Improving classroom practices: the impact of leadership, school organizational conditions, and teacher factors

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CHAPTER IV

Building school-wide capacity for improvement: The role of leadership, school organizational conditions, and teacher factors*

ABSTRACT

Education policies for greater accountability of schools assume that schools are capable of building their capacity for improvement. While policy-makers, scholars, and practitioners acknowledge the importance of building school-wide capacity for continuous improvement, empirical evidence to this effect remains thin. In this study we examine the extent to which school improvement capacity develops over time in a sample of elementary schools in the Netherlands. Leadership practices, school organizational conditions, teacher motivation, and teacher learning were used to measure school-wide capacity for improvement. Multilevel models were fitted to teachers’ scores across the six measurement occasions. These so-called “fixed occasion” models consisted of a random intercept representing the mean scores at the first measurement and five fixed regression coefficients for each of the five subsequent measurement occasions, representing the average deviations from the scores at the first measurement occasion. The results showed that schools are capable of building school-wide capacity, but that sustaining a high level of capacity seems to be more difficult. The findings suggest that improving leadership might be an important first step in the process of building school-wide capacity.

INTRODUCTION

In many countries, national and local politicians, educational policy-makers and practitioners are involved in reform efforts at improving the educational system in support for better student outcomes. These reform efforts often include a variety of accountability strategies, such as a national assessment of curriculum and student achievement by school inspection, increasing competition among schools, site-based management, and setting professional standards. It is assumed that holding schools accountable for attaining high standards will trigger schools to improve their quality (Blok, Sleegers, & Karsten, 2008).

In response to the call of policy-makers and researchers for more responsive forms of accountability, the concept of ‘earned autonomy’ has recently developed in England and the Netherlands. Earned autonomy involves freedom to manoeuvre beyond prescribed accountability programmes for schools that have demonstrated that they are performing well according to inspection evidence and test results. In the Netherlands, the concept of earned autonomy has been developed as part of the implementation of the Dutch Educational Supervision Act in 2003. Within the renewed inspection framework, the intensity and frequency of school inspection is adapted to the student outcomes and the quality of the school self-evaluation (Ehren & Visscher, 2008). Student outcomes should meet the national standards and self-evaluation results should be valid and reliable and provide information about indicators included in the inspection framework. If schools meet these requirements, they will be confronted with fewer and less thorough inspection visits. Given these more responsive forms of accountability, building school-wide capacity for improvement becomes critical (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). As a consequence, strengthening the school internal conditions to improve teachers’ practice and enhance students’ learning seems to be a key challenge for practitioners to cope with the current accountability policies.

While policy-makers, scholars, and practitioners acknowledge the importance of building school-wide capacity for continuous improvement, empirical evidence on the suggested claim is still very thin (Hallinger & Heck, 2011). Findings from research into school improvement and educational change indicate that leadership practices, school organizational conditions, teacher motivational factors and teacher learning are crucial for improving teachers’ practices and student outcomes (e.g., Coburn, 2003; Geijsel, Sleegers, van den
Berg, & Kelchtermans, 2001; Sleegers, Geijsel, & van den Berg, 2002; Smylie, 1988; Stoll, et al, 2006). Whether schools can build school-wide capacity for improvement over a period of time has not been studied systematically. In order to increase our knowledge of the process of building school-wide capacity, more longitudinal research is needed.

This study extends the current literature base by examining the extent to which the capacity of schools to improve develops over time. Drawing on a framework for research on large-scale reforms (Leithwood, Jantzi, & Mascall, 2002) and on research on leadership practices, teacher motivation and learning, and school capacity building (e.g., Geijssel, 2001; Kwakman, 2003; Leithwood, Dart, Jantzi, & Steinbach, 1993; Little, 1990; Silins, 1994; van Woerkom, 2003), we measured school improvement capacity, using dimensions of transformational leadership (i.e., vision building, individualized consideration and support, and intellectual stimulation), school organizational conditions (i.e., participative decision-making, and teacher collaboration), teacher motivational factors (i.e., teachers' sense of self-efficacy, and internalization of school goals into personal goals) and professional learning activities (i.e. keeping up to date, and experimenting and reflection). We examined the development of leadership practices, school organizational conditions, teacher motivational factors and professional learning activities over a period of six years (2003 till 2008).

