Maximizing meaning: reading informative texts in Developmental Education

van Rijk, Y.

Citation for published version (APA):
Maximizing meaning: reading informative texts in Developmental Education

Maximizing meaning: reading informative texts in Developmental Education

voor het bijwonen van de openbare verdediging van mijn proefschrift

Maximizing meaning: reading informative texts in Developmental Education

op woensdag 10 mei 2017
om 11.00 uur
in de Aula van de Universiteit van Amsterdam
Spui 411 te Amsterdam

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Maximizing meaning:
reading informative texts in Developmental Education

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This research project was financially supported by Inholland University of Applied Research and the Research Institute of Child Development and Education, University of Amsterdam.

The chapters in the thesis are included as they have been published, and therefore differ in reference style and the use of US and UK English.

Cover design: Yoeri Walstra
Lay-out: Rozemarijn Klein Heerenbrink, persoonlijkproefschrift.nl
Printed by: Ipskamp Printing
ISBN: 978-94-028-0542-0

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Maximizing meaning: reading informative texts in Developmental Education

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus prof. dr. ir. K.I.J. Maex
ten overstaan van een door het College voor Promoties ingestelde commissie,
in het openbaar te verdedigen in de Aula der Universiteit
op woensdag 10 mei 2017, te 11.00 uur

door

Yvonne van Rijk

geboren te Broek in Waterland
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CHAPTER 1

General introduction
This dissertation is about teaching reading comprehension of informative texts in the upper grades of primary schools for Developmental Education. It investigates the Developmental Education approach, with respect to learning to read informative texts in the upper grades of primary education (grade 4) in Dutch primary schools.

Reading comprehension of informative texts is one of the most important abilities children have to acquire in the upper grades of primary education, among other things to be able to read subject matter texts in secondary education and to take part in sociocultural life. Developmental Education (DE) is a theory-based, innovative educational approach in the Netherlands, in which the teachers’ aim is that students learn to read and understand texts in a way that is meaningful to them. Therefore, teachers working from this perspective create meaningful thematic units in which all learning activities relate to the theme. Reading informative texts is embedded in an ‘inquiry curriculum’, and teachers seek to involve all students in reading texts that correspond to their self-generated problems, interests and reading levels. The selection of texts is driven by students’ research questions. The aim of meaningful reading is part of the broader pedagogical approach, in which the broader goal is to improve students’ personal development and to improve their participation as active, responsible agents in society.

In teaching reading, the large majority of primary schools in the Netherlands have adopted a more traditional Programmatic Instruction (PI) approach. Here, reading programs are textbook-based. In pre-planned lessons all students read the same texts. Texts are chosen that are supposed to be attractive to children, but this does not mean that these texts are personally meaningful to students. Direct instruction to the entire class is followed by a series of assignments that students make individually.

Until now, little is known about how teachers orchestrate meaningful reading in everyday classroom practice, and about the effectiveness of this innovative DE approach. Although a description of the DE reading approach is available (Pomper, 2004), and teachers receive in-service training, we have little understanding of how it is implemented. The few controlled studies about the effectiveness of Developmental Education have been performed in Kindergarten, relating to productive classroom talk (Van der Veen, De Mey, Van Kruistum, & Van Oers, in press), schematizing (Poland, 2007) and vocabulary instruction (Helms-Lorenz & De Jong-Heeringa, 2006; Van Oers & Duijkers, 2012), and in grades 1 and 2 concerning the acquisition of reading and writing (Suhre, 2002). Outcomes of these studies show that in most cases the Developmental Education approach yields better results than a programmatic approach. These studies, however, were focused on young children. Little is known about the middle and upper grades. As yet, it remains unclear whether an innovative
approach such as Developmental Education is more effective than a more traditional approach for teaching reading comprehension, less effective or equally effective.

The research reported in this dissertation addresses questions about the effects of DE in the upper grades of primary school. This research fits in the tradition of studies of reading from an ‘engagement perspective’ (Aarnoutse & Schellings, 2003; Droop, Van Elsäcker, Voeten, & Verhoeven, 2012, 2016; Guthrie, McRae, & Klauda, 2007; Guthrie & Wigfield, 2000; Guthrie et al., 2004; Van Elsäcker, 2002). In addition to empirical verification of theoretical hypotheses, the research is also relevant to educational practice. Developmental Education claims to yield equally good reading comprehension as the Programmatic Instruction approach, but to be more meaningful and therefore more motivating, thus shaping a more inquisitive type of reader. At the same time, skepticism about the effectiveness of innovative approaches is sometimes voiced by educational policy makers (Dijsselbloem, 2008). However, the innovative DE approach in the upper grades of primary school has rarely been researched until now.

The main problem that is addressed in this dissertation is how the innovative practice of Developmental Education provides meaningful reading, whether it meets the standards of effective reading comprehension instruction, also for disadvantaged children from ethnic minorities and low SES families, and how it is reflected in the reader identities students develop.

Theoretical framework
This section introduces Developmental Education as a general pedagogical approach and its theoretical basis, followed by an explanation of its approach to reading comprehension. This sections ends with the rationale of the present study.

1. Developmental education, an innovative approach based on Vygotskian theory
In the past 30 years an educational approach has been developed in the Netherlands known as Developmental Education (DE). About five percent of the Dutch primary schools have adopted this DE approach. The broad educational aim of DE is to teach students to take part in sociocultural life. This means that agency and citizenship are the ultimate goals of DE. Schooling is not seen as only transmitting knowledge and teaching cognitive skills, but as an activity in which students’ learning has to make sense to them (which can be achieved by taking into account their voices and histories), and to enable them to act, i.e. to participate in their social environment (Van Oers, 2009, 2012; Wardekker, 2012).
The theoretical basis of the approach lies in the Cultural Historical Activity Theory (CHAT) as conceived by Vygotsky, Leont’ev and their followers (Lee & Smagorinsky, 2000; Van Oers, Wardekker, Elbers, & Van der Veer, 2008; Wells & Claxton, 2002).

Meaningful is the keyword in Vygotskian theory of learning. Meaningful learning is rooted in processes connecting a person to the cultural world as it has developed historically. ‘Meaning’ always has two dimensions; on the one hand, there is personal meaning (sense), including emotion and personal motives (affect), whereas on the other hand there is cultural meaning (knowledge, abilities, values) (Van Oers, 2009, 2012; Mahn & John-Steiner, 2002). These two dimensions of meaning need to be connected for a person to develop.

The context for development is the activity, i.e. reconstructions of sociocultural practices, such as science, trade or art at individual levels. Such activities are made more concrete in the learning environment of the classroom, in which students can participate. The teacher, as a more knowledgeable partner, mediates between the student and the culture.

Meaningful learning not only involves the construction of knowledge, but the development of the whole person. Participation in sociocultural activities requires not only intellect, but also emotional involvement, which directs the motivation to act (Wardekker, Boersma, Ten Dam, & Volman, 2012). Development is seen as a gradual process of identity formation through participation in cultural activities.

In the upper grades of primary school, inquiry activities constitute contexts that prompt children to appropriate new tools and procedures (Karpov, 2005; Van Oers, 2012; Wardekker, 2012). Language is the central cultural (semiotic) tool for learning (Wells & Claxton, 2002). Whereas we interact with present others by listening and speaking, we communicate with absent others in reading and writing.

Sociocultural theory has yielded a wealth of educational research. It is assumed that teaching reading comprehension from a sociocultural perspective is more interesting and engaging for students. Until now, however, relatively few studies about teaching reading from a sociocultural perspective have been carried out (Smagorinsky, 2001, 2011).

2. Reading comprehension in Developmental Education

DE has been inspired by a more general approach to meaningful reading, or ‘reading for meaning’. Reading comprehension can be defined as “the process of simultaneously extracting and constructing meaning through interaction and involvement with text” (Snow, 2002, p. 11). According to Snow, “gaining meaning and gaining knowledge” is the main purpose of reading (Snow, 2002, p. 40). In ‘reading for meaning’
approaches, motivational enhancement is an essential aspect of teaching reading comprehension. Students are engaged in reading by instruction that combines motivation enhancement and strategy instruction. Engagement makes students “interact with text in ways that are both strategic and motivated” (Guthrie, Wigfield, & You, 2012, p. 602). A substantial body of research has shown that reading comprehension is correlated with the knowledge and use of a range of reading strategies. Reading comprehension instruction, therefore, should include the explicit instruction of (a limited set of) reading strategies (NICHD, 2000; Snow, 2002; Davis, 2010). In the last decade, direct instruction of knowledge of reading strategies has played the main role in reading programs, while less attention was paid to motivational enhancement.

From a sociocultural perspective, central to gaining meaning in reading is that students make a personal connection to a text (Smagorinsky, 2011, p.103). In Developmental Education, meaning is the driving force of all learning, and meaning is also emphasized as the main purpose of reading across the curriculum.

Typical for Developmental Education is that all learning activities are organized in thematic units, which are reconstructions of sociocultural activities, such as a museum, a shop, or a travel agency. Reading is rendered meaningful and functional in the context of the students’ common purpose of participation in those sociocultural activities. In DE, the classroom is considered a community of learners (cf. Brown, 1997). Engagement in reading (Guthrie et al., 2012) is driven by students’ needs (questions), making reading personally meaningful (based on interest, motives) and functional (answering students’ questions). Strategy and vocabulary instruction is an integrated part of such activities. Oral interaction and writing are inseparably connected to reading. Classroom discussions are occasions for collaborative thinking about problems and students’ answers, and inspire students to revise their texts (cf. dialogic inquiry by Wells, 2000). Together with other products from the thematic unit, the revised texts are prepared for presentation to classmates, and often to an audience of parents and students from other groups.

It is assumed on a theoretical basis that the focus on personal sense and the enhancement of reading engagement, may also lead to an empowerment of the students’ self-recognition as a reader, i.e. to their reader identity. Hence we hypothesize that involvement in DE may also lead to an enhancement of the students’ reader identity.

Although previous research on the effectiveness of Developmental Education has yielded positive results for students’ achievements, DE as yet has sometimes met with skepticism. Educational policy makers and the Dutch Inspectorate of Education have sometimes been skeptical about innovative practices such as DE, as they do not
program the learning process in a detailed manner with strict adherence to textbooks, which makes them less controllable. Although schools are free to decide how curricula are taught in the Netherlands, the pressure on schools to use a fixed, evidence-based reading program has increased in the past decade. In the context of a parliamentary investigation committee that critically evaluated a number of educational innovations (Dijsselbloem, 2008) and a decline in the Netherlands’ position in PISA rankings (OECD, 2010) the emphasis on the use of textbook-based programs to teach basic reading knowledge and skills has increased. Skepticism about innovative practices particularly concerns students with disadvantaged backgrounds, such as ethnic minorities and students with low-educated parents (Hornstra, Mansfield, Van der Veen, Peetsma, & Volman, 2015; Overmaat & Ledoux, 2002). Innovative approaches are often considered suitable and profitable for students who belong to the highly educated ethnic majority, i.e. native Dutch parents. However, on the basis of their positive personal experiences, teachers in schools of Developmental Education assume that the innovative DE approach is beneficial to the reading motivation and identity development of all students, including those with disadvantaged backgrounds.

Nevertheless it currently remains unclear whether the positive effects of earlier studies on ‘reading for meaning’ interventions will also be found in the context of DE, an existing theory-based ‘reading for meaning’ practice. Therefore the main aim of the present study is to investigate the effectiveness of the DE approach with respect to learning to read informative texts in the upper grades of primary education. A second aim is to gain a greater understanding of how teachers of the DE approach provide meaningful reading and how the approach is reflected in the reader identities students develop.

Research questions

This dissertation investigates the implementation and effectiveness of the Developmental Education approach with respect to learning to read informative texts in the upper grades of primary education. As schools generally start teaching 9-10 year old students to read informative texts (Snow, 2002), our study was performed in grade four.

We approach this research problem in different ways. First, we aim at deepening the understanding of ‘meaningfulness’ in sociocultural theory, as well as the practice of teaching meaningful reading by a description of how teachers provide meaningful reading in DE classroom practice. Second, the focus is on the effects of the innovative Developmental Education approach, compared to the Programmatic Instruction approach. We also investigate whether DE and PI have different effects on disadvantaged students from ethnic minorities and low SES families. Finally, we explore how
meaningful reading instruction is reflected in the reader identities students develop within DE, compared to students in schools using Programmatic Instruction.

The research questions are as follows:

1. What are the characteristics of a learning environment for reading comprehension of informative texts, based on a Vygotskian approach of meaningful reading?

2. With respect to informative texts, what are the effects of the Developmental Education approach compared to those of the Programmatic Instruction approach in terms of reading comprehension, knowledge of reading strategies and reading motivation in fourth-grade primary education?

3. To what extent do students from ethnic minorities and students from low SES families in innovative DE schools differ from similar students in traditional PI schools with regard to reading comprehension, reading strategies, and reading motivation at the end of grade 4?

4. How do reader identities of students in Developmental Education differ from those in schools that use a programmatic approach to reading comprehension, in particular reader identities of struggling and strong readers and of girls and boys?

Outline of the dissertation

The research questions are answered in four studies. The first and last studies used a qualitative methodology, the second and third studies a quantitative one.

The study reported in chapter 2 answers the first research question. Our purpose was to gain a better understanding of how teachers organize the learning environment so that the endeavor of reading informative texts becomes personally and culturally meaningful to their students as a way to improve participation in cultural activities. A multiple case study was conducted in four Dutch primary DE schools, with various student populations (urban-suburban; higher-lower SES; ethnic-culturally homogeneous-diverse). Five fourth-grade expert DE teachers were interviewed using in-depth semi-structured topic interviews. Classroom observations and document analysis served for triangulation. The characteristics of the way in which the teachers enacted the reading of informative texts are described and analyzed.

