19</td>
</tr>
<tr>
<td>Impact Factor</td>
<td>0.34</td>
<td>0.26</td>
<td>3.00**</td>
<td>0.08</td>
</tr>
<tr>
<td>Year</td>
<td>1.24</td>
<td>0.83</td>
<td>0.72</td>
<td>0.15</td>
</tr>
<tr>
<td>Sample Size</td>
<td>0.24</td>
<td>0.61</td>
<td>0.78</td>
<td>0.42</td>
</tr>
<tr>
<td>SES</td>
<td>2.37**</td>
<td>0.00</td>
<td>1.94*</td>
<td>-b</td>
</tr>
<tr>
<td>Age</td>
<td>0.54</td>
<td>0.21</td>
<td>2.86**</td>
<td>0.16</td>
</tr>
<tr>
<td>Young/Older</td>
<td>0.46</td>
<td>-b</td>
<td>3.69***</td>
<td>0.19</td>
</tr>
<tr>
<td>SEN*</td>
<td>1.54</td>
<td>0.00</td>
<td>2.15*</td>
<td>-b</td>
</tr>
<tr>
<td>Gender</td>
<td>0.32</td>
<td>0.44</td>
<td>0.92</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Quality Relationship

Objective vs. Subjective 1.07 0.68 2.61** 0.42
Teacher vs. Student 0.84 -b 2.70** -b
Dyad vs. General 1.23 -b 3.44*** 0.19

Involvement

Objective vs. Subjective 1.42 -b N.A. N.A.

Achievement

Objective vs. Subjective N.A. N.A. 2.47** 0.26

Note: N.A. = not applicable
*p < 0.05; **p < 0.01; ***p < 0.001
a The homogeneous subset without the study by Pianta et al. (1997) was used
b No variance in predictor variable
c SEN = Special Educational Needs

2.3.3 Positive Quality of the Teacher-Child Relationship and Achievement

Central Tendency and Variability.

As can be derived from Table 2.2, the combined effect size for the association between positive quality of the teacher-child relationship and achievement was \( r(2054) = 0.18 \) (\( k = 23, N = 2056 \)). The fail-safe number (403.00) exceeded Rosenthal’s (1991) value (\( 5k + 10 \)). The effect size can therefore be considered robust. The test statistic chi-square showed that the effect sizes within the domain were heterogeneous, \( \chi^2(22, N = 2056) = 49.53, p < 0.05 \). Therefore it was tried to find homogeneous subsets of studies using disjoint cluster analysis (Mullen, 1989). However, it appeared that the study consisted of only one cluster that contained all the studies in the meta-analysis (alpha was set at 0.05).
**Chapter 2**

**Predictors.**

Publication status as well as impact factor had a significant effect on the effect size (see Table 2.3). Unpublished studies had lower effect sizes than published studies, indicating that studies with larger effect sizes had more chance to be published and that a publication bias was present.

In addition, impact factor had a positive association with effect size, implying that the studies with higher impact factors in general had higher effect sizes. Since dissertation studies received an impact factor of 0, and generally had smaller effect sizes, this result is closely related to the publication status of the studies. No effect of publication year, sample size or percentage of girls was found in this meta-analysis.

**Age.** Age was of significant influence on effect size. It appeared that when samples held older children, the relation between positive quality of the teacher-child relationship and achievement became smaller. When studies were divided in two groups according to the age of the subjects, the effect size was larger for young children (36 to 72 months; $r = 0.24$) than for older children (72 to 144 months; $r = 0.12$) ($z = 3.69$, $p < 0.001$). These findings are in accordance with the expectation that the quality of the teacher-child relationship is more important for the achievement of young children.

**Special educational needs.** In a few studies children academically at risk were included. These were either children demonstrating developmental risk (Pianta et al., 1997), students with learning disabilities (Poulsen & Fouts, 2001) or children selected to attend a special program for children at risk previously to preschool (Esposito, 1999). It appeared that, in accordance with the expectations, the relation between positive quality of the teacher-child relationship and achievement was larger in samples with relatively more children academically at risk ($z = 2.15$, $p < 0.05$).

**Social economical status.** The social economical status of the subjects involved was, in accordance with the formulated hypothesis, found to be of significant influence. The association between positive quality of the teacher-child relationship and achievement was stronger for low SES samples, than for averaged or mixed SES samples ($z = 1.94, p < 0.05$).

