Motivational developments in primary school: Group-specific differences in varying learning contexts

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CHAPTER 7

SUMMARY AND DISCUSSION

Motivation for school is important for students' educational careers. This dissertation aimed to contribute to our understanding of developments in students' motivation for school during upper primary school and the relations between these developments and achievement growth. It furthermore aimed to investigate factors of the learning context associated with developments in motivation and achievement. More specifically, it examined how classroom composition and innovative learning (IL) are related to developments in motivation and achievement, taking into account students' socio-economic and ethnic background, and gender.

To fulfil the aforementioned aims, the study presented in chapter 2 was aimed at describing how different aspects of motivation develop during upper primary school and relate to achievement growth, taking into account group-specific differences. In chapter 3, it was examined how the ethnic and socio-economic classroom composition relate to developments in students' motivation and achievement. Thereafter, chapter 4 examined teacher beliefs and practices and explored whether the teaching practices that teachers prefer and use in their classroom are related to their student population. Chapter 5 focused on student perspectives and explored whether students with varying background characteristics differ in the extent to which they prefer and experience IL in their actual learning environment. Finally, chapter 6 was aimed at examining how IL related to developments in motivation and achievement for different groups of students.

In this general discussion, first the main findings are presented and contributions of this dissertation are discussed. Limitations as well as implications for educational practice are considered.

SUMMARY OF MAIN FINDINGS

First, in **chapter 2**, a descriptive study on developments in motivation during primary school was presented. Previous research indicated that in secondary school, motivation declines with age (De Fraine, Damme, & Onghena, 2007; Gottfried, Fleming, & Gottfried, 2001; Skinner, Furrer, Marchand, & Kindermann, 2008; Van der Veen & Peetsma, 2009). The few studies available on motivational developments in primary school (e.g., Nurmi & Aunola, 2005; Skinner et al., 2008; Spinath & Spinath, 2005; Stoel, Peetsma, & Roeleveld, 2001) suggested that such a negative trend could also be apparent in primary school. However, longitudinal research on developments in motivation during primary school is scarce. Therefore, in this study, developments in motivation from grade three to grade six were examined among 722 primary school students.

The overall findings of this study demonstrated that developments in motivation during upper primary school varied by aspect of motivation. Whereas task-orientation was found to decline from third to sixth grade, self-efficacy developed according to a curvilinear trend and first declined, but then improved, and finally, school investment increased with age. Moreover, interesting differences between boys and girls, and students with different socio-economic and ethnic backgrounds emerged. Most notable were the differences in school investment. In grade three, most groups were more or less comparable with regard to school investment, but over the years, toward the end of primary school, differences emerged or became more pronounced to the disadvantage of boys, low SES, and ethnic minority students. The negative developments in school investment of these groups can be considered problematic, especially since the results of this study also showed that for all groups, regardless of background characteristics, developments in motivation were substantially related to achievement growth.

In the following study, described in **chapter 3**, it was examined to what extent developments in motivation and achievement could be attributed to the ethnic and socio-economic composition of the classroom. In general, segregation is

believed to lead to adverse outcomes for those students in classrooms with many low SES and/or ethnic minority students. The common held fear is that a large proportion of low SES or ethnic minority students (i.e. students with "disadvantaged" backgrounds) will bring down other students in the classroom and that these students themselves will not be able to benefit from the potential of more privileged classrooms (Bakker, Denessen, Peters, & Walraven, 2011).

In this study, this assumption was examined longitudinally among the same sample of 722 students in upper primary school. The findings demonstrated that during each measurement, the performance of low SES students on reading comprehension was lower in classes with more low SES students, after taking into account other individual background characteristics including cognitive ability and ethnicity. Contrarily, both ethnic majority and minority students performed better on reading comprehension in classes with more ethnic minority students, taking into account individual background characteristics. In practice, these effects of ethnic and socio-economic classroom composition on reading comprehension may often partial each other out. However, math achievement of ethnic minority students was lower in in classes with more ethnic minority students. The outcomes furthermore demonstrated that regardless of students' individual background characteristics, their motivational beliefs developed more positively in classes with more disadvantaged students. In other words, students – regardless of whether they had ethnic minority, majority, low, middle or high SES backgrounds – showed more growth in motivational beliefs when they had a higher number of classmates with low SES or ethnic minority backgrounds. Especially ethnic minority students seemed to benefit from being taught in classes with other ethnic minority students in terms of motivational outcomes. This is in line with the specialization hypothesis (Driessen, Doesborgh, Ledoux, Van der Veen, & Vergeer, 2003), suggesting that in segregated classes, teachers are better able to meet the specific needs of their student population.