CONCEPTUAL BACKGROUND

Theoretical perspectives on school improvement and educational Change

Inside and outside views on change

In their efforts to understand the complex nature of school improvement and educational change, scholars have used different theoretical perspectives. Based on their review of research about the relationship between structural and cultural aspects of the school organization, teacher learning and change, Sleegers and Leithwood (2010) identified two views that have dominated theory and research about school improvement and educational change. The first view, which they term the ‘inside’ view, focuses on the capacity of schools to transform themselves into supportive environments for teacher learning and change. The second view concerns the implementation of external developed reform designs
into schools, the ‘outside’ view. While literatures associated with both inside and outside views of change often inform each other, they are premised on quite different assumptions. According to Sleegers and Leithwood, these assumptions are well captured in the Chin and Benne’s (1969) classic distinction between normative-reductive approaches and empirical-rational approaches to change (see also Richardson & Placier, 2001).

The normative-reductive approach of change focuses on the professional growth of individuals who make up the system and on the problem-solving capacities of the system itself. In this approach change is considered as part of a larger process of making sense of situations in which teachers work and live through individual and collective reflection on beliefs and practices. The empirical-rational approach focuses on research-based models for change which assume that teachers, as rational human beings, will implement changes in their classrooms which are demonstrated to improve student learning. Empirical-rational strategies view teachers as mere recipients and consumers of new behaviour, beliefs and programs of researchers, policy makers and educators outside the school. In order to examine how studies representing both inside and outside views on change inform each other, we will now discuss briefly the most important findings of these studies.

**Building school-wide capacity for improvement**

Focusing on the capacity of schools to transform themselves into supportive environments for teacher learning and change, the inside view is represented by a wide range of studies about organizational learning, learning organization and professional communities (Leithwood & Louis, 1998; Leithwood, Jantzi, & Steinbach, 1999; Leithwood, Aitken & Jantzi, 2001; Louis, Marks & Kruse, 1996; Hopkins, 2001; Marks, Louis & Printy, 2000; Mitchell & Sackney, 2000; Sleegers et al, 2002; Toole & Louis, 2002). These studies often use a system theory on change that links structural, cultural and political dimensions of school workplace environments to professional learning. In these studies, organizational conditions including leadership are considered as the main levers of a school’s capacity to change and as a prerequisite for linking teachers’ professional development to school development. Results from these studies indicate that teacher learning is crucial for improving instructional practices and the available evidence points to important conditions associated with school organization, the task and the individual. School organizational conditions such as participative decision-making, teaming, teacher collaboration, an open and trustful climate, cultures which value shared responsibilities and values, and
transformational leadership practices, can foster teachers’ professional learning in schools. In addition, characteristics of the task to be carried out may also play a role in how motivated staff are to learn (e.g., the degree of task control and the extent of task variation) as well as psychological factors such as personal teaching efficacy, teacher autonomy and perceived control, and teachers’ sense making affect teachers’ learning (Coburn, 2003; Kwakman, 2003; Richardson & Placier, 2001; Spillane, Reiser, & Reimer, 2002; van Veen, 2003).

The outside view, concerned with the implementation of innovations or new practices developed by reformers and policy-makers, is represented by studies into the effects of the comprehensive school reform (CSR) models and the transfer of these models to multiple settings (‘scaling up’) (cf. Berends, Chun, Schuyler, Sockley, & Briggs, 2002; Desimone, 2002; Borman, Hewes, Overman and Brown, 2003; Borman, Slavin, Cheung, Chamberlain, Madden & Chambers, 2005; Sterbinsky, Ross & Redfield, 2006). These studies often use (quasi-)experimental designs to assess the impact of different aspects of school operations, including instruction, assessment, classroom management, professional development, parental involvement, school management and curriculum on student learning. Findings from these studies indicate that some CSR models have modest effects on student achievements, but most of the models do not have strong effects (Berends, Chun, Schuyler, Sockley, & Briggs, 2002; Borman, Hewes, Overman and Brown, 2003; Desimone, 2002) Although some effects are apparent by now, the evidence remains very thin and most of the effects do not sustain (US Department of Education, 2010a, 2010b). As a consequence, there is a growing body of work that focuses on the conditions under which these models can be implemented successfully, the possibilities and boundaries of scaling up CSR models and the sustainability of these educational reforms (Borman, Carter, Aladjem, & LeFloch, 2004; Datnow, Hubbard, & Mehan, 2002; Desimone, 2002; Klinger, Cramer & Harry, 2006; Strebinsky et al., 2006). Results of these studies show that most of the CSR reforms were actively shaped and reshaped (‘co-constructed’) by teachers, school leaders and other local educators to accommodate the various goals, materials and demands of the program to the local context. These processes of ‘mutual adaptation’ were required to meet the practical demands of everyday school life and the needs of students. Furthermore, findings indicate that strong principal leadership, teacher buy-in, sufficient resources and time, and district support for the reform are important for the successful implementation. Moreover, the findings also seem to suggest that schools which already have a high school-wide capacity for improvement and are able to transform their
organisation into a rich learning environment for teachers can integrate externally developed reforms into their current practice far more easily than schools with a low improvement capacity. So, it is far easier to seed new practices successfully in schools which have fertile ‘soils’ (Slavin, 1998).