**Measurement of the quality of the teacher-child relationship.** As was expected, the association between positive quality of the teacher-child relationship and achievement appeared to be larger in case the relationship was measured in a subjective manner ($k = 12$) compared to an objective manner ($k = 11$) ($z = 2.61, p < 0.01$). In addition, the source of information was examined. It appeared that the association between positive quality of the teacher-child relationship and achievement was larger in case the teachers had been asked ($k = 5$) as opposed to measurement by means of the opinion of students ($k = 6$) ($z = 2.70$, $p < 0.01$).
Finally, it was examined whether effect sizes of studies measuring the quality of the teacher-child relationship in dyads differed from the effect sizes of studies that used general measures for entire classes. The association between positive quality of the relationship and achievement appeared to be stronger for samples in which the quality of the teacher-child relationship was measured in dyads ($z = 3.44, p < 0.001$).

**Measurement of achievement.** It made a difference whether the achievement of children was measured in an objective way as opposed to a less objective way. In accordance with the hypothesis, the association between affective quality of the teacher-child relationship and achievement was weaker in case achievement was measured in an objective manner than when achievement was measured in a subjective manner ($z = 2.47, p < 0.01$).

### 2.3.4 Negative Quality of the Teacher-Child Relationship and Achievement

**Central Tendency and Variability.**

As can be derived from Table 2.2, the combined effect size for the association between negative quality of the teacher-child relationship and achievement was $r(654) = -0.14 (k = 7, N = 656)$. The fail-safe number (30.85) did not exceed Rosenthal's (1991) critical value $(5*k + 10)$. This indicated possible file drawer problems. The combined effect size for this domain therefore needs to be considered carefully as it requires further validation.

Table 2.2 also presents the test statistic chi-square, $\chi^2(6, N = 656) = 10.84, p < 0.1$. This indicated that the effect sizes within the domain were rather heterogeneous. Disjoint cluster analysis showed two different clusters. The study of Pianta et al. (1997) was set apart from the other studies (alpha was set at 0.05). Pianta et al.'s (1997) study involved children at risk for failure at school, while the other studies merely involved children not at risk. The special group may be the reason why in this individual study a relatively strong association between negative quality of the teacher-child relationship and achievement was found. As has been mentioned in the hypotheses section, it is possible that for children academically at risk, a negative relationship with the teacher is more disturbing than for children not at risk. The remaining studies constituted a homogeneous set, $\chi^2(5, N = 601) = 4.75, p = 0.45$, and their combined effect size was $r(599) = -0.12 (k = 6)$.

**Predictors.**

The predictors social economical status, special educational needs and source of information with respect to the quality of the relationship, could not be considered due to lack of variation in these variables. Within this set of studies none of the examined predictors was of significant influence on the effect size (see Table 2.3). Neither impact factor nor publication status had a relation with effect size, indicating that there are no quality problems, in this respect.
2.4 Discussion

The results of these meta-analyses indicate that the quality of the teacher-child relationship indeed is related to children's involvement and achievement in learning situations. Even though the results of the studies included were not completely in agreement with each other, the meta-analyses showed significant associations between the investigated variables. Cohen (1988, p.82) has proposed criteria for small, medium, and large effect sizes ($d = 0.20$, $d = 0.50$, and $d = 0.80$, respectively) corresponding to correlations of 0.10, 0.24 and 0.37, respectively. According to these criteria, the association between the positive quality of the teacher-child relationship and involvement ($r = 0.28$) is medium. For negative quality of the teacher-child relationship and involvement, we found a medium to large effect-size of $r = -0.35$. In addition, the association between positive quality of the teacher-child relationship and achievement ($r = 0.18$) may be considered a small to medium effect size and the effect size for negative quality of the teacher-child relationship and achievement ($r = -0.12$) is small.

Caution should be taken in generalizing and interpreting these results, because of limits of the datasets. The two meta-analyses regarding positive quality were found to be heterogeneous. In addition, in the analysis concerning negative quality and achievement a file drawer problem was indicated. Nevertheless, with the limits of these meta-analyses kept in mind we may state that if children have warm, secure relationships with their teachers, they are more likely to be involved with school tasks and to perform better. If children, however, have negative relationships with their teachers they will be less involved with learning tasks and perform relatively poor at school.

In the following part, first the results with regard to the effect sizes will be discussed. Next, the influence of the predictors on the association of the quality of the teacher-child relationship with respectively involvement and achievement is regarded.