Chapter 3 answers the second research question. It reports on a comparison of two types of existing classroom practices: the innovative Developmental Education approach and the more traditional textbook-based Programmatic Instruction ap-
The effects of both approaches were investigated in terms of reading comprehension, knowledge of reading strategies and reading motivation. 570 fourth-grade students and their teachers from 24 schools (12 DE schools and 12 PI schools) participated in a quasi-experimental study. A pretest-posttest natural two group design was used to establish the effects of both educational approaches (DE and PI). The DE schools were selected based on their instructional characteristics being in line with the pedagogical concept of DE, and the sample was purposefully varied among urban, suburban and rural situations, high and low SES areas, and ethnic minority compositions. The PI sample was required to match with the DE sample at classroom level in terms of relevant characteristics, such as proportion between boys and girls, SES, and ratio of ethnic minorities. Multilevel modelling was used to analyze the data. The various dependent variables were measured using tests and questionnaires that have been validated in previous research. From this sample, two subsamples were taken for the studies described in chapters 4 and 5; those samples will be specified in the chapters concerned.

In chapter 4, the third research question is answered. It is examined to what extent a disadvantaged background (ethnic minority, low-educated parents) affects the reading comprehension, knowledge of reading strategies and reading motivation of fourth-grade students in Developmental Education compared with the Programmatic Instruction approach. All students from ethnic minorities and low-educated parents were selected from the original sample: a total of 170 students, 84 of which were in DE schools and 86 were in PI schools. Multilevel analyses were repeated twice, first for ethnic minority students and second for students from low SES families.

The fourth research question is answered in chapter 5. We expected to see the differences between traditional Programmatic Instruction and Developmental Education to be reflected in the reader identities students develop within these types of education. Therefore, we explored whether the experience of meaningful reading comprehension instruction in Development Education yields a specific type of reader. It was also investigated in what ways these reader identities differ from readers in the Programmatic Instruction approach. Another focus of this study is to examine how different groups of students (strong versus struggling readers, and boys versus girls) differ in reader identity and whether this varies between educational contexts. Four schools with similar school populations (geographical situation, SES, ethnic diversity), similar average reading comprehension scores and average non-verbal IQ scores, were selected from the 24 schools in the original sample. Within these schools, two strong and two struggling readers were selected, a boy and a girl in each category. In total 16 pairs of students in DE and PI were matched, based on
their reading comprehension score. Semi-structured interviews were held with the 32 fourth-grade students about their reading activities, attitudes, emotions and perceived ability regarding reading informative texts.

In chapter 6, the research findings of all studies are summarized, integrated and critically evaluated. The most relevant conclusions and consequences for educational reading practice and future research are discussed.
CHAPTER 2

Maximising meaning: creating a learning environment for reading comprehension of informative texts from a Vygotskian perspective

Abstract: Sociocultural theories based on the work of Vygotsky have been increasingly influential in educational sciences. Developmental Education (DE) is a pedagogical approach based on Vygotskian theory that has inspired primary schools in the Netherlands to change the learning environment innovatively in a comprehensive way. In this article we focus on the learning environments for reading comprehension of informative texts in upper-primary grade classrooms in DE. Our aim is to contribute to a more profound understanding of the characteristics of learning environments that are inspired by a Vygotskian approach and that are conducive to reading comprehension of informative texts. Five fourth-grade expert DE teachers participated in a multiple case study aimed at describing and analysing these characteristics for the domain of reading informative texts. Data were collected over a period of six to eight weeks for each teacher and consisted of videotaped interviews, classroom observations and documents. We conclude that DE learning environments are focused on maximising meaning from text for students. This is achieved by organising learning on the basis of emergent goals within students' participation in sociocultural practices.

Keywords: Informative texts, meaningful learning context, primary education, reading comprehension, reading for meaning, reading motivation, reading strategies, Vygotskian theory

Introduction

Sociocultural theory based on the work of Vygotsky has been increasingly influential in educational sciences. In educational practice Vygotskian notions such as the zone of proximal development and scaffolding are well known. In few schools, however, teaching occurs in learning environments that are based on Vygotskian concepts in a comprehensive way. In Vygotskian sociocultural theory meaningful learning, understood as the process in which a person becomes connected to the cultural world, is a central concept (Smagorinsky 2001, 2011). Developmental Education (DE) is a pedagogical approach based on sociocultural theory as defined originally by Vygotsky and further elaborated in Cultural Historical Activity Theory (CHAT) (Van Oers 2009; Wells and Claxton 2002). It has inspired a considerable number of primary schools in the Netherlands to innovate the learning environment in an all-encompassing way, with a view to meaningful learning for students (Wardekker 2012).

This view of meaningful learning has been elaborated and implemented in many DE classrooms in primary schools in the Netherlands. In DE the learning environment is mainly defined by the situated sociocultural activities in which students and teachers are collaboratively involved. Many teachers working from this point of view are satisfied with their implementation of these ideas into their classroom practices. However, there is still need for a deeper understanding of the dynamics that underlie the processes and outcomes of this activity approach to learning environments, and especially for an understanding of the conditions that contribute to the process of maximising meaning.

In this study we focus on the learning environments that are created in DE for reading comprehension of informative texts (as opposed to fictional texts and poetry). Many students in secondary school have difficulties understanding discipline-specific content of written texts (Snow 2002) and disengage themselves from reading (Guthrie, Wigfield and You 2012). PISA international studies in 2009 showed that 18 % of 15 year-olds have difficulties identifying the main idea in a text (Fleischman et al., 2010). In the Netherlands, 20 % of the students in grade 7 cannot understand subject-matter texts without a teacher’s help (Hacquebord, Linthorst, Stellingwerf and De Zeeuw 2004). Students’ motivation to read decreases in the higher grades of primary school and in secondary education (Bogaert et al. 2008). Therefore, it is necessary to take additional measures to prevent functional illiteracy and disengagement in primary school rather than to try to address it in secondary school. In primary schools effective and motivating learning environments and educational strategies are needed to teach reading for comprehension to all students.
The present qualitative study analysed the learning environment for reading informative texts in Developmental Education. Our aim was to contribute to a more profound understanding of the characteristics of learning environments that are inspired by Vygotskian theories and that are conducive to reading comprehension of informative texts.

Theoretical framework

Sociocultural theory has been influential in educational sciences in the past decades. On the one hand, there are initiatives to conceptualise an overarching approach to answer educational core questions from the perspective of Cultural Historical Activity Theory (Wells and Claxton 2002), and with respect to teaching literacy (Smagorinsky 2011). On the other hand the empirical research covers a wide range of educational domains. However, to the best of our knowledge a unified and coherent application of the theory in an educational practice of a whole curriculum or learning environment is as good as lacking, as is research on such practices. In addition, a Vygotskian approach to teaching reading in actual practice has not yet been articulated in the literature. Although teaching reading is an integral part of all kinds of activities, the research of Vygotskian-inspired practices like dialogic inquiry (Wells 2000, 2002), teaching subject matter (Hedegaard 1999), writing (Dyson 2000) and literature (Miller 2003), has not addressed the theory and practice of the teaching of reading involved.

Reading theory and research is generally characterised by what Smagorinsky (2011, p. 101) labels as “an autonomous view of literacy; one that takes literacy out of its social and cultural context and views it as a discrete skill (...) rather than as a cultural practice”. Whereas traditional approaches emphasise the teaching of phonics and other skill-oriented aspects, more recently, reading for meaning is considered to be essential to teaching reading comprehension (Snow 2002). However, most recent approaches consider ‘reading for meaning’ in a narrow way (i.e. to understand what is in the text). These so-called ‘content approaches’ are based on models of text processing, and emphasise that students construct and integrate the meaning of a text in a coherent whole (McKeown, Beck and Blake 2009). An innovative content approach, Concept-Oriented Reading Instruction (CORI), which was developed by Guthrie and Wigfield (2000), takes the interpretation of the concept of meaning one step further. The central pursuit of this approach is to foster an in-depth understanding of the conceptual content of the text through the avenue of active engagement of the student. One of the theories that underlie this ‘engagement approach’ is activity theory. Guthrie and Klauda (2014) take from this theory the view that teaching literacy should be reflective of the cultural context of reading and
personally meaningful, and emphasise that teachers should make room for personal connections between teacher and students and amongst students. Collaboration and shared cognitive activity should be a prominent part of the educational process.

The teaching of reading in Developmental Education (DE) in the Netherlands is inspired by both Vygotskian educational theory and the reading approach of the engagement perspective of Concept Oriented Reading Instruction (CORI) (Pompert 2004). Similar to CORI, DE has ‘reading for meaning’ as its main pursuit, and is a content-based approach that considers reading comprehension as “the process of simultaneously extracting and constructing meaning through interaction and involvement with text” (Snow 2002, p. 11). In the DE learning environment, however, reading activities are embedded in a more general pedagogical approach than CORI and other content-based approaches, comprising the whole curriculum. Moreover, from the Vygotskian perspective that underlies DE, it is emphasised that reading is a form of communication in which cultural meanings (as presented in a text) are connected to personal meanings (sense) of the reader. DE practices include both reading and writing.

In the following paragraphs we will discuss the teaching of reading comprehension in the DE approach. Because CORI has been a source of inspiration for the theory and practice of DE (Pompert 2004), and is well-described (Guthrie and Wigfield 2000), we have used the terminology of Concept Oriented Reading Instruction in defining the characteristics of DE. We firstly introduce the CORI approach, in which engagement / motivation enhancement and instructional components are both central (Guthrie, McRae and Klauda 2007; Guthrie et al. 2012). Next we discuss how meaningful reading is conceptualised from the Vygotskian perspective of Developmental Education in comparison with the CORI approach.

Components of a learning environment aimed at enhancing motivation

At the core of CORI (Guthrie and Klauda 2014; Guthrie and Wigfield 2000) is the assumption that, in order to engage students in reading, their motivation needs to be enhanced. Guthrie et al. (2007) distinguish five motivational processes: intrinsic motivation, perceived autonomy, self-efficacy, social motivation and mastery goals.

Intrinsic motivation relates to reading for its own sake (Ryan and Deci 2000). It is best fostered in a learning environment that emphasises the relevance of the reading activity (i.e. by linking the reading content to student interest and experience, either direct or recalled), and integrating it with their background knowledge. Relevance can be provided in more than one way: a connection between school reading and real life; a focus on student interest (curiosity) and active participation in reading ac-
tivities; and emphasising that the main purpose of reading is gaining meaning.

Perceived autonomy represents the feeling of control and self-direction. It is supported by student choice (of subtopics and texts) and by shared control by teacher and students.

Self-efficacy is the student’s confidence that s/he can succeed. It is related to experiencing success in reading comprehension, which is facilitated by realistic goal setting and appropriate texts as well as by frequent feedback regarding successful comprehension.

Social motivation is the feeling of belonging to a group. It is stimulated by collaboration, such as reading together and discussions about the text.

Mastery goals are related to the desire for deep understanding. They are promoted by integration of reading with (domain) content matter, for example, in thematic units ensuring conceptual coherence across texts and time.

**Instructional components of the reading for meaning learning environment**

Instructional components of the reading for meaning learning environment that have been identified in the literature relate to texts, reading activities, strategies, instruction, support, and interaction, as well as to vocabulary, evaluation, and time.

A rich supply of texts must be available to select appropriate texts for every student: interesting and not too easy or too difficult to read. A variety of reading activities and classroom activities related to reading is essential. Reading strategies should focus on meaning and meta-cognition (Allington 2002), whereas instruction of these strategies should consist in the first place of explicit modeling (i.e. demonstration and explanation of the cognitive strategies used by a skilled reader). The teacher should also explain that the strategies used help comprehension and gaining meaning. Teachers should take positions among and alongside their students rather than stand in front of the class. Their support should consist of scaffolding the strategies modeled (Allington 2002). Teachers must differentiate by tentatively identifying student needs for instruction and responding flexibly to them as they read, while adjusting their support to the reader’s level. Interaction is at the center of modeling instruction and support during reading activities (Allington 2002). Teachers should encourage students’ further thinking and engage them in powerful conversation in class. Collaborative learning structures also foster talk about text and text meaning. Teachers’ talk should be tentative, problem-setting and problem-solving as well as highly personalised, and teachers should use conversation to diagnose student needs.

Furthermore, teaching new vocabulary and strategies to discover word meaning are an integral part of reading for meaning. Also, reading for meaning requires a
different kind of evaluation. Instead of the traditional tests consisting of questions on a text, student work should be evaluated more in terms of effort and improvement and focus on complex achievements (e.g. thinking) (Allington 2002). As progression in reading comprehension comes from more practice (Van den Broek et al. 2005), it is essential to spend a great deal of time on reading tasks (Allington 2002).

A learning environment for meaningful reading from a Vygotskian perspective

Reading for meaning, is considered as “extracting and constructing meaning through interaction and involvement with text” (Snow 2002, p. 11). In CORI, learning environments are created that are meaningful to the students, such as thematic units and inquiry activities, in order to increase both students’ concept knowledge and reading comprehension (Guthrie et al. 2007; Guthrie et al. 2012).