Although inside and outside views on change use different assumptions about the nature and direction of school improvement and educational change, results of research show that they inform each other. Successful educational reform needs to be context specific, integrated with the school-wide capacity for improvement and stimulate teacher learning in schools. So, building school-wide capacity to improve teacher practices and enhance students’ learning seems to be a key challenge for practitioners to cope with the current and growing pressure to change, including the push for strong terms of accountability and systematic reforms, and beliefs about the effectiveness of ‘evidence-based’ decision-making.

The need for longitudinal data
While policy-makers, scholars, and practitioners acknowledge the importance of building school-wide capacity for continuous improvement, empirical evidence on the suggested claim is still very thin (Hallinger & Heck, 2011). In spite of the awareness that improvement, by definition, entails change in state of schools over time, most of the literature on school improvement and educational change relies on studies that do not explicitly describe change and improvement in schools. The bulk of quantitative research on school improvement uses a cross-sectional design, which only provides one-point-in-time “snapshots” based on pictures of schools at a single point in time. They are ill-equipped to describe how changes in motivation, capacities and work settings influence teachers’ classroom practices over a period of time, and thus can make only limited contributions to understanding core issues underlying the process associated with school improvement (Hallinger & Heck, 1996; Heck & Hallinger, 2009; Sleegers, Geijsel & Van den Berg, 2002). Furthermore, case studies have been useful at describing strategies and challenges in trying to ‘turn around’ schools generated descriptions of what occurs during efforts to improve schools in other specific contexts (e.g., Harris, 2006; Jackson, 2000; Stoll & Fink, 1996). Nonetheless, findings of case studies cannot be easily generalized, and a research and development strategy predicated on building a knowledge base from case studies alone will be of limited validity and utility. For developing substantive knowledge concerning the development of leadership practices, school organizational conditions, teacher motivational factors and teacher
learning and the effects on teachers’ teaching under different conditions, we assert that studies must include longitudinal data.

Recently, scholars have started to examine the process of building school-wide capacity for continuous improvement by conducting longitudinal studies (e.g., Day, Sammons, Leithwood, Hopkins, Harris, Gu, & Brown, 2010; Hallinger & Heck, 2011; Heck & Hallinger, 2009; Smylie & Wenzel, 2003). In order to increase our knowledge of the process of building school-wide capacity, more longitudinal research is needed. By examining the extent to which school improvement capacity develops over time in a sample of elementary schools in the Netherlands, this study will make a significant contribution to the growing knowledge base on the process of building school-wide capacity for improvement.

**Focus of the study**

As mentioned earlier, our study focuses on how the school improvement capacity of elementary schools develops over time. School-wide capacity for improvement refers to a set of conditions at school and teacher level that enable teachers’ professional learning and support teaching and learning (Heck & Hallinger, 2009; Mulford & Silins, 2003; Sleegers, Bolhuis & Geijsel, 2005; Stoll et al, 2006). In order to conceptualize and measure school wide capacity for improvement, we used a framework that is based on a general model of employee performance as developed in research on organizational and industrial policy (Rowan, 1996). The model assumes that variation in professional performance is a function of the capacities and motivations of workplace personnel, the characteristics of the organizational setting in which they work and the external social and political environment. Drawing on this model, Leithwood, Jantzi and Mascall (2002) have developed a framework that can help to guide research on large-scale reforms. Their framework suggests that variations in the success of large-scale reform can be explained in terms of their influence on educator’s motivations and capacities, as well as their work settings which facilitate the types of changes in school and especially classroom practices needed for significant gains in whatever student outcomes are aspired to by reformers.