Brophy and Evertson (1976) argued that teacher warmth should be related to children's attitude in the classroom rather than to actual achievement. In agreement with this suggestion, the quality of the teacher-child relationship proved to be associated more strongly with involvement than with achievement. Several authors have linked children's involvement with their performance, suggesting that involvement is an antecedent of achievement (Harskamp et al., 1991; Ladd et al., 1999; Schonewille & Van der Leij, 1995; Skinner & Belmont, 1993). It is plausible that the influence of the teacher-child relationship on achievement is mediated by children's involvement. Although this has not been investigated explicitly in this meta-analysis, the relatively weak effect-sizes of the associations with achievement compared to those with involvement, indicate that the relation between affect in the teacher-child relationship and achievement may be indirect, i.e. mediated by a third variable such as involvement. Future research should address the question whether involvement as an indicator of motivation is an antecedent for children's achievement in more detail.

A note must be made with regard to our decision to select relationship quality as the independent variable, and involvement and achievement as dependent variables. An alter-
native, very defensible point of view is that children's learning behavior affects the quality of the teacher-child relationship. In our opinion it is most likely that the relation between the quality of the relationship, and involvement and achievement proceeds in both directions. This reciprocity between the variables has already been implicitly suggested in the explanation of the hypotheses. However, in the meta-analyses the direction of this relation was not examined and no conclusions can therefore be drawn in this respect. Future research should investigate the direction of the relation between the quality of the affective teacher-child relationship, and involvement and achievement further.

Brophy (1986) concluded from his review that although researchers regularly came across strong relationships between negative affect in the teacher-child relationship and learning behavior, the association between positive affect and learning was rather weak. This is also found in these meta-analyses with respect to involvement. Although both the positive and the negative quality of the teacher-child relationship have significant associations with involvement, the effect-size of negative quality and involvement approaches the label "strong effect", whereas the effect-size of positive quality and involvement is only medium. Having a negative affective relationship with a teacher apparently influences children's involvement at school immensely. This stresses the importance of good teacher education in this respect. Not only should teachers be capable of guiding children's cognitive learning process, but they should also learn to realize healthy positive affective relationship with their students.

The expectation with respect to the influence of the objectivity of measurement of the teacher-child relationship on achievement was confirmed. In addition, it was revealed that the source of information concerning the teacher-child relationship indeed had the expected influence on achievement.

The results also confirmed that for young children, children who are academically at risk and children from low social economical backgrounds a positive affective relationship with the teacher was important for their academic achievement. With regard to the association between positive quality of the affective relationship and involvement, it was found that for children with low social economical status the positive relationship with the teacher was important. These findings stress the extra importance of a positive affective teacher-child relationship for certain groups of children's involvement with and performance on school tasks. Teachers should therefore pay extra attention to the teacher-child relationship with these vulnerable children.

The associations of the negative quality of the relationship with both involvement and achievement were not influenced by the variables under consideration. This was probably due to the fact that both analyses contained a small amount of studies. The analysis involving the association between negative quality and achievement suffered, on top of that, from a file-drawer problem. The results concerning the negative quality of the teacher-child relationship were therefore not conclusive.

In general, many of the expectations with regard to achievement were supported, while most of the expectations concerning involvement were not confirmed. An explanation could
be, that the process leading to involvement is essentially different from that leading to achievement. Young children, or children with less abilities or opportunities are more dependent on the teacher to provide them with the assistance and security they need to perform well. The quality of their relationship with the teacher presumably influences the degree of assistance and security they are likely to get. Consequently, for these children the warmth of the relationship with the teacher has greater impact on their achievement than for less vulnerable children. Involvement on the other hand, may be primarily an indicator of motivation and is presumably much less influenced by individual abilities. Children who have a warm relationship with the teacher may enjoy the lessons more and be more involved with the tasks at school. In addition, children with a negative relationship with their teacher may be less motivated and involved with school tasks. Consequently, a positive affective teacher-child relationship is equally important for all children’s involvement, regardless of differences in individual abilities. Again, this stresses the importance of educating teachers in realizing positive affective relationships with their students.