In Vygotskian theory, meaningful learning is interpreted differently. It is seen as the process in which a person becomes personally connected to the cultural world as it has historically developed (Van Oers 2009). Meaning has a cultural and a personal dimension. Making cultural meaning is the endeavor to become a skilled and well-informed agent in the cultural world; cultural meaning, however, can be applied and transformed for personal purposes (Van Oers and Wardekker 1999; Mahn and John-Steiner 2002; Smagorinsky 2011). Making personal meaning (sense) is the valuation of what is learned from the perspective of a person’s own emotions and personal motives (affect). Hence the construction of meaning through reading in a sociocultural Vygotskian perspective entails both the reconstruction of cultural knowledge as intended in the text, and the association of this knowledge with personal values, interests, emotions etc. (Van Oers 2009). This has consequences for how the learning environment is perceived. Because reading is also to be conceived as an activity that can bring the wider cultural world into the classroom through the voices of absent others, texts should be chosen that fulfill that function. Because such texts can be difficult to understand, the teacher should supply the tools needed for understanding, such as reading strategies, and scaffold the reading of these texts, as well as arousing questions in pupils that make these texts personally interesting (relevant) for them. The teacher’s focus in reading is on understanding, meaning construction and making personal sense.

In Developmental Education, reading activities are embedded in cultural practices across the whole curriculum in which reading is a functional tool for the understanding of texts relevant to those practices. This implies that educational goals for specific knowledge and (reading) skills are related to broader educational goals, such as learning to reflect, construct, and use forms of semiotic activity like argu-
mentation, model design, and experimentation. Ultimately, agency and citizenship are the main objectives of education. DE seeks to facilitate the development of students’ identities as active and responsible participants in society (Pompert 2004; Van Oers 2009; Wardekker 2012).

Students and teachers work on these goals as a community of learners. In DE, all content and learning activities are organised in thematic units, with the aim of reconstructing a sociocultural practice inside the school walls, such as establishing an exhibition or a museum in the classroom, setting up a commercial company, or working in a science laboratory. For every thematic unit, a new physical learning environment is created in the classroom that represents the sociocultural practice in both its physical and symbolic aspects. This environment is presented in its final form to a public consisting of parents, other groups of students or potentially an audience from outside the school. Recurring elements of the physical learning environment in the classroom are the ‘question wall’ (displaying students’ questions), the ‘vocabulary wall’ (displaying new vocabulary), the ‘book table’ (containing a large supply of resources) and the ‘reading board’ (displaying texts read collectively). Objects created by students or brought in from home are also part of the learning environment. Students have at their disposal the classroom as well as other parts of the school, such as hallways or patios. The learning environment is usually extended by inviting a professional expert into the classroom (e.g. a researcher, a ‘Roman’ or a street sweeper) or by an excursion (e.g. to an observatory or the ruins of a Roman temple in the neighbourhood). Reading is rendered meaningful and functional in the context of the students’ common purpose of participation in sociocultural practices. An inquiry-oriented learning environment is created in which reading is driven by students’ questions, making reading personally meaningful (based on interest, motives) and functional (answering student’s questions). Hence, ultimately, the meaning of this learning environment is the environment as perceived by students through the prism of their personal interests and emotions (see Vygotsky 1994). Within such environments students are encouraged to wonder, think, and pose questions which are the starting point for searching for texts and drawing information from texts, thus creating a need for students to become engaged in processes of reading comprehension.

This study
The theory of CORI postulates that to make reading meaningful for students, teachers should engage their students and enhance reading motivation through a learning environment that involves relevance, choice, success, collaboration, and integra-
tion. Because the DE approach is based on sociocultural theory, the question arises as to how the sociocultural interpretation of meaning plays out in the learning environment, and whether and in what way relevance, choice, success, collaboration, and integration occur in DE classrooms.

In this study we examined the DE learning environment aimed at teaching to read informative texts. We aimed at gaining more insight into how teachers organise the learning environment so that the reading endeavor becomes personally and culturally meaningful for their students as a way to improve participation in cultural practices. The main challenge was to grasp the creativity and the agency of teachers of Developmental Education in making reading informative texts meaningful to all students. The research question was: What are the characteristics of a learning environment for reading comprehension of informative texts, based on a Vygotskian approach of meaningful reading? As schools generally start teaching 9-10 year old students to read informative texts (Snow 2002), we conducted our study in grade 4.

Method
A multiple case study design was used to investigate whether and how learning environments for meaningful reading in DE reflect a specific sociocultural interpretation of ‘meaningful’. Case studies are suitable for investigating a phenomenon within a real life context (Yin 2002) and for providing insight into complex processes, such as the classroom enactment of the instructional and motivational components in this study. Because enactment can vary between teachers and classes, we have included five cases in the study.

Participants
The study was conducted in four schools where the DE approach had been implemented for an extensive time and among various student populations (urban-suburban; higher-lower SES; ethnic-culturally homogeneous-diverse). In these schools, five fourth-grade teachers participated voluntarily in the study. We selected teachers with a minimum of two years of experience in teaching DE in the upper grades. Below we provide brief descriptions of each of the participating teachers.

Marcia taught grade 4 at an urban school in the center of the country’s capital. Her group consisted of 22 students, of whom more than 90% were native students from high/middle SES parents. She characterised five of them as readers having relatively ‘high needs’ for instruction and support, including two non-native speakers in her group. (By non-native speakers, we mean students whose parents speak a language other than Dutch or a combination of another language and Dutch.) Mar-
Marcia had five years of experience as a teacher, all in Developmental Education. During our study, Marcia worked on a theme called ‘The Romans’.

Maureen taught a combination of grades 3 and 4 at a school situated in a newly-built area of a town’s suburb. Her group consisted of 24 students (15 in grade 3 and 9 in grade 4). Approximately two-thirds of the students in each grade had high/middle SES parents, whereas one-third came from families with low SES. All the students were native speakers of Dutch. Maureen had eight years of teaching experience in Developmental Education. She was also working as a teacher educator of DE in the upper grades. After teacher training college, Maureen had obtained a Master’s degree in pedagogy. During our study, Maureen worked on a theme about space.

Cynthia taught a combination of grades 3 and 4 at a school situated in an older suburb of the same town as Maureen. Her group consisted of 21 students, eight in grade 3 and 13 in grade 4. All students came from high/middle SES families and were native speakers. Cynthia characterised approximately a third of her students as having relatively high needs for instruction and support, mostly related to problems of behaviour. Cynthia had more than 11 years of experience, all of which was in schools for Developmental Education. During our study, Cynthia worked on the same theme as Marcia: ‘The Romans’.

Leo taught grade 4 at a multi-ethnic school in the country’s capital. His group consisted of 21 students, all from low SES parents. Only eight students were native speakers of Dutch, of whom three were native Dutch and five were Surinamese/Antillean students. 11 students were non-native speakers from various cultural backgrounds. Leo had 25 years of teaching experience, including 10 years in Developmental Education at this school. During our study, Leo worked on a theme called ‘The Environmental Brigade’.

Nathalie taught at the same school in a parallel grade 4. Her group consisted of 20 students. All but one came from low SES families. Students had various cultural backgrounds. Ten students were native speakers of Dutch, five of whom were native Dutch and five were Surinamese/Antillean. Nathalie had 2.5 years of teaching experience, all in Developmental Education at this school. After teacher training college, she obtained a professional Master of Special Educational Needs. During our study, Nathalie worked on the same theme as Leo.

Data collection
Data collection took place over a period of six to eight weeks for each teacher, corresponding to a current thematic unit. It consisted of observations, interviews, and document analysis, and focused on how teachers fostered reading for meaning from
a sociocultural point of view. Classroom reading instruction and reading activities were videotaped three times. Moments for video-observation that would show how each teacher created a learning environment for reading were selected in consultation with the teachers. Teachers were asked to conduct their lessons as usual. Over six hours of video recordings were made for each teacher.

Teachers were interviewed five times; at the start of the thematic unit, immediately after each classroom observation, and at the end of the thematic unit. The interviews were face-to-face and semi-structured. Teachers were asked to elaborate on how they stimulated reading motivation, how they provided meaningful strategy instruction and small-group support, and how reading was connected to other inquiry activities, especially to writing. Furthermore, we asked the teachers how they differentiated instruction with respect to student interest, prior knowledge, vocabulary, reading level, and home culture, and how the selection of meaningful texts took place. We also asked them about their ways of evaluating student development in reading comprehension. Teachers were explicitly invited to share their opinions on the benefits of the DE approach and to signal needs for improvement of the DE framework.

In addition, we collected documents, such as teacher preparations, journals and evaluations, reading texts, research questions, and texts written by students, as well as documents describing the school’s reading curriculum.

**Data analysis**

Teacher interviews were transcribed verbatim and coded with software for qualitative data analysis (Atlas.ti version 6.2). Classroom observations and documents were used for triangulation. To ensure data validity we sent the transcriptions of the interviews, as well as a within-case description, to the participating teachers to verify whether we had correctly interpreted their words. The teachers stated that they recognised their reading practices in the descriptions.

For the first instance of coding, we designed a coding scheme consisting of the instructional and motivational components drawn from the Reading for Meaning and CORI research base (Table 1). We assumed that these components would provide a valid coding system for discovering complex processes, such as the enactment of motivation enhancement within instructional practices of reading comprehension, especially since the theory of practice of DE is explicitly inspired by the engagement perspective.
Table 1. Coding scheme: Codes and descriptions of the motivational and instructional components of Reading for Meaning

<table>
<thead>
<tr>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivational components</strong></td>
<td></td>
</tr>
<tr>
<td>Relevance</td>
<td>The reading content is linked to student interest, experience, and prior knowledge</td>
</tr>
<tr>
<td>Choice</td>
<td>Student choice of subtopics and texts as well as shared control (by teacher and students)</td>
</tr>
<tr>
<td>Success</td>
<td>Realistic goal setting, appropriate texts, and positive feedback regarding comprehension</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Reading together and talking about text</td>
</tr>
<tr>
<td>Integration</td>
<td>Reading is integrated with domain content matter and linked to other activities</td>
</tr>
<tr>
<td><strong>Instructional components</strong></td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>Providing an abundance of interesting, appropriate texts</td>
</tr>
<tr>
<td>Activity</td>
<td>Providing a variety of reading activities and activities related to reading comprehension</td>
</tr>
<tr>
<td>Strategy</td>
<td>Teaching reading strategies, focusing on metacognition</td>
</tr>
<tr>
<td>Instruction</td>
<td>Strategy-instruction using meaningful texts</td>
</tr>
<tr>
<td>Support</td>
<td>Guided reading and small-group support</td>
</tr>
<tr>
<td>Differentiation</td>
<td>Teacher’s adjustment to reading level and estimation of high-low needs for instruction</td>
</tr>
<tr>
<td>Interaction</td>
<td>Classroom talk and teacher-student dialogue</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Registration of reading development</td>
</tr>
<tr>
<td>Time</td>
<td>Ample time on reading task</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>Introducing new words and vocabulary strategies</td>
</tr>
</tbody>
</table>

Coding was a recursive process, during which we added concepts relevant to the framework of sociocultural theory and DE theory of practice in memos attached to relevant quotations in Atlas.ti (Table 2).

Memos helped the researcher to think about which code to assign to a quotation or about creating a new code. Measures of reliability of the coding process consisted of an audit trail performed by three fellow researchers, who were experts of Developmental Education. They recursively checked samples of coded quotations, and the research team discussed questions and hesitations from memos that had been written during the coding process. Finally, decisions were made jointly on criteria for the final coding.
Table 2

<table>
<thead>
<tr>
<th>Quotation</th>
<th>Code</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Marcia: “We have formulated questions and these questions show</td>
<td>Relevance</td>
<td>inquiry based learning environment</td>
</tr>
<tr>
<td>that they want to know how it all started in the Roman Empire, they are</td>
<td></td>
<td>- students’ questions</td>
</tr>
<tr>
<td>all very curious to know now. And when you introduce such a text (on</td>
<td></td>
<td>- text read for instruction</td>
</tr>
<tr>
<td>Romulus and Remus), it will stick to them much longer than a text about a</td>
<td></td>
<td>corresponds to all students’ interest</td>
</tr>
<tr>
<td>vegetable garden, or whatever, that doesn’t correspond at all to what they</td>
<td></td>
<td></td>
</tr>
<tr>
<td>are in for at this moment.”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After coding, data were displayed for each case in an initial matrix, with quotations and memos listed for each code. For example, for teacher X, all quotations coded with ‘Relevance’ were selected, followed by all quotations coded with ‘Choice’. For this initial matrix, we used the Atlas.ti co-occurrence tree explorer. Because of the interrelatedness of the instructional and motivational components in classroom practice, several codes co-occurred.

Next, the quotations in the cells were reduced by condensing, summarising and packaging until further reduction was impossible without loss of significance and the essence was reached. In this process the condensed content was regularly verified in the original data. This was a recursive process, performed within-case for every teacher individually. The successive stages of reduction were saved in separate files and discussed for audit trail with the fellow researchers. Parallel to this systematic but fragmented procedure, we developed a more coherent picture of the cases reflected in a thick description narrative of every case individually.

Data thus reduced were displayed in a second matrix for cross-case analysis, aligning the cases in rows and the codes in columns. Patterns were determined across cases using Atlas.ti’s co-occurrence table. Components that were aimed at enhancing motivation appeared to be predominant and were strongly interrelated to instructional components. The presentation of the results is therefore organised in terms of the motivational components, embedding the findings on how the instructional components were enacted. Emerging patterns were verified by going back and forth between the descriptions, reduced data, and the original data. In determining patterns, we also looked for differences that could exist between DE teachers in their enactment of meaningful reading and for plausible explanations of these differences. Again, an audit trail was performed by the three fellow researchers.
The thick descriptions quickly revealed a cross-case pattern that disclosed three phases in reading activities (see the paradigm case in Appendix A). This was confirmed by the teachers when they checked the description of their practice.