We used this framework and research on teacher learning and motivation, school’s capacity building and leadership practices, to measure conditions at school- and teacher-level that enable teachers’ professional learning and support teaching and learning. We measured school-wide capacity using several variables (between parentheses) that are embedded in four general concepts: 1)
transformational leadership (i.e., vision building, individualized consideration and support, and intellectual stimulation); 2) school organizational conditions (i.e., participative decision-making, and teacher collaboration), 3) teacher motivational factors (i.e., teachers’ sense of self-efficacy, and internalization of school goals into personal goals), and 4) teacher engagement in professional learning activities (i.e., keeping up to date, and experimenting and reflection). Although not measured, it is assumed that these school- and teacher-level conditions will improve teachers’ instructional practices, and in turn students’ learning.

METHOD

Sample
The study described in this paper is part of a longitudinal survey on school improvement in elementary education. Participants were teachers from 32 elementary schools (students at the age of 4 to 12 years), situated in the country as well as in and around two cities (> 150,000 citizens) in The Netherlands. The 32 schools varied in background characteristics (denomination, number of pupils and teachers, percentage pupils with low SES) and are representative for other schools in the country and cities. At the time, school boards in this study stimulated their schools to enhance their capacity to improve teaching and learning without prescribing specific programs or instruments but recommended their schools to participate.

In 2003 we began with teachers from 18 elementary schools, but we subsequently succeeded to extend our sample to 32 schools. Every year until 2008 all of the teachers in these schools participated in the longitudinal survey. As in most longitudinal studies, this project suffered from dropout of teachers. Although the sample is supplemented with new teachers at every measurement, the number of teachers available for longitudinal analyses decreases with every successive measurement occasion in the project. Most teacher loss has to do with moving to another school, retirement and non-response at one or more measurement occasions; in some cases teachers became a member of the school management. After six measurement occasions, we have at our disposal longitudinal data on 1010 teachers in 32 schools.
Measures
As mentioned above, we measured school-wide capacity using four general concepts: 1) transformational leadership; 2) school organizational conditions, 3) teacher motivational factors, and 4) teacher engagement in professional learning activities. These concepts were measured using the revised version of the Dutch School Improvement Questionnaire for teachers (Thoonen, Sleegers, Oort, Peetsma, & Geijsel, 2011a). This questionnaire is based on existing scales and items on teacher engagement in professional learning activities (Geijsel, 2001; Kwakman, 2003), teacher commitment (Leithwood et al., 1993), teacher’s sense of self-efficacy (van Woerkom, 2003), participative decision-making (Jongmans, Sleegers, Biemans, & de Jong, 2004), collaboration among teachers (Geijsel, 2001) and transformational school leadership (Geijsel, 2001; Leithwood et al., 1993; Silins, 1994), as well as newly formulated items. Teachers indicated the extent to which the item content applied to them on four-point scales (1=does apply to me (almost) never, 2=does apply to me sometimes, 3=does apply to me often, 4=does apply to me (almost) always).

In our preliminary cross-sectional study to the school internal conditions (Thoonen et al., 2011a), we performed exploratory and confirmative factor analyses in SPSS that resulted in a good fit to the data. (Maximum Likelihood-estimation; Chi-square (3707) = 6073.071, p = 0.00; RMSEA = 0.036; SRMR = 0.052). For this study, we repeated the confirmative factor analyses for the aforementioned variables for each of the six measurement occasions separately showing good fits to the data. The results of these analyses confirmed previous findings in the cross-sectional study. The proportion of explained variance for the individual items ranged from 0.12 to 0.72. On the basis of the results of the confirmative factor analyses, for each variable a scale was constructed by averaging the item scores if at least 80% of the items was completed.