The specialization hypothesis usually refers to the content or pace of instructional practices (for example allocating more time to language education), but as argued in the introduction, specialization could also refer adapting the

instructional style to the needs of the specific student population. Teacher expectancy research demonstrated that teacher perceptions of individual students' ability or background can affect a variety of teacher behaviours (e.g., Rosenthal 1994; Rubie-Davies, 2010). However, research on how teachers adapt their *classroom* practices based on their perceptions of their student population is scarce. Teaching practices can vary in the extent to which they are traditional or innovative (Hickey, 1997; O'Donnell, 2012; Simons, Van der Linden, & Duffy, 2000; Wilson, 2011). Whereas in traditional education, teachers deliver instruction and take control of their students' learning process, their role in innovative education shifts to providing a learning context that invites students to actively and autonomously construct their own knowledge and to provide guidance during learning. Likewise, the role of students shifts from rather passive receivers of instruction to autonomous participants who are actively involved and responsible for their own learning process (Furtak & Kunter, 2012). **Chapter 4** focused on perspectives of teachers and explored whether the teaching practices that teacher prefer and use was related to their student population. In this study, it was explored to what extent teachers held personal beliefs favouring controlling versus autonomy-supportive teaching practices and to what extent their self-reported teaching practices were affected by their perceptions of their classroom population. Other contextual pressures, such as formal regulations or school policies, were also included.

In this study, nine grade six teachers, selected from the larger sample of schools that participated in the previous studies of this dissertation, were interviewed. Although almost all teachers favoured autonomy-supportive practices, controlling practices were reported often. Especially in disadvantaged schools, teachers reported frequent use of controlling teaching practices. Teachers at other schools reported more autonomy-supportive teaching practices. However, most of them also reported frequent use of controlling practices with the 'at-risk' students within their class, mostly referring to low achieving, low SES, or ethnic minority students. In all, teacher perceptions of their individual students and their student population appeared to be their main reason for controlling teaching practices, beyond other pressures such as formal regulations. In line

with the specialization hypothesis, most teachers believed that controlling teaching practices were more suitable and beneficial for 'at-risk' students and by offering a more traditional, controlling style they felt they were adapting to the needs and preferences of their student population.

In the following study, presented in **chapter 5**, the perspectives of students were focused upon. This study explored differences in the instructional style that students with varying background characteristics themselves find preferable and perceived in their actual learning environment. In line with the 'person-environment fit' perspective (Eccles & Roeser, 1999; 2011; Hunt, 1975; Roeser, Eccles, & Sameroff, 2000), the correspondence between students' learning preferences and their actual learning environment has been found to positively affect students' progress (Fisher & Fraser, 1983; Johnson & Engelhard, 1992). In the study described in chapter 5, it was examined how students' perceptions of IL and their learning preferences varied by gender, ethnicity, and socio-economic background. Moreover, the alignment between perceptions of IL and learning preferences were compared for these different groups. Forty-five grade six students and their teachers (the same teachers as in chapter 4) were interviewed. Student perceptions of the actual learning environment were mostly in line with teacher perceptions. In comparison to ethnic majority, middle, and high SES students, ethnic minority and low SES students, perceived their learning environment as more traditional and were also more likely to express preferences for traditional education. No gender differences in students' perceived or preferred learning environment were found. For most students, perceptions of the actual learning environment aligned well with their learning preferences, and consequently, no group differences in alignment were found.