Results
Before we discuss how a learning environment for meaningful reading is created by the DE teachers, we provide a description of one of the teacher cases, Maureen, who is a very proficient teacher and whose practice gives the most complete picture of meaningful reading in Developmental Education. See Appendix A for a description of this paradigm case. As the way in which a sociocultural interpretation of meaningful reading forms the DE learning environment became visible most clearly in our analysis of the motivational components of the learning environment, these components structure the presentation of our findings. The instructional components are addressed in the context of the motivational components. Every section starts with an example from the paradigm case.

Relevance
Michael brought in a newspaper article on a Dutch astronaut who will soon leave on a mission. A student says: “Maybe we can interview him before he goes into space!” Other students agree and forward their ideas for questions. Teacher Maureen asks: “Who will write down our questions?”

In the paradigm case of Maureen (see Appendix A), the space laboratory represents an interesting sociocultural practice (SCP) for the students in which they will be ‘real’ astronauts. In this context, reading the newspaper article on the Dutch astronaut is highly relevant; it evokes student interest as well as their emotions (identification) and initiatives. The teacher seizes the opportunity to connect it to meaningful writing activities. In the other cases, the SCPs corresponding to the themes are a Roman museum and an environmental brigade. SCPs provide an occasion and purpose for students to participate in real-life situations. This reflects the difference between meaningful reading in DE and the CORI approach. Meaningful reading based on CORI aims at acquiring conceptual knowledge of subject matter, whereas DE aims at learning for the improved participation in society, with the help of communication (reading and writing) and connecting new cultural meanings to personal interests and values.

Another aspect of DE is that the teacher tries to draw out student emotions
and deeper personal motives (affect). Maureen evokes emotion and identification by discussing a video of a boy launching a rocket and reading a story of a little dog in space. Likewise, she appeals to emotions (and fantasy) by the writing assignment ‘my journey into space’. Maureen enhances personal meaning from the start of the project. She incites students’ curiosity and engages them by proposing a variety of activities on the thematic content, such as hands-on experiences in the space laboratory and examining illustrations of satellites. In combination with classroom conversations on short reading texts and children’s questions, she thus (teacher’s quote) “prepares a bath of relevance”. Reading is not only integrated with interesting content, but always embedded in a sequence of activities. Maureen takes a student’s question as the starting point for every activity. She emphasises that reading is a way of communicating with absent agents, answering questions, and enabling performance of the next activity.

Taking relevance as the central point for teaching reading implies that the teacher maintains relevance during the project for all students. To that end teachers employ ways of instruction (such as classroom discussion, small-group activities), when relevant for the activity and experienced as such by the students. In the paradigm case, as soon as Maureen noticed a student’s loss of motivation, she tried to restore it, referring to personal meaning, by asking: “What is your question? What is your goal?” She maintained relevance by emphasising the functionality of reading, as it enables students to participate more effectively in the space laboratory. To that end she also applied dynamic classroom management, alternating expert group work with classroom conversations in which groups reported on their questions, their findings and what they still needed (to know) for their contribution to the SCP.

In the other cases, the teachers proceeded along similar lines. They fostered relevance before introducing reading, and they enriched relevance by participation and affect. But the teachers maintained their own style. For example, Marcia had her students choose a Roman name that she translated into Dutch, and a Roman profession or craft before asking them to look for information to write on ‘A day in the life of a priest, a blacksmith, a soldier’. The Roman name helped the students identify with the subject, thus making reading about Roman daily life meaningful to them. Marcia also invented playful reading activities, such as quizzes, puzzles, and games with dice, thus creating occasions for students to apply a reading strategy that she had modeled. She even staged short drama performances in which small groups acted out the essence of a paragraph, unaware that they were practising a reading strategy (summarising). Leo and Nathalie organised a spectacular start-up activity, having students participate in the work of the local environmental brigade that cleaned the
streets. Cynthia provided creative hands-on activities for almost every reading text, explaining in an interview that meaning is “the essence of the real job” (i.e. learning). She emphasised that she needed student ideas to design the project.

There was yet another pattern of strategy instruction. Teachers provided reading strategies when students needed them for understanding, and so related the use of a strategy to students’ interest and background knowledge, thus increasing relevance. The teacher from the paradigm case was flexible in providing reading instruction. The other teachers planned instruction when they found a text that was interesting for all students but required the teacher to model strategies to be understood. All the teachers seemed to have developed a special ‘antenna’ for signals of involvement and interest among their students. They never delivered instruction over the heads of their students, but made sure that texts were meaningful. For example, Marcia and Cynthia chose a text on Roman history from an ‘ancient newspaper’. Cynthia had even made the paper look ancient, suggesting to students it was an authentic Roman newspaper.

In sum, we have seen how the meaning of relevance is broadened in DE. Relevance is fostered, on the one hand, by student participation in SCP as a context calling for cultural meaning, and on the other hand, by the teacher addressing emotion and motives for personal meaning.

Choice

Dennis is interested in space crafts. He brings from home a Technical Lego space invader that he has constructed himself. He wants to show it to the group and talk about its functions.

Teaching meaningful reading implies providing students with a choice of texts. In DE, however, shared control and autonomy support go further than choosing texts. By encouraging students to bring materials and texts of special interest to them, the teacher creates, together with the students, a rich supply of interesting materials and texts related to the theme. By encouraging students to share their knowledge, ideas, and questions in classroom discussion (sometimes with self-written texts), she helps students understand that there is choice, and allows them to co-determine the course of the classroom activities.

Teacher Maureen promoted that students choose texts corresponding to their questions (interests). If they choose a text that is difficult to understand, she applies guided reading or small-group support. If students choose a text that is too easy for
them, she encourages them to choose a more challenging one. The choices provided by Maureen encouraged students to read several texts and spend much time reading, thus applying reading strategies frequently.

We found the same pattern of providing text choices, shared control and autonomy support with the other teachers, although to different extents. Whereas the teacher in the paradigm case had her students choose their texts across the project and read all the texts herself, the other teachers tended to provide more texts themselves, especially during the orientation phase of the project, with texts for instruction generally being the teacher’s choice. They also seemed to be more directive in guiding student choice during expert group work, ensuring that texts not only corresponded to student interests, but also to their reading level. This suggests that only very proficient DE teachers manage to fully exploit possibilities for shared control and autonomy support, which are important for personal development and active, responsible participation in the culture.

Success

“Less skilled readers can be engaged by experiencing small-scale successes when retrieving answers to their questions, when going through a text and getting enthusiastic about what they find out.”

(Teacher Maureen in an interview)

Maureen was very alert to student success in reading. She focused on identifying individual students’ Zone of Proximal Development, using frequent conversation to diagnose what students could already read independently and where they needed support. She read all the texts chosen by students to anticipate difficulties individual students might encounter when reading their text.

Maureen strongly differentiated among students to foster success. She showed skillful adjustment to reader needs in her guided reading of the news article on the Chinese space laboratory, as well as in scaffolding reading strategies in small-group support. To encourage success in less-skilled readers, she planned her scaffolding support to specific students in her journal. In addition she created challenging activities for stronger readers.

Moreover, her dynamic organisation of reading activities (using a kitchen timer) contributed to success: for example, when dealing with a child’s question of whether there is life on the moon, she organised successive short activities, such as forwarding arguments pro and con, listing them schematically, followed by reading
texts to check their validity. Maureen not only applied, but exceeded Guthrie’s conditions for success, which consist of enhancing self-efficacy by providing appropriate texts, realistic goal setting, and positive feedback on successful comprehension. In DE, fostering success in understanding is enhanced by differentiation, by teacher focus and skill to assist students in reading texts meaningful to them beyond their actual individual capacities. In addition to students’ successful understanding from text, mostly reported in written text, its use as newly constructed knowledge for the entire classroom community is valuable.

The focus on successfully understanding text content was found for all teachers whom we studied. Without exception, they used conversations with students for diagnosis and identification of their new learning needs and provided reading instruction and support flexibly (i.e. when required for student understanding). Marcia showed great sensitivity to student engagement and flexibility, switching to whole-group instruction (modeling), when students were no longer engaged during a small-group activity (which she interpreted as a signal the activity was too difficult). Cynthia focused on results among less-skilled readers and those having concentration problems: She engaged her students in reading activities that they could perform successfully, enabling them to make small progress steps in development. To do so, she applied differentiation at reading level as well as for content.

The teacher in the paradigm case was the only one using a journal to systematically plan and evaluate her scaffolding support of specific students. The other teachers reported in interviews that they could not find the time required for systematic registration but relied on their knowledge of the capacities of their students from conversation to apply differentiation.

Student progress was evaluated with the students personally, but also extensively commented upon in student portfolios in which areas for special attention were indicated (formative evaluation). In the interviews teachers valued this kind of evaluation more than student achievement on regular tests. Portfolios served as showcases for students on the one hand, and as reports for their parents on the other. Teacher Maureen processed very systematically, teacher Cynthia used texts written by students for her evaluation. The other teachers, however, hardly registered these, but reported in interviews that they kept things in mind.
Collaboration

Elsa is the ‘owner’ of the question about life on the moon; therefore she takes the lead in the classroom conversation about this subject. Teacher Maureen shows real interest, listening attentively to every student’s ideas and arguments.

Maureen created a community of inquiry in which students were active participants and she was a partner. When students needed support, she became a more knowledgeable partner, but was an equal partner when students were able to understand text in collaboration with peers. When adopting the role of an equal partner, Maureen shared control, encouraged students to address each other directly, and stimulated their initiatives and their ownership of questions. This role is also reflected in her tone, which is always conversational, and by her talk, which is tentative and often problem-setting. She demonstrates that she does not know all the answers herself. She stimulates student thinking by asking higher-order questions such as: “How can we find out?” Frequent classroom conversation about (expert group) questions, answers, and texts inspired students to share interesting texts with others and reflected collaboration of the entire community to participate in the socio-cultural practice of the space laboratory.

In the literature on the CORI approach, collaboration does not necessarily include the teacher in a community of learners. It refers mainly to collaboration between peers, and is considered a way to enhance social motivation. In DE, however, collaboration is more than enhancing social motivation for reading; interaction with others (including the teacher) and participation are key for making sense and meaning. In the paradigm case, Maureen brought frequent changes to small group composition and size “to get to know each other in different ways,” as she stated in an interview. She described the essence of reading as follows: “A person reads to find an answer to questions and discuss it with others”, thus presenting reading as a part of a communication process.

Communication with others is crucial in DE, and students communicate with authors as absent partners. The teacher also stimulates them to communicate among themselves by encouraging students to think and express their thoughts and ideas in conversation, as well as by making them put into words their ideas and understanding in written text. By valuing individual student questions, she contributes to their development.

All teachers in our study organised many collaborative reading activities. They also encouraged collaboration in classroom conversation, although there was a clear
pattern of collaboration being most intense in expert group inquiry. All DE teachers created a community, and adopted the role of partner, although to different extents. The teacher in the paradigm case adopted the role of equal collaborating partner in small-group support as well as in classroom conversation. Other teachers generally adopted the role of more knowledgeable partner, especially during small-group support. Teachers Maureen and Marcia were remarkably skilled in classroom management, bringing frequent changes to small-group composition and size.

These differences may have been because of group composition: Leo and Nathalie had multi-ethnic classes and showed more directive behaviour in group composition. In an interview they explained this behavior: Students’ home cultures would lead them to expect leadership and authority from the teacher and discourage them from taking initiatives. Teacher Cynthia was also more directive in group composition. She explained that it enabled her to ensure that every student made progress, because a relatively high number of students in her class had behavioural and learning disorders.

Integration

"Every activity in this classroom is an activity in which students talk, listen, read and write." (Teacher Maureen)

In the CORI approach, integration refers to the instruction of reading strategies being integrated in subject-matter instruction (i.e. associated with texts that students have to read). In DE, however, integration has an extra dimension: all classroom activities, including reading, are centred on the theme of the sociocultural practice, making subject matter meaningful. In the paradigm case, the space laboratory was the means for integrating all activities, including activities aimed at broad goals, such as experimentation and model design. Students read instructions (in order to perform experiments) and informational texts (in order to design an experiment on solar energy or a satellite).

Consequently, reading comprehension is not isolated as a separate matter and reading strategies are not treated as an isolated goal (systematically sticking to a timetable), but are an integrated part of the activities (a tool for making sense of texts and practices). In the same way, vocabulary acquisition is completely integrated. In the cases studied, teachers introduced new vocabulary into the theme in a variety of ways and adjusted to student needs. In the culturally mixed schools, a great deal of explicit attention was paid to vocabulary, along with games and quizzes in which students had an active role. In all cases studied, words were visualised on the wall.
Full integration of all activities around content in DE enabled the teacher in the paradigm case to create a great deal of time on task for reading. Teachers estimated the time spent on reading as between 25-50% of the school day, depending on the nature of the theme. Lesson plans did not provide enough information to verify this, but showed that reading was the major source of information for inquiry.

Another aspect of integration in DE is the close connection among all types of language activities, which are considered forms of communication: talking, listening and, particularly, reading and writing. In the paradigm case, the connections between reading and writing were frequent and logical; for example, in a series of short reading and writing activities, students wrote down their trial answers, which were later discussed in the classroom. In an interview, teacher Maureen explained: “Writing is a way of understanding what you have read”. Reading and writing are functionally embedded in other activities. In the space laboratory, students first read to be able to perform an experiment, next they performed the experiment, and then they described it to inform others.

Through cross-case analysis, when comparing the paradigm case (Maureen) with the other DE teachers, we discovered similar patterns. All teachers connected reading and writing activities, writing not only followed reading, but also preceded reading. However, the teacher in the paradigm case connected reading and writing more systematically and in more different ways than the other teachers.