Analyses
In the six years of data collection, 2003 through 2008, some teachers dropped out of the study, temporarily (e.g., because they accidently missed a measurement occasion) or permanently (e.g., because they left their job), whereas other teachers entered the study some years after its start (e.g., because they changed schools). In order to take the different patterns of missingness into account and still make use of all available data, we applied multilevel regression analysis (procedure Mixed, SPSS version 15, SPSS Inc., 2006) to answer our research questions. In the multilevel analysis of the hierarchical
longitudinal data we distinguish three levels: measurement occasions (level 1) nested with teachers (level 2) nested within schools (level 3).

In preliminary analyses we compared various multilevel models for the longitudinal covariance structure (compound symmetry and autoregression structures, with homogenous and heterogeneous variances), using information criteria and chi-square tests of differences in fit with the unstructured models. We found that the longitudinal covariance structure was generally best described as autoregressive with homogenous variances. We further checked whether it was necessary to account for possible differences in means, variances, and covariances of the outcome measures between schools that entered the study halfway and schools that participated from the beginning, but chi-square tests did not show any significant differences in fit between models with and models without additional parameters for new schools.

To examine how school-wide capacity develops over time, we fitted multilevel models to teachers’ scores across the six measurement occasions. These so-called “fixed occasion” models (Snijders & Bosker, 1999) consisted of a random intercept representing the mean scores at the first measurement and five fixed regression coefficients for each of the five subsequent measurement occasions, representing the average deviations from the scores at the first measurement occasion. The random intercept is associated with between-school variance (level 3), between-teacher variance (level 2), and within-teacher variance (level 1; level 2 and level 1 variances are functions of the auto-correlation coefficient). Maximum likelihood estimates of the measurement occasion averages were graphically displayed to get a clear picture of the longitudinal development of the research variables. In order to test for the statistical significance (at 5%) of the differences between measurement occasions, the models were reparameterized so as to have the measurement occasion with the lowest average as the point of reference. In this way, the random intercept represents the lowest average, and Wald tests can be used to test the significance (at 5%) of the fixed regression coefficients representing the differences with the average scores on the other measurement occasions.
RESULTS

Results of the multilevel regression analyses show that school-wide capacity for improvement significantly develops over time. In general, leadership practices, school organizational conditions, teacher motivational factors and teacher engagement in professional learning activities improved since the fourth measurement occasion (i.e. year 2006). A closer look at the results as presented in Figure 1 to 4 shows some variety in the development of the school internal conditions.

![Figure 1. Means of dimensions of transformational leadership practices at six measurement occasions. Significant deviations are coloured black (p < .05).](image)

With respect to dimensions of transformational leadership, the results show that leadership increased since 2005, as presented in Figure 1. To facilitate interpretation we choose the year with the lowest average as the year of reference. The means of 2007 and 2008 significantly deviate from the mean of year 2005. School leaders, thus, showed more vision building, individualized consideration and support, and intellectual stimulation in 2007 and 2008. Furthermore, the findings show that the extent to which school leaders showed concern and respect for teachers’ emotions and stimulated teachers to professionalize themselves at the first two years of our study was significantly
higher than at the point of reference (i.e. year 2005). In contrast to vision building, the development of the means of the other two leadership practices clearly shows a ‘dip’ in year 2005.

Figure 2. Means of school organizational conditions at six measurement occasions. Significant deviations are coloured black ($p < .05$).

Figure 2 shows the development of school organizational conditions. As the results in Figure 2 show, from the start of this longitudinal study in 2003 until the fourth measurement occasion in 2006 participative decision-making gradually decreased. As a result of a considerable growth in participative decision-making, the means in 2007 and 2008 significantly deviate from the point of reference and an increase is shown. The last two years of the study, teachers thus increasingly participated in decision-making processes. Teacher collaboration gradually increased since the start of this longitudinal study, as Figure 2 makes clear. According to this development, taking the first occasion measurement as point of reference, the means at the other measurement occasions significantly deviate from the mean of year 2003. Each year of the study, teachers collaborated more than they did the year before and, as a consequence, at the end of the study they show more collaboration than at the beginning of the study.
**Figure 3.** Means of teacher motivational factors at six measurement occasions. Significant deviations are coloured black ($p < .05$).