The outcomes of both chapter 4 and 5 suggested that teachers adapt their instructional style to their student population to create an optimal person-environment fit for their students. In line with their learning preferences, students in more disadvantaged schools were found to be taught in more controlling, traditional ways, compared to students in more privileged schools who were taught in more autonomy-supportive innovative ways. Yet, these

studies did not address the question how the degree of innovative learning according to their teacher relates to developments in motivation and achievement growth for students with different background characteristics. **Chapter 6** was therefore aimed at examining whether IL was indeed more beneficial for students from ethnic majority and higher SES backgrounds and for girls in comparison to students from ethnic minority and low SES backgrounds and for boys. Three main aspects of IL were focused upon, namely collaborative learning, authentic learning, and focusing on self-regulation.

Taking group differences into account, the relations between IL, as reported by teachers, and developments in motivation and achievement of 722 students during the last two years of primary school were investigated. The outcomes of this study indicated that most relations between aspects of IL and developments in students' motivation and achievement were either not significant or quite small. Those relations that were significant were found in both positive and negative directions, depending on the aspect of IL that was taken into account. A higher degree of collaborative learning related more positively to developments in students' motivation than the degree of authentic learning or focusing on self-regulation in enhancing student motivation. Hence, aspects of IL can either contribute to or diminish the reported decline in students' motivation. Moreover, results showed that the relations between aspects of IL and developments in motivation and achievement differed by students' gender and socio-economic and ethnic background. Furthermore, the results suggests that a higher degree of IL related more negatively to developments in motivation and growth in math achievement for boys, low SES, and ethnic minority students than for girls, middle and high SES, and majority students. In general, the outcomes of the two qualitative studies (chapter 4 and 5) and the study described in chapter six suggest that teachers are less successful in creating IL environments that benefit boys, low SES, and ethnic minority students.

DISCUSSION

Above, the main findings of the five studies that constitute this dissertation are summarized. In this section, the contributions and conclusions of this dissertation are discussed.

DEVELOPMENTS IN MOTIVATION IN UPPER PRIMARY SCHOOL

The results of this dissertation add to existing motivational literature by examining the nature of motivational developments during upper primary school and the longitudinal relations with achievement growth. It furthermore adds to motivational research by investigating factors of the learning context associated with motivational developments, and by taking into account group differences. Whereas previous research demonstrated an overall decline in students' motivation after their transition from primary to secondary school (De Fraine, Damme, & Onghena, 2007; Gottfried, Fleming, & Gottfried, 2001; Skinner, Furrer, Marchand, & Kindermann, 2008; Van der Veen & Peetsma, 2009), this dissertation showed that before this transition takes place, students' motivation for school develops according to a more differentiated pattern. Whether or not students' motivation already starts to decline in primary school was shown to vary by aspect of motivation and to depend on a variety of individual background and contextual factors, as well as the complex interplay between those factors. Interestingly, school investment increased toward the end of primary school. The secondary education system in the Netherlands has different tracks where students can continue their education after primary school (Scheerens, Luyten, & Ravens, 2011). In the last year of primary school, the grade six teacher will recommend which track they find most suitable for each student. The final 'CITO' test that students take in grade six usually can weigh in the final decision of which track a student will be referred to. As such, grade six is a very important year for students' future educational careers. The increase in school investment suggests that toward the end of primary school students work harder and are aware of the importance of this last year for their future possibilities. This increase in school investment was dissimilar to

developments motivational beliefs. The reasons why students increase their effort toward the end of primary school may thus be attributable to external sources. Especially during this last year, teachers and parents may encourage students to work hard and student may work harder to reach a higher track instead of being internally motivated.

Additionally, the outcomes of this dissertation showed that in comparison to other groups, low SES students, ethnic minority students and boys were particularly vulnerable for less advantageous developments in their school investment. These differences could not be explained by developments in motivational beliefs, as these groups mostly demonstrated similar or more positive developments in their motivational beliefs compared to other groups. The outcomes suggest that toward the end of primary school – a period that is of crucial importance for their future educational career – low SES students, ethnic minority students and boys have more difficulties engaging in motivated behaviours and investing effort in school. Teachers may prefer behaviors that are more specific to girls, ethnic majority and higher SES students, and a bias favouring these groups may account for these findings on school investment. On the one hand, it could be that bias was limited as group differences were absent or smaller during the grade three measurement and emerged or became more prominent toward the end of primary school. The differences in school investment may thus reflect actual differences, indicating that school investment of low SES students, ethnic minority students and boys develops less favourably. On the other hand, teacher bias toward certain groups could become more salient in higher grades when students are approaching adolescence. The exact causes of these differences in school investment are difficult to identify, but these findings can be considered worrisome.