Conclusion and Discussion

In this study, we wanted to gain insight in learning environments for meaningful reading in Developmental Education (DE), a pedagogical approach based on Vygotskian theory. Below we present our conclusions about the characteristics of such learning environments in terms of the motivational components of the DE learning environment. Relevance is clearly the most central of all motivational components in DE, but the interpretation of relevance could be qualified as broader than in the CORI approach of Reading for Meaning (Guthrie et al. 2007). Rather than using (hands-on) activities as a means to motivate students to acquire reading skills and knowledge, DE aims at reading what is relevant because it is a functional way of communication in the sociocultural practice that materialises the theme on which the students are working in a real-life learning environment. On the one hand, it is functional for students’ participation in a culturally meaningful practice; on the other hand, the reading should meet students’ deeper personal motives, values, and emotions (thus broadening the relevance for personal meaning). This corresponds to Smagorinsky’s (2011, p. 103) view of reading that “inscribing oneself in a
text (...) enables access to content and material for generating meaning”. It involves complex thinking, and can contribute to identity development. All DE teachers in this study aimed at ensuring that the texts used were personally meaningful to the students. Teachers seized opportunities for instruction and support when a strategy was needed for understanding, thus providing meaningful strategy instruction. Also, DE teachers seemed to have developed over the years a special ‘antenna’ to detect signals of involvement and interest by their students. This focus seemed to entice them to maintain relevance for all students in the course of the project.

In CORI, choice refers to sharing control and supporting student autonomy in reading. In DE, however, shared control and autonomy support go beyond choice of texts. All teachers in this study allowed students to co-determine the course of the classroom activities, so that students would feel their interests were valued. In this way, teachers not only stimulated students to read texts, but encouraged their personal development; by choosing subjects and texts of interest, students learned about the subject matter and about themselves. Students were also allowed to read frequently and for longer if they wanted to. This enabled students to apply strategies frequently. Although all DE teachers provided choice of text, they did so to different degrees. An explanation of the differences could be that providing choices of texts puts high demands on teacher competence because it entails different students reading different texts.

In DE, teachers aim to foster success by assisting students when reading texts that go beyond their actual level of reading ability. DE teachers in this study frequently used conversations to gain insight into students’ reading levels, motives and needs. This would enable them to determine whether a text was appropriate for student reading levels and to provide strategy instruction and support when needed for understanding. In this way, teachers can raise students’ reading level to their potential. This is the core of the Vygotskian concept of ‘zone of proximal development’. It reflects Smagorinsky’s (2011) view of expert teachers who make decisions locally and relationally based on careful and systematic observation of students. Smagorinsky (p. 108) considers this “situated action (...) at the heart of a Vygotskian approach to literacy instruction”. Dynamic switches between instruction and support necessitate strong classroom management skills. Systematic registration for planning adjusted scaffolding and evaluation was found only with one teacher. Other teachers had difficulty in finding the time needed to register systematically.

Collaboration usually represents small group work (enhancing social motivation) and classroom talk. All DE teachers in our study organised a great deal of collaborative reading activities and discussion about text. In DE, collaboration ultimately rep-
resents interaction and participation of teacher and students together in a community of inquiry, investigating meaningful questions together. Collaboration interpreted in this way is considered to contribute to agency and citizenship (by participation in sociocultural practices). Teachers and students engage in what Mercer and Littleton (2007) describe as ‘exploratory talk’ in collaboration. In doing so, they learn to use a text as a ‘thinking device’ and generate ‘new understanding’ that is superior to the previous understanding of everyone involved (Wells and Mejía-Arauz 2006). Teachers in this study generally adopted the role of a more knowledgeable partner, especially during small-group support. Here also there were differences among teachers that could be explained by varied mastery of teaching skills, but also might be related to the student group’s composition. One teacher in a multi-ethnic school reported that he had become more directive in small-group composition over the last years, because students in his group took few initiatives in collaboration. He supposed there was a conflict between the school culture asking students to take initiatives, and the home culture often which is often more authoritarian (Pels and Nijsten 2006). Similarly, another teacher with a relatively large number of students with learning and behavioural disorders was also more directive in group composition. She explained that it enabled her to ensure that progress was made by every student.

In DE, integration also goes beyond the CORI approach in which it means that instruction of reading strategies is integrated in specific subject matter instruction (science, history or literature). All teachers in our study fully integrated reading and reading instruction in thematic, content-based inquiry activities that were contextualised in a sociocultural practice and connected to a number of cognitive domains. Teachers thus created opportunities for students to engage their interest, feelings and values as well as their cognition (Wells 2002). Reading was promoted as an act of communication (among other language activities such as listening, talking, and writing) that was consistently directed at the investigation of meaningful problems. The teachers provided instruction in reading strategies and introduced new vocabulary flexibly as it was needed for student understanding. In this way, reading was a fully integrated, functional and indispensable activity.

Our analysis of the way in which reading comprehension of informative texts is approached in DE provides insight into the characteristics of powerful learning environments for reading comprehension inspired by a Vygotskian approach. The analysis helped to clarify how teachers create a learning environment in which the teaching of reading becomes personally and culturally meaningful for students as a way to improve participation in cultural practices. Although reading for meaning usually refers to helping students to relate to the reading content, in DE, meaning
is the driving force for all learning. It requires intellect, action and also emotions aiming not only at the construction of knowledge, but also at the development of the whole person through participation in historically situated, jointly undertaken activities that are personally significant and socially meaningful.

There were differences among teachers of DE. Although all DE teachers focused on reading for meaning from a sociocultural perspective, they each had his/her own style, talents, and difficulties. Contextual factors in the learning environment, such as student group composition, also could influence teaching meaningful reading. Nevertheless, all experienced DE teachers in our study managed teaching reading (strategies) in a functional, meaningful way, aimed at helping students understand why they learn reading strategies and what these strategies enable them to do. We only found slight adaptations of the approach towards multi-ethnic groups and children with special needs. This makes it plausible to think that teachers of DE are led above all to respond to individual students’ needs and opportunities for development. In doing so, teachers’ practices are in line with Vygotskian theory, where students’ zone of proximal development is leading for educational strategies.

All this leads us to conclude that teachers of DE are focused on maximising meaning from text for their students. It may be evident that creating a learning environment for meaningful reading from a sociocultural perspective puts high demands on teacher competence. As already stated by Allington (2002) and Smagorinsky (2011), reading for meaning can never be implemented by only carrying out a set of instructional methods. Teachers not only need to have a good overview of the curriculum content, but also resourcefulness in the design of both learning activities and the learning environment. Moreover, teacher qualities, such as flexibility, dynamic class management skills, sensitivity and skilled adjustment to student needs, are paramount for teaching reading comprehension in DE across the curriculum. But most of all, teachers must have the courage to have confidence in their judgements of their students’ needs and in their capacities to meet these needs and to share control in order to embed reading in the sociocultural practices which are meaningful to their students. These teacher qualities could be strong determinants of proficiency in DE and for creating learning environments in primary schools that promote the development of reading for meaning in all students.

The findings of the present study could have implications for initial and in-service teacher training, not only for DE teachers but perhaps also for other educational approaches. The creation of learning environments that contribute to the process of maximising meaning from informative texts demands more than being proficient in teaching reading as a discrete skill. It encompasses attitudes and qualities that make
teachers able to, as teacher Maureen called it, “prepare a bath of relevance” when teaching reading. This study shows how expert teachers manage to achieve this goal and give shape to reading as a cultural practice within their classrooms.

This study has some limitations. Firstly, our research required a small sample and a selection of expert teachers. This limits the generalizability of the findings, however. We have not been able to research all schools of Developmental Education in the Netherlands, and there may be teachers that are less successful in bringing DE principles into practice. Like Smagorinsky (2011, p. 108), we are “not taking the romantic view that all teachers are wonderful”, although teachers who opt for DE deliberately aim at a reflective practice as presented in this paper. In addition, we have only been able to observe the learning environment in every classroom during a limited number of sessions of reading instruction and activities.

A second limitation is that we did not investigate actual student learning and learning outcomes. There is evidence that learning environments aimed at enhancing motivation have a positive effect on understanding text and on learning outcomes (Guthrie et al. 2007). A pressing question for future research is whether DE, through maximising meaning in reading by enriching the construct of ‘meaningful’ also enhances reading motivation and reading achievement and, by extension, whether this approach brings about the broader educational goals such as learning to reflect, argue and experiment. The greatest challenge for future research, however, is whether the DE approach, with its emphasis on making meaning, contributes to the ultimate goal of supporting agency and citizenship of students.

A related question for future research is whether the DE approach has differential effects on the reading outcomes of students with various backgrounds. Policy makers assume sometimes (Tesser and Iedema 2001) that innovative approaches like DE are suitable for students whose parents are well-educated native speakers of the language of instruction in school, whereas students from families with a different ethnic-linguistic background or lower socioeconomic levels would benefit more from a more programmatic approach. The assumption is that these students most need standardised structure and instruction. But it is still an open question as to whether the dynamics of maximising meaning in the teaching of reading that underlie the processes of the activity approach could equally contribute to successful learning environments for all students.
CHAPTER 3

Reading for meaning: the effects of Developmental Education on motivation and achievement in reading informative texts in primary school¹

Abstract: Content-oriented reading interventions that focus on the integration of motivational enhancement and strategy instruction have been found to have positive effects. Developmental Education (DE) in the Netherlands is an innovative content-oriented approach in which reading is an integral part of an inquiry-oriented curriculum. Reading for meaning is a central pursuit, and strategy instruction is functionally integrated. This study differs from previous studies in three aspects. Firstly, instead of interventions, two types of existing practices were compared: the DE approach and a textbook-driven Programmatic Instruction approach (PI). Secondly, this study accounted for classroom influences by conducting multilevel analyses. Thirdly, control variables, i.e. ethnic background, home language, SES, non-verbal IQ, gender, vocabulary and decoding skills, were taken into account.

The effects of both approaches were investigated in terms of reading comprehension, knowledge of reading strategies and reading motivation. In a pretest-posttest natural two group design, tests and questionnaires were administered to 570 grade 4 students in 24 schools. The outcomes that resulted from the DE approach were as good as those from the Programmatic Instruction approach. These results are discussed in relation to previous studies that have reported better outcomes of content-oriented reading approaches than traditional and strategy reading approaches.

Keywords: reading motivation, reading comprehension, reading strategies, Developmental Education, reading for meaning

Introduction
Reading for meaning has been revealed to be essential to the effectiveness of teaching reading comprehension (Snow 2002). It is the point of departure for content approaches of reading. The central pursuit of a recent innovative content approach, Concept-Oriented Reading Instruction (CORI), which was developed by Guthrie and Wigfield (2000), is to foster an in-depth understanding of the conceptual content of the text through the avenue of active engagement of the student. Extensive research has revealed that CORI interventions have positive effects on reading motivation and reading comprehension compared to approaches that are based on traditional or mere strategy instruction (Guthrie and Klauda 2014; Guthrie, McRae, and Klauda 2007; Guthrie et al. 2004; Wigfield et al. 2008).

Content approaches of reading may differ in the scope of their curriculum. A content approach like developmental education (DE) in the Netherlands has a broad scope, being embedded in a pedagogical concept which covers all learning activities. Teaching reading in DE schools (about 5% of the primary schools in the Netherlands), is integrated in a play and inquiry curriculum from kindergarten to the highest grade of primary school, and related to other learning activities within topical themes of interest. Since reading activities in DE are inspired by the CORI characteristics (see below), there is reason to assume that DE will also yield positive results compared to the regular textbook-driven programmatic approach in Dutch schools in which strategy instruction has a main role (see below). However, other Dutch studies that were inspired by CORI have failed to produce convincing positive effects. In Aarnoutse and Schellings’ (2003) intervention study, in which students in grade 3 were challenged to solve a self-formulated problem by reading all types of written resources, the experimental group significantly outperformed the control group in reading motivation and knowledge of reading strategies. However, no effect was found on reading comprehension. Droop et al. (2012, 2016) researched an intervention in grades 3 and 4, in which strategy instruction was integrated into a meaningful context. Compared to current Dutch programmes for reading comprehension, a positive effect was found on knowledge of reading strategies, but no differences were found in reading motivation or reading comprehension of informative texts. In this study, we are interested to find out whether the positive effects of the CORI interventions will be found in the context of an existing, all-encompassing practice like DE.

A more practical motivation for our research is the scepticism in Dutch educational policy about innovative practices such as DE that do not programme the learning process in a detailed manner through strict adherence to textbooks. Although schools in the Netherlands are free to decide how curricula are taught, the pressure
on schools to use a reading programme that is based on a textbook was increased by a parliamentary investigation committee that critically evaluated a number of educational innovations (Dijsselbloem 2008). Similarly, a decline in the Netherlands' position in PISA rankings (OECD 2010) has enhanced the emphasis on the use of textbook-driven programmes to teach basic reading knowledge and skills. Tendencies toward greater performance accountability in the Netherlands have encouraged schools to adopt reading programmes that are based on textbooks, as these programmes are better suited to the standardised tests that schools are required to use.

Hence, the aim of our research was to establish the effects of reading for meaning as enacted in two existing approaches: DE and the textbook-driven programmes to teach reading, which we will refer to as PI.

Theoretical background

Content-oriented and strategy approaches to reading comprehension

Meaning construction is considered the core of reading. In the review of the Rand Reading Study Group, reading is considered ‘the process of simultaneously extracting and constructing meaning through interaction and involvement with text’ (Snow 2002, 11). In this review a distinction is made between means for understanding, like the use of strategies, and the main purposes of reading: ‘gaining meaning and gaining knowledge’ (Snow 2002, 40). A challenge in reading instruction is to find the optimal balance between the instruction of the means, of which strategy instruction is most prominent, and the focus on content. The evidence is growing that both content and strategy approaches are effective in teaching reading comprehension. In the following, we shortly discuss the theoretical basis of these approaches, and then we go into the programmes investigated in this study. Regarding content approaches, we focus on CORI, since DE agrees to a great extent with this innovative content approach.