With regard to the objectivity of the measurement, it was expected that if the teacher-child relation was measured subjectively, i.e. by asking the teacher, the child or the parents, the evaluation of the relationship would be biased by children’s actual involvement. Concerning the source of information it was expected that as a consequence of a self-serving bias, teachers more than students would attribute the child’s involvement to the positive quality of the relationship, and therefore evaluate the teacher-child relationship relatively positive. From the results it appeared that neither the objectivity of the measurement, nor the source of information was of influence on the strength of the association between the quality of the relationship and involvement. People’s evaluation of the quality of the relationship was not relatively positive if children were highly involved. In addition, there wasn’t a stronger relationship between the quality of the relationship and involvement if the teacher evaluated the relationship compared to the student. An explanation may be, that people in general consider it normal for children to be involved with school tasks. Therefore, high involvement doesn’t make people evaluate the teacher-child relationship relatively positive. As mentioned before, however, the positive quality of the teacher-child relationship appeared to be important for children’s involvement. These results suggest that the relation between the teacher-child relationship and involvement is indeed in the assumed direction, instead of the other way around.

In addition, it was discovered that the measuring unit did not have an effect on the relation between positive relationship and involvement, whereas it did have an effect on the relation between positive relationship and achievement. The relation between positive quality of the affective relationship and achievement was stronger when measured in teacher-child dyads than in the classroom as a whole. Achievement is dependent upon several individually varying characteristics, whereas involvement is likely to be less variable between students, and may be explicable as a characteristic of an entire class at a certain time. If there is a positive emotional climate in a classroom, the entire class is more likely to be involved. The
achievement of the children in this class, however, will be varied to a greater extent. Consequently, the effect of the quality of the relationship on achievement is presented more accurately if the variation in the quality of the teacher-child relationships within a classroom is taken into account. In case of involvement, however, measuring the quality of the teacher-child relationship in a dyad instead of in a classroom makes less of a difference because involvement varies relatively little between children in the same classroom. These findings show that it is important to investigate indicators of an affective school climate on an individual level, especially if these indicators are linked to children's achievement.

The impact factor and publication status of the conducted studies proved to be of influence in the analysis concerning the positive quality of the teacher-child relationship and achievement. Published studies had stronger results than unpublished studies. In addition, studies with the strongest results were published in the most respected journals. This indicates a specific form of publication bias. Journals tend to decide to publish an article based on its results. Authors often first offer their articles to the most important journals, and if rejected move to a less important journal. As a result smaller journals get offered and publish articles with weaker effects. An additional explanation for the effect of impact factor is that several unpublished dissertations were included in the analysis. Dissertations often have relatively weak results (Mullen, 1989). In combination with the fact that in the present study dissertations received an impact factor of 0, this may partly explain the significant effect of impact factor on effect size. This publication bias emphasizes the importance of including unpublished papers in meta-analysis to reflect the present state of research on a subject as accurate as possible.

2.5 Conclusions

The meta-analyses in this Chapter have shown that the quality of the affective teacher-child relationship is important for children's involvement with and achievement on school tasks. The quality of the relationship seemed to have the strongest impact on children's involvement. It was suggested that involvement, as an indicator of motivation, might precede achievement. This would mean that if teachers are capable of motivating children, for example by certifying a secure relationship with them, this may positively influence children's achievement. On the other hand, in case of a conflictive relationship, children are discouraged to become involved with schoolwork, which will negatively influence their performance.

Especially for vulnerable children the quality of the teacher-child relationship appeared to be very important. These children, who need extra attention from their teacher to be able to get involved with and perform well on school tasks, are more likely to receive the right attention in case of a positive affective teacher-child relationship. A positive affective relationship with their teacher may just give these children what they need to do well in school. Teachers therefore need to take special care of these children.
It is essential that teachers become conscious of the importance of the quality of their affective relationship with their students. In teacher education this subject should be emphasized to a greater extent. In this regard, training programs for teachers should be developed, which stress the importance of a positive relationship with children and teach teachers how to realize these positive affective relationships. Special attention should be given to the development of a positive affective relation with children with whom it might be very difficult to accomplish a positive relationship.

In this Chapter a relatively new and rather untreated field of research was integrated, to draw some conclusions on the relation between the quality of the affective teacher-child relationship and learning behavior. It is insightful to have an overview of the line of work on this subject to date, and to be able to make some general observations on the relation between affective teacher-child relationships and learning behavior. There is, however, still much room for new research and refreshing insights. This study has made a start by raising some questions itself and offering suggestions for future research.

References


Quality of the Teacher-Child Relationship and Learning Behavior