When taking into account the considerable strength of the relation between school investment and achievement growth that was found in this dissertation, the less advantageous developments in school investment of these groups suggest that this may be a major factor related to existing achievement gaps. Given the reciprocal nature of the relationship between motivation and achievement shown in previous studies (Harackiewicz, Durik, Barron,

Linnenbrink-Garcia, & Tauer, 2008; Schunk, Pintrich, & Meece, 2008, Steinmayr, & Spinath, 2009; Marsh, & Martin, 2011; Martin & Liem, 2010), the increasing group differences in school investment are presumably both the result of existing achievement gaps as well as contributing to it.

THE LEARNING ENVIRONMENT

By taking into account longitudinal associations between aspects of the learning context and developments in motivation and achievement, this dissertation adds to existing learning environment research which has traditionally mainly investigated classroom effects in cross-sectional studies (Reynolds, Sammons, De Fraine, Townsend, & Van Damme, 2011). Longitudinal techniques such as growth curve and autoregression modelling were combined with multilevel techniques, to investigate how classroom composition and instructional style contribute to developments in students' motivation and achievement growth. In addition, these techniques were complemented with qualitative studies to provide a more in-depth understanding of teacher and student perceptions of the learning environment.

In this dissertation, it was shown that classroom composition is associated with developments in students' motivation and to achievement growth. Differential effects for students with different backgrounds were found that were in line with the specialization hypothesis (Driessen et al, 2003), which states that teachers in segregated classrooms are better able to adapt to specific needs of the classroom population. As an extension of the specialization hypothesis, which usually refers to adapting the content or pace of instruction, this dissertation has provided further insights into ways that teachers in segregated schools adapt their instructional style to their student population.

This dissertation furthermore showed that relations between IL and developments in motivation and achievement were mostly absent or small. This indicates that we cannot draw any general conclusions on the extent to which a higher degree of IL contributes to students' motivation. Given the complex nature of students' motivation and its situation-specificity, this is not an unusual

finding (e.g., Van Nuland, 2011). The degree to which teachers use aspects of IL or traditional learning in their teaching practices is probably of minor importance compared to the quality of their teaching practices. The outcomes furthermore suggest that relations between IL and students' motivation depend on the aspects of IL that are focused upon. A higher degree of collaborative learning for example related positively to developments in student motivation, whereas the degree of authentic learning mostly related negatively to developments in motivation, and focusing on self-regulation related both positively and negatively to developments in motivation. As different aspects of IL yielded different results, these outcomes highlight that IL is a multifaceted construct, and that it is important to distinguish between different aspects of IL. There are studies pertaining to IL that indeed focus specifically on certain aspects and aim to meticulously examine what aspects are effective and under which conditions, for example the body of research on collaborative learning (e.g., Johnson & Johnson, 2009; Slavin, 1980). However in research on educational reforms, IL, as well as related educational concepts based on social-constructivism, are often considered unidimensional concepts that are either successful or unsuccessful. The outcomes of this dissertation seem to argue for a more precise and differentiated examination of which components of educational reforms are effective.

ONE SIZE DOES NOT FIT ALL?

This dissertation focused particularly on differential relations between the learning environment students' motivation and achievement for students with different socio-economic or ethnic backgrounds, and for boys and girls. As such, it was able to show that *one size does not fit all*. The type of instruction that may work very well in one classroom, does not necessarily work as well in other classrooms. More specifically, it was found that innovative forms of learning were preferred less by students from low SES or ethnic minority backgrounds, and were also found to benefit these students less in terms of motivation and achievement. Moreover, teachers of disadvantaged classrooms found IL less

suitable for their student population and therefore those teachers were less likely to use aspects of IL in their classrooms and rather taught in more controlling, traditional ways. IL environments require active, self-directive, and collaborative types of participation which may be more difficult for low SES and ethnic minority students due to the language and types of communication that are encouraged at home.