Content approaches to reading are based on theoretical models of text processing, emphasising the construction and integration of meaning in a coherent whole to gain knowledge, and on socio-cognitive perspectives involving shared meaning making (McKeown, Beck, and Blake 2009). In CORI, this theoretical model is included in an ‘engagement perspective’, in which engagement processes are assumed to mediate the effect of instructional classroom practices on reading comprehension to a large extent. Reading engagement is defined as ‘interacting with text in ways that are both strategic and motivated’ (Guthrie, Wigfield, and You 2012, 602). The view is that, if reading practices in the classroom provide students with content that is meaningful to them and relevant to their lives, they are motivated to read. This motivation, conceived as student’s goals, values and beliefs with regard to the reading activity,
is thought to energise and direct the cognitive behavioural engagement processes like the use of strategies involved in reading. Comprehension strategies are procedures and routines that readers themselves apply across a number of different texts (NICHD 2000). The effortful and deliberate processes of strategic behaviour in their turn lead to understanding a text and, ultimately, to reading competence (see for a fine-grained discussion and evidence Guthrie, Wigfield, and You 2012). Motivation is enhanced by a number of motivational practices, such as (1) the integration of reading and strategy instruction in domain-specific content matters (2) the provision of interesting texts to strengthen relevance and the value of reading, (3) text choices to support autonomy and intrinsic motivation, (4) positive feedback regarding comprehension for self-efficacy, (5) the organization of collaboration to enhance social motivation in sharing cognitive activity (Guthrie and Klauda 2014; Guthrie et al. 2004).

Reading strategy approaches are rooted in theories about the importance of active involvement, self-regulation, explicit knowledge and use of specific mental strategies like identifying a goal, monitoring and evaluating. Motivation is thought to stem from satisfaction and belief in personal efficacy. Direct instruction of strategy knowledge is central to strategy approaches (McKeown, Beck, and Blake 2009; Zimmerman 2002). Solid evidence is found that the use of a combination of strategies improves reading comprehension compared to traditional approaches (NICCHD 2000).

In the Netherlands content and strategy approaches are more or less recognizable in DE and PI methods, respectively. PI is characteristic of the current situation of the large majority of Dutch schools and involves both traditional elements (exercises for vocabulary and textual skills like pronominal procedures) and insights from theories of the strategy approach. The reading programs in PI differ in type and number of reading strategies, time for reading, proportion of classroom instruction, individual exercises or collaboration, and type of texts. However, Heesters et al. (2007) found no significant differences in effectiveness for these programmes. The common characteristic of all programmes is the prescribed, pre-planned character of the lessons relating to organisation, selected strategies, instruction and texts (see Figure 1). The reading programs consist of a grade-levelled series of textbooks that are produced by an educational publisher. Teachers are provided with a teacher manual for guidance that largely prescribes how each lesson should be taught and students have booklets with texts and exercises. The pre-planned lessons are provided to the entire class and are scheduled on a weekly basis. PI is focused on direct instruction; however, the teacher’s manual mostly does not provide direct clues about the didactics of explanation and explicit modelling (see also Droop et al. 2016 for these practices in Dutch regular schools). It is common practice in all these programmes
to instruct students to apply the reading strategies before, during and after reading. Motivating students is not a prominent issue since texts are fixed for all pupils. In order to make texts interesting, subjects are chosen which are supposed to fit in with the students’ everyday world.

In DE, reading is an integral part of an all-encompassing pedagogical approach in which agency and citizenship are the main objectives of education. The desire for meaning is considered to be the engine of all learning. DE is based on Cultural Historical Activity Theory as conceived by Vygotsky, Leont’ev and their followers (Lee and Smagorinsky 2000; Van Oers et al. 2008; Wells and Claxton 2002). The context for development is the interpersonal activity, i.e. the students’ interactions in the context of social activities in which students bring in their own voices and histories. Development is seen as a gradual process of identity formation through participation in cultural practices (like for instance literacy practices) with more knowledgeable others. DE seeks to facilitate the development of students’ identities as active and responsible participants in society (Van Oers 2009; Van Rijk, Volman et al. 2016; Pompert 2004; Wardekker 2012). The DE classroom is a community of learners in which inquiry is the core activity in the higher grades (cf. Wells 2000). Reading informative texts is embedded in this inquiry curriculum as a resource for problem solving; there are no reading activities that do not have a question or a purpose. Reading is seen as a form of communication that is driven by students’ research questions, and texts function as resources to find answers to those questions. Oral interaction and writing are inseparably connected to reading, and from the beginning in kindergarten, literacy makes sense to students (Pompert 2012). In DE, teachers are educational designers. They create meaningful thematic units in which all activities relate to the theme and emerging problems are interesting to students. Teachers seek to involve all students in reading texts that correspond to their self-generated problems, interests and reading levels. Students are encouraged to bring relevant texts from home or the internet into the classroom and to share their ideas and thoughts. They perform inquiries in collaborative expert groups and visualize their questions in ‘wall posters’. They may interview experts in their own environments or invite them to the classroom, or may set up an experiment to find answers. Direct strategy instruction and teaching of vocabulary and textual skills is an integrated part of the activities, and whole classroom instruction is alternated with flexible instruction adjusted to the needs of the individual student or expert group. Students write down answers to their questions to inform each other. Classroom discussions are occasions for collaborative thinking about problems and the student’s answers, and inspire the students to revise their texts. Together with other products from the thematic unit,
### Programmatic Instruction

| 1 | Reading is taught as a **separate discipline** in the curriculum. In addition to the reading programs, programs for geography, history and science are used, but these do not contain explicit reading instructions. |
| 2 | **Strategy instruction is a main focus** of reading programs (knowledge and application), and is considered as a main mean for reading comprehension. |
| 3 | Strategy instruction is **programmed**: strategies are taught following the order of the textbook. Instruction is provided to the **whole-class**, following **standard procedure**: the teacher provides instruction, students answer written questions about the text. The teacher helps students individually. Instruction involves explicit instruction of strategies (known as ‘direct instruction’ in the Netherlands). |
| 4 | Texts are **fixed** (textbook-driven), all students read the same texts. |
| 5 | Self-efficacy is enhanced by **pre-programmed differentiation**; positive feedback. |
| 6 | Students **mostly** work **individually** and sometimes collaboratively. |
| 7 | Time is **scheduled**: 2 lessons of 45 minutes per week (N.B. both informative and fictional texts). |

### Developmental Education

| 1 | Reading is **integrated** in meaningful (thematic) content and activities in which historical, geographical and science perspectives are integrated. |
| 2 | **Content is the focus** of reading, strategies are considered as functional tools for text comprehension. |
| 3 | Strategy instruction is provided **flexibly**, when needed for students’ comprehension of a text. The teacher provides instruction **flexibly** to the **whole-class** when the text’s content is relevant for all students, to **small (expert) groups** when strategies are needed for comprehension of the text’s content. Instruction involves **demonstration, modelling, and dialogue** about solving problems regarding the content of the text. |
| 4 | Texts are provided by the teacher or chosen by students. Text **choice** is based on interest (content), as resources to find answers to students’ questions. |
| 5 | Self-efficacy is enhanced by selection of appropriate texts by the teacher and positive feedback. |
| 6 | Students often **collaborate** in discussions and presentation of findings of the **expert groups**. |
| 7 | Reading is organized on a daily basis, integrated in other activities, **without a fixed time schedule**. |

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**Figure 1. Characteristics of PI and DE**
the revised texts are prepared for presentation, often to an audience of parents and students from other groups (Van Rijk, Volman et al., 2016). From this overview, it may be clear that DE incorporates motivational practices that are similar to those of CORI (Guthrie et al. 2004). In Figure 1 we describe the differences between PI and DE.

This research
This research aims to establish the effects of reading for meaning as enacted in two existing approaches, DE and PI. The focus is on informative texts, since this type of text is essential for students’ future school careers. On theoretical grounds, the overall assumption is that DE, with its focus on meaning, adds value to reading instruction, and motivates students to read informative texts. On empirical grounds (CORI), the assumption is that DE, by providing a combination of motivation enhancement and strategy instruction, leads to better reading comprehension than PI, where motivation is not a prominent issue.

This paper aims to contribute to the insights from former studies in three ways. First, rather than examining an intervention, two types of existing practices were compared: DE characterised by teaching reading in which meaning and engagement is considered the core of reading, and PI by textbook-driven, prescribed and pre-planned instruction of strategies, text structures and vocabulary. Second, this study accounts for contextual (classroom) influences via multilevel statistical analyses. Third, control variables that may account for variance in students’ reading comprehension, motivation and knowledge of reading strategies were taken into account. Research has shown that IQ, gender, and social and ethnic background are related to students’ reading motivation and/or reading comprehension in the upper grades of primary education. Van Elsäcker (2002) reported an effect of non-verbal IQ on reading comprehension. Recent studies have found that girls have more favourable intrinsic/autonomous motivations for reading than boys, and that students of ethnic minority groups have higher reading motivation (De Naeghel and Van Keer 2013; Hornstra, Van der Veen et al. 2013). In contrast, ethnic minority backgrounds and home (native) languages may lead to smaller vocabularies among children for whom the language of the reading texts is a second language (De Naeghel and Van Keer 2013) which has an effect on reading comprehension (Babayiğit 2014; Snow 2002; Van Elsäcker 2002). Furthermore, decoding skill is generally known to influence reading comprehension (Snow 2002).

The main question of the present study was the following: With respect to informative texts, what are the effects of the DE approach compared to those of the PI approach in terms of reading comprehension, knowledge of reading strategies and reading motivation in fourth-grade primary education?
Chapter 3

The research questions were as follows:

1. Do reading comprehension outcomes of students in the DE approach and students in the PI approach differ?
2. Does the knowledge of reading strategies among students in the DE approach and students in the PI approach differ?
3. Does the motivation for reading informative texts differ among students in the DE approach and in the PI approach?
4. How do variables that are related to reading (vocabulary and decoding skills) and to students’ background (non-verbal IQ, ethnic background-home language, SES-parental education level and gender) influence the outcomes for reading comprehension, strategy knowledge and motivation?

Methods
Design
This study employed a pretest-posttest natural two group design, because we wanted to find out how student reading comprehension and reading motivation would evolve over time, in the course of a school year, for two different approaches, i.e. DE and PI. The innovative DE approach is compared with the PI approach, which is default in the Netherlands.

The pretests were administered in the beginning of the school year (September and October), and the posttests were conducted at the end (May and June). At both measurement time points, tests of reading comprehension, decoding skills, and reading vocabulary were administered to the students, and students completed questionnaires about reading motivation and knowledge of reading strategies. Non-verbal IQ tests were administered only at the pretest. No more than two sessions per day were scheduled to minimize test weariness.

Participants
As schools generally begin teaching students to read informative texts at the age of 9 or 10 in the Netherlands, this study was performed in grade 4. Fourth-grade students (N = 570) and their teachers from 24 schools participated (one class per school). The DE group (n = 258 students) consisted of 12 classes and had 16 teachers. Five classes combined students from the third and fourth grades, but only fourth-graders participated in this study. The PI group (n = 312 students) consisted of twelve fourth-grade classes with 15 teachers. Schools and teachers voluntarily participated in this study, and informed consent was obtained from the students’ parents.
First, the schools for the DE sample were selected with the help of the register published by the Inspectorate of Education and acknowledged as DE schools by experts in this field. The selection criterion was that schools had adopted the concept of DE. These schools have organised education into thematic units and provided meaningful text reading (see Figure 1 for the main characteristics of DE). The participating teachers were required to have at least two years of experience with DE in grades 3 and higher. We purposefully varied our sample population in terms of urban, suburban and rural situations, high and low SES areas, and ethnic minority compositions.

Next, the PI sample was selected. The selection criteria were (1) the use of a modern reading program that was based on textbooks that are currently used in Dutch primary education, and (2) that the teachers had at least 2 years of experience in grades 3 and above.

Table 1. Overview of the background characteristics by approach

<table>
<thead>
<tr>
<th></th>
<th>Developmental Education (n=258)</th>
<th>Programmatic Instruction (n=312)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>girl</td>
<td>139</td>
<td>53,9</td>
</tr>
<tr>
<td>boy</td>
<td>119</td>
<td>46,1</td>
</tr>
<tr>
<td>SES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>upper</td>
<td>171</td>
<td>66,3</td>
</tr>
<tr>
<td>middle</td>
<td>15</td>
<td>5,8</td>
</tr>
<tr>
<td>low</td>
<td>19</td>
<td>7,4</td>
</tr>
<tr>
<td>missing</td>
<td>53</td>
<td>20,5</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>native Dutch</td>
<td>177</td>
<td>68,6</td>
</tr>
<tr>
<td>non-native Dutch</td>
<td>14</td>
<td>5,4</td>
</tr>
<tr>
<td>mixed</td>
<td>60</td>
<td>23,3</td>
</tr>
<tr>
<td>missing</td>
<td>7</td>
<td>2,7</td>
</tr>
</tbody>
</table>

Note: For the purposes of analysis, the data regarding ethnicity and home language were combined into one variable (ethnicity) that was then subdivided into the following three categories:
1) native Dutch: both parents were native Dutch, and the home language was Dutch;
2) non-native Dutch: both parents were non-native Dutch, and they spoke a language other than Dutch at home.
3) mixed: one parent was native Dutch, one parent was non-native Dutch, and two languages were spoken at home; i.e., Dutch and an additional language.
Chapter 3

The selection criteria of PI and DE were discussed with the principals and teachers during the recruitment process. Only schools that met the criteria were selected for participation.