**Figure 4.** Means of teachers’ engagement in professional learning activities at six measurement occasions. Significant deviations are coloured black ($p < .05$).
Each teacher motivational factor seems to have a different course and so we choose different points of reference, as our results show (see Figure 3). Teacher’s sense of self-efficacy and the internalization of school goals into personal goals both show a positive development after a ‘dip’ in 2005 respectively 2004, as shown in Figure 3. While teachers’ sense of self-efficacy decreased between 2004 and 2005, since 2006 teachers believed stronger in their capabilities to achieve a desired result. A similar development of the internalization of school goals into personal goals is shown. After a negative development at the beginning of the longitudinal study, from 2005 until the last measurement occasion teachers were significantly more committed to the school goals than at the point of reference.

Finally, our findings show that teachers are recently more engaged in professional learning activities than a couple of years ago (see Figure 4). In 2007 and 2008 teachers kept themselves significantly more up to date and were significantly more engaged in experimenting and reflection activities in comparison with the point of reference (i.e., year 2005). In spite of this, our results show that, nowadays, the extent to which teachers keep themselves up to date is still less than it was at the beginning of this longitudinal study.

All together, over a period of six years leadership dimensions, school organizational conditions, teacher motivational factors and engagement in professional learning activities showed a significant development; both positive and negative. At the beginning of our study (2003 till 2005), dimensions of transformational leadership and teachers’ engagement in professional learning activities showed a negative development during the first two years of our study (2003 till 2005). The findings also show that from 2005, the schools that participated in our study seem to be capable to build school-wide capacity for improvement. Of the variables used to measure school-wide capacity, dimensions of transformational leadership practices seem to be the most important ones.

CONCLUSIONS AND DISCUSSION

In this study we examined the extent to which the school improvement capacity develops over time. A framework for research on large-scale reforms (Leithwood et al., 2002) guided our inquiry. Following this framework and research findings, we used dimensions of transformational leadership (i.e., vision
building, individualized consideration and support, and intellectual stimulation), school organizational conditions (i.e., participative decision-making, and teacher collaboration), teacher motivational factors (i.e., teachers’ sense of self-efficacy, and internalization of school goals into personal goals) and teacher engagement in professional learning activities (i.e. keeping up to date, and experimenting and reflection) to measure school-wide capacity for improvement. We examined the longitudinal covariance structure of our data and fitted multilevel models for each variable with a sample of data from 1010 teachers of 32 Dutch elementary schools. In this section, we discuss both the limitations of the study as well as the implications of our most important findings.

First, over a period of five years, school leaders demonstrated more transformational leadership behaviour at the end of our study than they did at the beginning. It might be that schools have had different school leaders during the period of the study. A more plausible explanation might be the implementation of the Dutch Educational Supervision Act in 2003. As mentioned earlier, within the renewed inspection framework, the intensity and frequency of school inspection is adapted to the student outcomes and the quality of the school self-evaluation (Ehren & Visscher, 2008). Student outcomes should meet the national standards and self-evaluation results should be valid and reliable and provide information about indicators included in the inspection framework. Indicators that are part of the inspection framework are, for example, a general description of the type of pedagogical climate the school should have, the teaching and learning strategies that should be used, and how schools should take care of students with learning difficulties. To create the conditions for realizing improvement on these indicators, school leaders have to foster individual and collective learning and its link with school-wide capacity. This renewed and more responsive form of accountability thus calls for leadership that enhances teachers’ motivation, links teachers’ current needs to the school’s goals and mission and increases collective cohesion. This might have stimulated school leaders to improve their leadership practices in the direction of transformational leadership by initiating processes of vision-building, showing concern and respect for teachers’ emotions and stimulating them to engage in professional learning activities.

Secondly, the findings showed that teacher motivational factors hardly improved during the five years of our study. More specific, teachers’ sense of self-efficacy appeared to remain relatively stable. An explanation for the relatively stable nature of teacher motivational factors might be the relationship
between motivational factors and personality. Within the last decades, several studies have found support that personality variables can serve as (distal) antecedents of work motivation (Judge & Ilies, 2002), and that goals (along with self-efficacy beliefs) mediate the effect of personality on job performance (Locke, 2001). With regard to trait-oriented personality theories, the Five Factor Model (Digman, 1990) has inspired much research over the past decades. Numerous studies have linked the Big Five traits to self-efficacy (e.g., Judge & Ilies, 2002; Thoms, Moore, & Scott, 1996) and have shown that people who are emotionally stable, people who are assertive, sociable and energetic, and people who are dependable, responsible and achievement oriented, believe that they can perform the task necessary to operate successfully. Furthermore, traits as neuroticism and conscientiousness have not only been shown to be important correlates of work motivation (Judge & Ilies, 2002), but also dispositional antecedents of goal commitment (Barrick, Mount, & Strauss, 1993). Given the relationship between teacher motivational factors and the Big Five traits, teachers’ motivation may be difficult to enhance over time.