The issue of school segregation is also an issue of equity and equal opportunities. One of the main aims of educational policies is to narrow achievement gaps and compensate for initial differences between students with varying backgrounds (Cohen, 2005). The outcomes of this dissertation seem to suggest that IL may rather widen achievement gaps rather than diminish those, but this conclusion could be too premature. While teachers in disadvantaged schools may succeed better in enhancing motivation and achievement outcomes through more traditional methods, these students may thereby also be withheld chances and opportunities to develop themselves as autonomous, self-directed learners. In educational practice, IL and traditional education are however not "either/or" choices. The challenge for teachers is to find this optimal balance where students get the amount of structure and guidance they need, and are offered opportunities for autonomous, self-directed learning.

Although this dissertation has provided some support for differences in the extent to which students with different backgrounds profit from IL, is does not answer the question of whether IL – when meeting certain conditions – could also be successful for more disadvantaged student populations. In disadvantaged schools, it may take far more effort over the years to develop those skills necessary for students to self-direct their learning process. In order to create equal opportunities for all students to develop themselves as successful independent learners, it may be worthwhile to further examine how teachers in disadvantaged schools can successfully find a balance between transferring responsibility to students, while still providing the optimal level of guidance.

A main point of focus were differences between groups of students with different socio-economic and ethnic background, and between boys and girls. This dissertation has shown that differences between these groups occur with regard to the extent they benefit from aspects of IL. However, the outcomes of this dissertation refer to aggregated results over groups of students with similar backgrounds characteristics. Individual differences between students within these groups are likely to outweigh group differences. Studying group differences provides valuable insights with regard to successful classroom practices, but individual differences need not to be overlooked. In their classroom practices, many teachers tend to adapt to characteristics of their classroom population. However, teachers also need to be able to diagnose the learning needs of individual students in order to create a learning environment that is beneficial to all students.

The outcomes of this dissertation suggest that IL may be less suitable for students with low SES and ethnic minority backgrounds and for boys. Another explanation could also account for this finding. Teachers in disadvantaged schools were more likely to teach in more traditional ways because they *believed* that their student population did not have the abilities necessary for IL. Although these teachers were well intentioned and tried to adapt to the needs of their student population, these beliefs are not necessarily always fully correct as teachers' expectations of students' abilities can be based on prejudiced attitudes toward certain groups (Van den Bergh, Denessen, Hornstra, Voeten & Holland, 2010). However, consequently many low SES and ethnic minority students may be more accustomed to traditional ways of teaching. When faced with IL later on, it may not be beneficial for them anymore, because they did not have the opportunity to master the skills necessary for IL. As such, the initial belief of teachers in disadvantaged schools that their students are not capable of IL could have become a self-fulfilling prophecy. Although this issue requires further examination, at the very least, these outcomes tell us that creating *successful* IL environments is experienced as a more difficult challenge for teachers at disadvantaged schools, than it is at schools with more privileged student populations. The outcomes of this dissertation show that school

segregation thus not only affects the type of classmates that students go to school with or the pace or content of instruction, it also affects the roles that teachers and students take on in the learning process.

LIMITATIONS AND FUTURE RESEARCH

There are a number of limitations of this dissertation to take into account. This dissertation focused on the degree to which aspects of IL were applied in teachers' daily practices. Teachers reported rather high levels of IL, but the quality by which teachers implemented these approaches was not taken into account. Many teachers may be more accustomed to more traditional ways of teaching. IL requires teachers to gradually transfer control of the learning process to the students, which some teachers may find difficult. Future research on how teachers can successfully implement aspects of IL with varying student populations could further our understanding of successful classroom practices.

Furthermore, task-orientation was included in this study as a main aspect of motivation. According to achievement goal theory also other types of achievement goals are important for students' motivation. Especially performance-approach and avoidance goals are relevant in this respect. By only focusing on task-orientation, we limited the outcomes to relations of the learning context with those goals beneficial for learning. In future research, it would also be interesting to examine how different aspects of the learning context relate to less beneficial goals or to students' goal profiles, as suggested in the multiple goal perspective (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002).