The PI sample was matched to the DE sample at classroom level in terms of the following set of relevant characteristics: proportion of boys and girls, SES of students (parental education level), ratio of students from ethnic minority groups (parental country of origin), and percentage of another home language (the language predominantly spoken at home) than Dutch.

Data regarding the background characteristics of the students were collected from the school administration and included student gender, SES (parental education level), and ethnicity (parental country of origin) (Table 1). The SES categories corresponded to the following levels of the International Standard Classification of Education (UNESCO 2006): primary education, lower secondary education, and upper secondary education. The Dutch government provides school funding for students with less-educated parents. We followed the government classifications, to distinguish the high SES group from other (i.e. middle and low) SES groups. To determine ethnicity, we asked students at the posttest to provide the country of origin of their parents because the schools used different systems for the registration of ethnicity. Since the extent to which the language spoken at home may be a predictor of reading comprehension, we also asked them about the language(s) spoken predominantly at home (Dutch, another language or a mix of both).

As we wanted to verify that reading instruction was provided as intended in both DE and PI, a questionnaire was used to determine the extent to which the participating teachers showed features typical of DE in their reading instruction of informative text. All teachers, of both DE and PI, have filled in the questionnaire. Additionally, during data collection, a researcher was present five or six times in every classroom. Informal observation of the classrooms and informal conversation with the teachers offered an extra opportunity to verify the distinctive features of specific reading programmes: the types of text (textbooks for PI, variety of meaningful texts for DE), the way in which teachers provided reading instruction (teacher manuals for PI, flexible instruction adjusted to students’ level from teachers for DE), and the classroom context (no extra texts visible in PI classrooms vs. a variety of texts, questions (wall posters) and collaboration in DE classrooms). DE teachers designed their teaching and PI teachers adhered closely to the program, in accordance with the selection criteria.
**Instruments**

All tests used in this study were national or international standardised tests for which the validities were previously established.

*Reading motivation* was measured with a questionnaire that consisted of 46 items that were spread over seven sub-scales that were validated or tested in previous research. Students were asked to indicate the extent to which each item applied to them on a five-point scale (1 = does not suit me at all; 5 = suits me very well), or a three-point scale (1 = always, 2 = sometimes, 3 = never), depending on the origin of the scale.

The subscales used were as displayed in Table 2.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Nr of Items</th>
<th>Measures the extent to which students</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curiosity</td>
<td>7</td>
<td>Read out of curiosity or interest for certain subjects.</td>
<td>There are different subjects that I like to read about.</td>
</tr>
<tr>
<td>Preference for challenge</td>
<td>4</td>
<td>Are ready to make an effort to understand a difficult text.</td>
<td>I like to read a rather difficult book.</td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td>6</td>
<td>Read because they have to, or because they will be rewarded.</td>
<td>I am going to read because I will get a high grade at school.</td>
</tr>
<tr>
<td>Intrinsic value</td>
<td>10</td>
<td>Read informative texts because they like to read them for reading itself.</td>
<td>I like to read for subject matters like History and Geography.</td>
</tr>
<tr>
<td>Utility value</td>
<td>6</td>
<td>Read because they find it useful.</td>
<td>In your spare time it is useful when you are good at reading.</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>6</td>
<td>Are confident about their ability to understand a text.</td>
<td>I am good in reading.</td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td>7</td>
<td>Read as a means to gain knowledge, to reach a goal.</td>
<td>If I want to know something about my hobby, I read about it.</td>
</tr>
</tbody>
</table>

The curiosity, preference for challenge and extrinsic motivation subscales originated from the Motivations for Reading Questionnaire (MRQ) (Guthrie 2010). We used the translation for the Dutch context (Förer and Van de Mortel 2010). The other subscales have been developed and tested by Dutch researchers: intrinsic value, utility-value, self-efficacy by De Milliano (2013), and instrumental motivation by Tellegen and Frankhuisen (2002).
For the present sample, reliability of the MQR was poor (0.64) for preference for challenge and extrinsic motivation. These two subscales were not retained in further analyses. For the five subscales retained reliability was estimated between 0.68 and 0.78, which is acceptable (Field 2009; Sijtsma 2009).

Reading comprehension was assessed using the Progress in International Reading Literacy Study (PIRLS) of 2006, for students aged 9-10 in 40 countries (Mullis et al. 2007). We used the part of the test that consists of a booklet with informative texts (three texts about Searching for food). Students answered 15 questions, 8 of which were multiple choice and 7 of which were open-ended questions. For three open-ended questions a score of two points could be obtained, making the overall maximum score 18. The questions assessed the following four categories: (1) the ability to focus on and retrieve explicitly stated information, (2) the creation of straightforward inferences, (3) the interpretation and integration of ideas and information, and (4) the examination and evaluation of content, language and textual elements. An open-ended question was, for example: ‘What is similar in the way ants and pill bugs find their food?’ The open-ended questions were scored by two fellow researchers, using the PIRLS scoring guide. Answers were discussed to obtain consensus. For the present sample, reliability outcomes were moderate (Cronbach’s α was 0.68).

Knowledge of reading strategies was assessed via a questionnaire that was developed by Brand-Gruwel (1995). This questionnaire consisted of 22 multiple choice questions regarding strategies that are to be applied before, during and after reading, such as goal setting and predicting, question answering and summarising. Questions were of the type ‘What is best to do... (e.g. before reading)?’ Students had to choose the best option out of three: the most adequate strategy, a less adequate strategy and an irrelevant strategy. For the present sample, Cronbach’s α was 0.63.

Decoding skills were assessed using the three-minute test, which is part of the Cito pupil monitoring system used by nearly all Dutch schools (Verhoeven 1995). This standardised test measures decoding skills in terms of the rapid recognition and naming of unrelated words. The test is administered individually. It consists of a set of three cards with increasing degrees of difficulty. The first card has 150 monosyllabic words (e.g., hot), the second card has 150 more complex monosyllabic words (e.g. spring, worst), and the third card has 120 polysyllabic words. For every card, students are required to read as many words as possible in one minute. The test score consists of the total number of words that were correctly read across all three cards, with a maximum score of 470. For the present sample, Cronbach’s α was estimated at 0.93.

Reading vocabulary was measured using a standardised test (Verhoeven and Vermeer 1995). This test consists of 30 multiple choice items. From among four pos-
sible answers, students were required to choose the meaning of the word that was underlined in a sentence. For the present sample, Cronbach’s α was 0.78.

*Non-verbal IQ* was measured using the Raven SPM (Raven, Raven, and Court 2000). This test measures students’ reasoning abilities and consists of 60 items that are listed by order of difficulty. Each item presents a set of geometrical figures of which one figure was missing. The missing item must be selected from a set of six or eight answers. The test was administered to the whole group. For the present sample Cronbach’s α was 0.79.

The teacher questionnaire was used to verify that reading instruction was provided as intended in both DE and PI. The questionnaire consisted of 26 statements on a five-point Likert scale. The maximum sum score was 130. The statements were divided into six categories. The first category was about the programmatic or non-programmatic character of the approach (e.g. ‘I use a pre-programmed textbook for reading comprehension’). This was followed by five sets of statements, each covering one of the motivational components that were distinguished by Guthrie et al. (2004) and have been incorporated into DE – integration of reading instruction in subject matter, providing interesting texts, choice of text, collaboration, fostering successful reading experiences by providing appropriate texts and positive feedback (self-efficacy). Items were for example ‘In my class students use information from texts read for other learning activities’ or ‘In my class students may choose informative texts to read’.

**Data-analyses**

The student data in the present study had a two-level hierarchical structure; i.e. students (level 1, N = 570) were nested within classrooms (level 2, n = 24). As only one class per school participated, the classroom level was equal to the school level. The assumption of the independence of the observations was tested. We deduced from the intra-class correlations (ICCs) that multilevel modelling was the most suitable approach for data analysis (see Table 5). We used the mixed-model procedures of SPSS (20.0) with maximum likelihood (ML) estimation\(^2\) (Hox 1995).

As we were interested in effects of the educational approaches on the outcome variables of reading motivation, reading comprehension, and knowledge of reading strategies, each of these variables was separately analysed (Table 6) using

\(^2\) In SPSS, two estimation methods are available: restricted maximum likelihood (RML) and ML. The latter estimation method is preferable when comparing the fit indices (-2 log likelihood) of two models that differ only in the numbers of fixed-effect parameters as was the case in the present study.
a step-up model building strategy (West, Welch, and Galecki 2007). Standardised scores (z-scores) were used for analyses and effect sizes were calculated using Cohen’s $f^2$, which is a standardised measure for hierarchical linear modelling (Selya et al. 2012). According to Cohen’s (1988) guidelines, $f^2 \geq 0.02$ represents small effect size, $f^2 \geq 0.15$ represents medium effect size, and $f^2 \geq 0.35$ represents large effect size. For testing the results, a 95% confidence level was used. For purposes of further exploration of differential effects in DE and PI, analyses were also performed on the DE group and the PI group separately.

All analyses begin with intercept-only (or unconditional) models in which the intercepts (mean levels) of the dependent variables were estimated and the random effects (or estimations of variance) of the following two components were also estimated: classroom means (i.e. classroom intercepts) and the individual errors (i.e. residuals). Subsequently, the predictors (co-variates) at level 1 (student) were included one by one while testing their fixed effects and relevant interactions. We investigated multi-collinearity; i.e. strong correlations between the predictors. No multi-collinearity was found based on the criterion that a correlation of 0.80 or higher may imply collinearity, and the calculated tolerance indexes (VIF) did not produce concern (Field 2009). As no multi-collinearities were found among any of the predictors, the order of the inclusion of the co-variates did not affect the estimation of the parameters. First, the pretest measurement of the outcome variable was included as a co-variate to increase the power of the analyses (Lipsey and Hurley 2009). Next, the variables related to reading (that were analysed separately as outcome variables) were included in the model. Since every outcome variable may also be a predictor of another outcome variable, these variables are included in the regression, along with the possible confounders. The confounders at level 1 were vocabulary, decoding skills, non-verbal IQ, SES, ethnicity and gender. At level 2, first of all the approach (DE versus PI) was added to the model to test the effects of DE and PI. Confounding effects were expected from the pretest at classroom level, SES (i.e. the proportion of low and middle SES students in the classroom) and ethnicity (i.e. the proportion of non-native Dutch and mixed ethnicity students in the classroom). Each included co-variate was tested for its contribution to the model fit and its effect on the outcome variable. The calculated deviance statistics (-2 log likelihood) of the different models were compared and tested with a $\chi^2$ difference test to draw conclusions about the improvement of the model. A positive conclusion led to the inclusion of the predictor in the model. The final models were constructed on the basis of the parsimony principle. More parsimonious models were created by removing non-significant predictors whose removal did not negatively affect the model fit.
Inspection of the missing values revealed that, for some co-variates, the missing data points were not randomly distributed and were also substantial (> 5%). Multiple imputation was applied, as this technique is favourable for parameter estimation (Tabachnick and Fidell 2011). In addition to the original dataset, five imputed sets were created, using the multiple imputation procedure in SPSS 20. The outcomes of the ‘pooled’ imputed set were used in subsequent analyses.

Furthermore, to simplify the interpretation of the results, we centred the non-categorical predictors (i.e. reading comprehension, knowledge of reading strategies, reading motivation, decoding skills, vocabulary, and non-verbal IQ). We also dichotomised the categorical variables SES (in high SES versus middle and low SES) and ethnicity (in native Dutch parents and Dutch as the home language versus non-native Dutch and mixed parents and home language). For reading motivation, which was originally a categorical variable, the sum of the average scale scores was used.

The results of the multilevel analyses are displayed in Table 6.

Results
This section begins with the descriptions of the means and standard deviations of all of the tests segregated by group and measurement occasion (Table 3).

Preliminary analyses
An ANOVA revealed that responses to the teacher questionnaire, by teachers in the DE and the PI approach, differed significantly in three aspects: the use of a programme that was based on a textbook, $F(1) = 10.801; p = 0.03$, the provision of choice of texts, $F(1) = 19.087; p = 0.02$, and the integration of reading instruction with content, $F(1) = 12.106; p = 0.02$. These results revealed that the teachers were teaching according to the approaches of their groups. No significant differences were found regarding teachers’ answers about three other aspects. These were providing interesting texts, $F(1) = 0.692; p = 0.415$ (DE: $M = 3.67, SD = 0.75$; PI: $M = 3.43, SD = 0.54$), organizing collaboration, $F(1) = 0.822; p = 0.724$ (DE: $M = 4.13, SD = 0.83$; PI: $M = 4.33, SD = 0.71$) or fostering successful reading experiences by providing appropriate texts and positive feedback (self-efficacy), $F(1) = 0.360; p = 0.554$ (DE: $M = 3.56, SD = 0.73$; PI: $M = 3.26, SD = 0.85$). The contrasts of these approaches were considered sufficient for further analyses (see Table 4).
Table 3. Means and standard deviations of the tests by group and measurement occasion

<table>
<thead>
<tr>
<th></th>
<th>DE group</th>
<th></th>
<th></th>
<th>PI group</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td></td>
<td>n M SD</td>
<td>n M SD</td>
<td>n M SD</td>
<td>n M SD</td>
<td>n M SD</td>
<td>n M SD</td>
</tr>
<tr>
<td>Reading motivation</td>
<td>202 12.47 (1.58)</td>
<td>215 12.56 (1.44)</td>
<td>235 12.44 (1.49)</td>
<td>271 12.47 (1.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>248 7.33 (3.09)</td>
<td>243 9.26 (3.43)</td>
<td>293 6.93 (2.96)</td>
<td>291 9.62 (3.41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of reading strategies</td>
<td>253 35.99 (4.30)</td>
<td>243 38.12 (3.73)</td>
<td>292 34.71 (4.26)</td>
<td>292 36.88 (4.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decoding skills</td>
<td>252 225.63 (50.81)</td>
<td>252 262.50 (48.81)</td>
<td>293 229.06 (53.96)</td>
<td>300 258.47 (49.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocabulary</td>
<td>249 17.52 (4.87)</td>
<td>251 17.78 (5.25)</td>
<td>296 18.39 (4.62)</td>
<td>296 18.60 (4.97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-verbal IQ</td>
<td>249 38.62 (8.30)</td>
<td>300 39.93 (6.56)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a mean sum: range 0 to 19; **total score: range 0 to 17; † total score: range 0 to 44; ‡ total score: range 0 to 420; § total score: range 0 to 30; ‡ total score: range 0 to 60
Next, the dependencies of the data were tested. Table 5 presents the results of the intercept-only models of the outcome variables; i.e. reading comprehension, knowledge of reading strategies and reading motivation. As previously discussed, the intercept-only models were used to test the dependencies of the data.