Third, the findings suggest that the development of teacher motivational factors may have consequences for improving teachers’ engagement in professional learning activities. Like teacher motivation, teachers’ engagement in professional learning activities appeared to be barely improved or even became less after five years. Studies on the relationship between teacher motivation and teacher learning have shown that teachers’ sense of self-efficacy and the internalization of school goals into personal goals positively influence teacher learning. Teachers with a high sense of self-efficacy, are more open to new ideas and more willing to experiment with new methods (e.g., Geijsel, Sleegers, Stoel, & Krüger, 2009, Goddard, Hoy, & Hoy, 2000; Smylie, 1988; Thoonen et al., 2011a). Teachers who have a strong belief in and acceptance of the organization’s goals and values are also more engaged in professional learning activities (Geijsel, Sleegers, Leithwood, & Jantzi, 2003; Leithwood, Jantzi, & Steinbach, 1999). The lack of improvement of teachers’ engagement in professional learning over a period of five years might be therefore determined by the relatively stable nature of teacher motivational factors as found in our study.

Furthermore, it appeared that not all variables showed a considerable growth. For example, dimensions of transformational leadership appeared to be more improved than teacher motivational factors. In addition, the findings suggest that the ‘momentum’ on which the variables show improvement also differs. The dimensions of transformational leadership seem to improve at an
earlier point in time than school organizational conditions, teacher motivational factors and teachers’ engagement in professional learning activities. This suggests that improving leadership practices might be an important first step in the process of building school-wide capacity. Improved leadership practices seem to enhance teachers’ motivation, promote professional learning and facilitate the improvement of school organizational conditions. These findings confirm the significant role leadership plays in school improvement and educational change as often emphasized in the literature (Geijsel et al., 2001, 2009; Heck & Hallinger, 2009; Krüger, Witziers, Sleegers, 2007; Leithwood & Jantzi, 2006; Thoonen et al., 2011a).

A closer look at the results also illustrates that it seems very hard for schools to sustain school-wide capacity. While dimensions of transformational leadership, school organizational conditions, teacher motivational factors and teachers’ engagement in professional learning activities all showed a significant improvement compared to the measurement occasion with the lowest average, at first instance all of these aspects decreased and several of them never succeed to show the same level as they had in the beginning of the study. As previous studies already showed (Smylie, 2003), these findings also suggest that schools can increase their school improvement capacity but it seems a challenge for them to sustain and build school-wide capacity for improvement over a longer period of time. Future research should focus on the interaction between school internal capacities and external support. To increase our understanding of key conditions in schools and effective change strategies that can support teacher learning and change, researchers should focus on which factors trigger the building of school-wide capacity for improvement. The findings of these studies can shed more light on the potential role of building school-wide capacity for improvement.

At the beginning of our study, the school-wide capacity appeared to decrease as the development of dimensions of transformational leadership, school organizational conditions, teacher motivational factors and teachers’ engagement in professional learning activities show. On average, from the fourth year of our study (year 2006) schools were capable to increase their school-wide capacity. It might be that the extension of our sample with 14 schools in 2006 may be related to these developments. The longitudinal covariance structure analyses, however, demonstrated that schools’ capacity for improvement of the second subsample did not significantly deviate from the first subsample.
A more plausible explanation for this finding may be related to the fact that most of the participating schools were part of one school board. During the first years of our survey, all kind of changes have been taken place, including the appointment of a new general manager, the recruitment of new supportive staff, and professionalization of the personnel at the administrative office. Due to these changes, the general management team and its support staff may might have been more engaged in organizing their own work and learning to play their (new) roles than being engaged in stimulating schools to build school-wide capacity for continuous improvement. The differences in patterns of development might also be related to the implementation of the Educational Supervision Act in 2003 as mentioned earlier. Prior to the implementation of this more responsive form of accountability, elementary schools in the Netherlands were less stimulated to continuously improve their classroom practices and to build school-wide capacity than after the implementation (Blok, Sleegers, & Karsten, 2008). The implementation of more responsive forms of accountability might have challenged and stimulated school leaders and teachers to strengthen and develop their school-wide capacity for continuous improvement as was expected by policy-makers.