A number of methodological limitations also need to be noted. The three larger scale studies in this dissertation (chapters 2, 3, and 6) were based on questionnaire data. Task-orientation and self-efficacy were both assessed through student self-reports. Self-report measures have a number of limitations, as they are susceptible to self-presentation bias and require students to be fully aware of their underlying motivational beliefs (Jobe, 2000). However, the

internal nature of motivational beliefs makes students' self-reports one of the suitable measures available. Motivated behaviour, however, is a visible part of motivation and school investment was therefore assessed through teacher ratings. Yet, teacher ratings of students carry the risk of being biased by prejudice toward certain groups (Van den Bergh et al., 2010) which can affect our conclusions on group-specific differences. The degree to which teacher bias has affected teacher ratings of school investment in different grades is unknown and needs further examination.

The degree of IL was also measured with self-reports. In the studies of chapter 4 and 5, teachers self-reported on the degree of IL through interviews and in chapter 6 by means of self-report questionnaires. The use of teacher perceptions of the learning environment has been critiqued, because it would be biased by teacher ideals or self-serving strategies (Wubbels, Brekelmans, & Hooymayers, 1992). However, other studies disputed that claim (Fraser, 1982; Kunter & Baumer, 2006). As the effects of aspect of IL on student outcomes were mostly small or absent, the question arises whether this could be attributed to the validity of the measure. Several steps were undertaken to assure the validity of this measure, including comparing the interview and questionnaire data to each other, comparing it to student perceptions of the learning environment, and to classroom observations conducted in three classrooms, all demonstrating significant agreement and therefore limiting the possibility that the outcomes are attributable to validity concerns. In future research, observational studies could however provide further insight into *how* aspects of IL are enacted in classrooms with different student populations.

In terms of social integration, school segregation may not be considered desirable. However, countering school segregation is a difficult task, as it caused by a variety of factors, including residential segregation and parental choice (Karsten, Felix, Ledoux, Meijnen, Roeleveld, & Van Schooten, 2006), that are difficult to change. As such, school segregation will continue to be an issue in education. For future research, it is therefore important to focus on how effects of teaching practices may differ at schools with varying student populations and to focus on identifying the teaching practices that will make schools with

varying populations successful in terms of motivating their students and enhancing their achievement.

IMPLICATIONS

The outcomes of this dissertation point to a number of important implications for educational practice. First, although there was no evidence for a general decline in students' motivation for school during upper primary school, the results indicated that some groups of students are more vulnerable for such a decline. In particular, school investment of ethnic minority students, low SES students, and boys was found to develop less advantageous in upper primary school in comparison to other groups. These years before students transition to secondary school are crucial in determining the educational track in which students will pursuit their further education career. Finding more efficient ways to engage these students in school, especially in this particular phase of their lives, should therefore be an important point of focus for teachers and policy makers.

Furthermore, as discussed above, the outcomes of this dissertation indicate that there are differences in what works best at schools with varying student populations. Policies should allow schools the freedom to work according to the methods most suitable for their student populations, while at the same time offering schools support in finding the most successful ways of teaching their students. Especially teachers in more disadvantaged schools seem to experience more difficulties in teaching innovatively and in finding the optimal balance between IL and traditional education for their students. Offering these teachers additional support aimed at finding the right balance for their students, could help them in their teaching practices and could benefit students in these schools. Moreover, it is therefore of crucial importance that teacher education is aimed at providing teachers with a broad repertoire of instructional methods varying from traditional to innovative and with the skills to determine how and when to use which aspect out of their repertoire.

These outcomes suggest that IL may have certain drawbacks. Not all aspects of IL that were implemented in the schools we studied are equally beneficial to students' motivation and achievement, and they are not equally beneficial for different student populations. Caution is therefore warranted when implementing aspects of IL. A high level of pedagogical skills is required to teach innovatively and teachers who are expected to implement educational reforms should be well-prepared. Moreover, these outcomes argue for caution with regard to educational reforms. A thorough analysis of how different aspects of any educational reform may work for a specific school population always needs to precede or at least accompany those reforms.