The findings of our study are based on means, variances and covariances of the outcome measures between teachers. Various multilevel models for the longitudinal covariance structure were compared and it appeared not necessary to account for possible differences in means between schools. This implies that the schools that participated in our survey did not differ significantly with respect to the development of transformational leadership practices, school organizational conditions, teacher motivational factors and teacher learning. It might be that this phenomenon can be explained through the mechanism of institutional isomorphic change. DiMaggio and Powell (1983) use the concept of institutional isomorphism to understand the homogenization of organizations within a certain organizational field. Institutional isomorphism can derive from ambiguous goals and uncertainty about effectiveness of the organizational structure, if organizations model themselves after similar organizations that they perceive to be more successful. This process of ‘mimetic’ isomorphism can be caused unintentionally and indirectly but also explicitly. The school boards participating in our study had to deal with the same strategy for greater accountability and might have stimulated schools to build school-wide capacity for improving their quality. Following nationally prescribed evaluation models can bring the threat of a monoculture: schools starting to look alike, resulting in little variation.
Finally, past research has identified transformational leadership practices, school organizational conditions, teacher motivational factors and teacher learning as crucial for schools to manage change and for improving classroom practices and student outcomes (e.g., Coburn, 2001; Geijsel et al., 2001; Sleegers et al., 2002; Smylie, 1988; Stoll et al., 2006). Contemporary research on school improvement has also examined the interplay between organizational and psychological antecedents to explain teacher learning and change (e.g., Geijsel, 2001; Smylie, 1988; Thoonen et al., 2011a). In the present study we illustrated the development of leadership practices, school organizational conditions, teacher motivational factors and teacher learning, and examined deviations between six different measurement occasions. Findings of our longitudinal survey contribute to the development of substantive knowledge about building school improvement capacity that support teaching and learning. Despite the claim that building school-wide capacity will improve teacher practice, systematic evidence for this claim is missing (Vescio, Ross, & Adams, 2008; Toole & Louis, 2002). Future studies should investigate effects of transformational leadership practices, school organizational conditions, teacher motivational factors and teacher learning on the quality of instruction in classrooms over a period of time, and their subsequent effects on student outcomes. This research is needed to identify organizational and individual factors that contribute to differences in teaching effects on student learning, and whether these effects persist over time (Hamilton, Klein, & McCaffrey, 2001; Kupermintz, 2003; McCaffrey, Lockwood, Koretz, & Hamilton, 2003).

Limitations and future directions
Two limitations need to be highlighted with respect to this research study. First, although a large number of teachers participated in our survey, our sample of schools (N=32) was limited. As a consequence, we had to fit multilevel models to teachers’ scores on each of the six measurement occasions to examine development of school-wide capacity. Follow-up research with a larger number of schools, allowing for multi-level structural equation modeling, could contribute to the testing of more complex models and our understanding of differences between schools with regard to the process of building school-wide capacity for improvement. Moreover, a larger sample provides the opportunity to examine configurations of schools that describe variation of school-wide capacity for improvement among schools. Different configurations of schools can show distinct patterns in factors that frustrate or contribute to schools’ improvement capacity (Bennebroek Gravenhorst, Werkman, & Boonstra, 2003).
Analyzing configurations of schools also can reveal differences in the process of building school-wide capacity between high and low performing schools.

A second limitation of our study was that we did not gather information about changes in the local and institutional context of the schools. It was therefore not possible to relate changes in dimensions of school leadership, school organizational conditions, teacher motivational factors and teacher learning to changes in the context of the schools. In future research, information about student background variables (e.g., SES, ethnicity, past performance), school composition, school size, changes in leadership position, local policies, and demographic changes should be included in the analysis, as previous research has shown that these variables can affect the school-wide capacity for improvement.