Table 5. Intercept-only models of reading comprehension, knowledge of reading strategies, and reading motivation of the entire group (DE and PI)

<table>
<thead>
<tr>
<th></th>
<th>Comprehension</th>
<th>Strategies</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate (SE)</td>
<td>Estimate (SE)</td>
<td>Estimate (SE)</td>
</tr>
<tr>
<td>Fixed effect parameters</td>
<td>-.02 (.10)</td>
<td>-.02 (.08)</td>
<td>.00 (.06)</td>
</tr>
<tr>
<td>Random effect parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residuals (students)</td>
<td>.82** (.05)</td>
<td>.90** (.06)</td>
<td>.96** (.06)</td>
</tr>
<tr>
<td>Intercept (subject = classroom)</td>
<td>.18* (.07)</td>
<td>.10 (.04)</td>
<td>.03 (.02)</td>
</tr>
<tr>
<td>Intraclass correlation (icc)</td>
<td>.18</td>
<td>.10</td>
<td>.03</td>
</tr>
<tr>
<td>Deviance (-2 log likelihood)</td>
<td>1392</td>
<td>1426</td>
<td>1451</td>
</tr>
</tbody>
</table>

Multilevel analyses
Table 6 presents the final multilevel models and reveals the effects of the approach (DE or PI) on the outcome variables of reading comprehension, knowledge of reading strategies and reading motivation. The final models presented in Table 6 reveal significant improvements over the intercept-only models presented in Table 5.
Table 6. Final multilevel models of reading comprehension, reading motivation, and knowledge of reading strategies (DE approach versus PI approach)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Comprehension</th>
<th>Strategies</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>$f^2$</td>
</tr>
<tr>
<td>Intercept</td>
<td>.05</td>
<td>(.06)</td>
<td>- .17*</td>
</tr>
<tr>
<td>Level 1 Fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>.21**</td>
<td>(.04)</td>
<td>.06</td>
</tr>
<tr>
<td>Comprehension</td>
<td>X</td>
<td></td>
<td>.10</td>
</tr>
<tr>
<td>Motivation</td>
<td>.08*</td>
<td>(.03)</td>
<td>.02</td>
</tr>
<tr>
<td>Strategies</td>
<td>.06</td>
<td>(.04)</td>
<td>.01</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>.28**</td>
<td>(.04)</td>
<td>.09</td>
</tr>
<tr>
<td>Decoding skills</td>
<td></td>
<td></td>
<td>.17**</td>
</tr>
<tr>
<td>Non-verbal IQ</td>
<td>.34**</td>
<td>(.05)</td>
<td>.06</td>
</tr>
<tr>
<td>SES (0=low)</td>
<td>-.13</td>
<td>(.10)</td>
<td>.10</td>
</tr>
<tr>
<td>Ethnicity (0=not Dutch)</td>
<td>-.08</td>
<td>(.08)</td>
<td>.01</td>
</tr>
<tr>
<td>Gender (0=girl)</td>
<td></td>
<td></td>
<td>.23**</td>
</tr>
<tr>
<td>Level 2 Fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach (0=DE)</td>
<td>.12**</td>
<td>(.05)</td>
<td>.00</td>
</tr>
<tr>
<td>SES classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach (0=DE) *</td>
<td>-.20**</td>
<td>(.07)</td>
<td></td>
</tr>
<tr>
<td>Non-verbal IQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>.42**</td>
<td>(.03)</td>
<td>.65**</td>
</tr>
<tr>
<td>Class / school</td>
<td>.02</td>
<td>(.01)</td>
<td>.06</td>
</tr>
<tr>
<td>icc</td>
<td>.05</td>
<td>.08</td>
<td>.23**</td>
</tr>
<tr>
<td>-2*log likelihood</td>
<td>875</td>
<td>1086</td>
<td>1090</td>
</tr>
</tbody>
</table>

Notes:
- Blanks: no improvement of the model fit, and no significant effect, the variable was removed from the model.
- ** (p < .01); * (p < .05)
- Level 1 is the student level, and level 2 is the classroom level.
- SES represents a low level of parental education.
- Ethnicity represents a home language other than Dutch, or a mix of Dutch and another.
- At level 2: The approach (DE versus PI) was added as the first variable at the classroom level.
Pretest classroom represents the first measurement occasion of the outcome variables at the classroom level.

SES classroom represents the proportion of low and middle SES students in the classroom.

Ethnicity classroom represents the proportion of non-native Dutch and mixed ethnicity students in the classroom.

The effects on reading comprehension

The first research question was answered in the negative. The educational approach (DE or PI) did not significantly influence reading comprehension outcomes as seen in Table 6, which contains a blank for the approach.

As displayed in Table 6, reading motivation had a positive effect on reading comprehension \((b = 0.08, SE = 0.03, p < 0.05, f^2 = 0.02)\).

Of the predictors, vocabulary \((b = 0.28, SE = 0.04, p < 0.01, f^2 = 0.09)\), and non-verbal IQ \((b = 0.34, SE = 0.05, p < 0.01, f^2 = 0.06)\), had a positive effect on reading comprehension. Decoding skills had no effect and did not improve the model fit, and were therefore not retained in the model.

The background variables did not have any effect. SES and ethnicity, however, remained in the model because they improved the model fit. We will explain this finding further on in this section.

Of the variables that were tested at classroom level (level 2) only the pretest had an effect on reading comprehension \((b = 0.12, SE = 0.05, p < 0.01, f^2 = 0.00)\). An interaction effect was found between the educational approach and non-verbal IQ at student level \((b = -0.20, SE = 0.07, p < 0.01)\). We explored the nature of this interaction by performing analyses on the DE group and the PI group separately. In both approaches (DE and PI), non-verbal IQ had an effect on reading comprehension, but in PI the effect size was considerably greater than in DE. This indicates that in PI students with high non-verbal IQ perform better on reading comprehension, whereas in DE, non-verbal IQ is less important for reading comprehension.

Further exploration showed some other differential effects (Appendix B Tables A1 and A2). In PI, none of the reading variables had an effect on reading comprehension, whereas in DE, reading motivation \((b = 0.10, SE = 0.05, p < 0.05, f^2 = 0.01)\) and knowledge of reading strategies \((b = 0.14, SE = 0.05, p < 0.01, f^2 = 0.03)\) had positive effects. This indicates that in DE, reading motivation and knowledge of reading strategies are more important for reading comprehension than in PI.

Of the predictors, vocabulary had a positive effect on reading comprehension in both approaches (DE: \(b = 0.21, SE = 0.06, p < 0.01, f^2 = 0.08\); PI: \(b = 0.31, SE = 0.06, p < 0.01, f^2 = 0.11\)). In DE, decoding skills also had a positive effect on reading comprehension \((b = 0.13, SE = 0.05, p < 0.05, f^2 = 0.05)\). This indicates that in DE,
students with good decoding skills perform well in reading comprehension.

Of the background variables, no effect was found in either approach. In DE, however, SES showed a medium effect size ($b = -0.13, SE = 0.14, p > 0.05, f^2 = 0.28$), in contrast to PI. This indicates that low parental education level (SES) seems to have a negative effect on reading comprehension.

**The effects on knowledge of reading strategies**

The second research question was answered in the negative. As illustrated in Table 6, the educational approach (DE or PI) did not have an effect on the development of knowledge of reading strategies.

However, the analysis revealed that reading motivation exerted a positive effect on knowledge of reading strategies ($b = 0.12, SE = 0.02, p < 0.01, f^2 = 0.02$).

Among the other predictors, non-verbal IQ ($b = 0.13, SE = 0.05, p < 0.01, f^2 = 0.02$) and gender ($b = 0.23, SE = 0.08, p < 0.05, f^2 = 0.02$) affected knowledge of reading strategies. Students with a higher non-verbal IQ and girls had greater knowledge of reading strategies than their counterparts. No effects of vocabulary or decoding skills were found.

SES and ethnicity improved the model fit and were therefore retained in the model.

The classroom level predictors (the pretest, SES, and ethnicity) did not have any effect, and no interactions were found involving the approach (DE or PI).

Further exploration of differential effects within the DE group and the PI group (Appendix B Tables A1 and A2) revealed that in PI, only reading motivation ($b = 0.21, SE = 0.06, p < 0.05, f^2 = 0.05$) had a positive effect on knowledge of reading strategies. This indicates that in PI, more motivated students have better knowledge of reading strategies than less motivated students. In DE, only reading comprehension had a positive effect on knowledge of reading strategies ($b = 0.21, SE = 0.07, p < 0.01, f^2 = 0.06$). In DE, background variables with a significant effect were gender ($b = 0.28, SE = 0.11, p < 0.05, f^2 = 0.03$) and ethnicity ($b = 0.28, SE = 0.13, p < 0.05, f^2 = 0.00$). Furthermore, SES has a noticeable effect size on knowledge of reading strategies ($b = -0.30, SE = 0.16, p < 0.05, f^2 = 0.12$). All this means that in DE, students with good reading comprehension, girls and students with one or both non-native Dutch parents have greater knowledge of reading strategies than their counterparts.

**The effects on reading motivation**

The third research question could not be answered in the affirmative. As illustrated in Table 6, the educational approach did not affect reading motivation. Students in
DE were not more motivated to read informative texts than students in PI.

Of the reading variables, reading comprehension ($b = 0.14, SE = 0.05, p < 0.01, f^2 = 0.02$) and knowledge of reading strategies ($b = 0.11, SE = 0.05, p < 0.01, f^2 = 0.02$) positively affected reading motivation.

Of the predictors, only decoding skills had a positive effect on reading motivation ($b = 0.17, SE = 0.04, p < 0.01, f^2 = 0.02$). Skilled readers were more motivated to read informative texts than less competent readers. Again, SES and ethnicity improved the fit of the model and were therefore retained. The classroom level predictors had no effect and did not improve the model fit.

Further exploration of both groups separately revealed some differential effects (Appendix B Tables A1 and A2). In DE, reading comprehension had a positive effect on reading motivation ($b = 0.22, SE = 0.07, p < 0.05, f^2 = 0.04$). No significant effects were found for the other predictors. This means that in DE, students with good reading comprehension are more motivated to read than students with poor reading comprehension. In PI, knowledge of reading strategies ($b = 0.19, SE = 0.06, p < 0.01, f^2 = 0.04$), and decoding skills ($b = 0.22, SE = 0.06, p < 0.05, f^2 = 0.05$) positively affected reading motivation. This indicates that in PI, students with good decoding skills and good knowledge of reading strategies are more motivated than their counterparts. Furthermore, in PI, SES has a positive effect on reading motivation ($b = 0.33, SE = 0.15, p < 0.05, f^2 = 0.00$). This indicates that in PI, students with less educated parents are more motivated to read informative texts than students with highly educated parents.

**Conclusion and Discussion**

The aim of the present study was to compare the effects of two approaches to reading comprehension instruction; i.e. the innovative meaning-oriented practice of DE and the more traditional practice of PI. These approaches were compared in terms of reading comprehension, knowledge of reading strategies and reading motivation.

The results of the study revealed that there were no differences between students who were in DE and those who were in PI in reading comprehension, knowledge of reading strategies and reading motivation.

Nevertheless, some subtle distinctions were found when exploring the results for the two approaches separately. Concerning the reading variables (reading comprehension, knowledge of reading strategies and reading motivation), some mutual influences were found. In DE, more motivated readers and readers with more
knowledge of reading strategies performed better in reading comprehension, which is in line with Guthrie’s findings (Guthrie, Wigfield, and You 2012). Vice versa, readers with good comprehension had more knowledge of reading strategies and were more motivated for reading. In PI, more motivated readers had better knowledge of reading strategies, and vice versa, students with better knowledge of reading strategies were more motivated for reading informative texts. This is in line with earlier findings that good readers are more motivated and that motivated readers are better readers (Allington 2002).

A number of predictors influenced reading comprehension. In accordance with Babayiğit (2014), Snow (2002) and Van Elsäcker (2002), reading comprehension was predicted by vocabulary in both approaches. High non-verbal IQ was also an advantage for reading comprehension (Van Elsäcker 2002), although in a stronger way within the PI approach, than within the DE approach. Furthermore in DE, students with better decoding skills had better reading comprehension. In PI, students with better decoding skills were more motivated to read informative texts, in line with Allington (2002). In agreement with the finding of Droop et al. (2012), in DE girls were found to have greater knowledge of reading strategies than boys.

The effects of the background variables SES and ethnicity were not clear. No significant effects on the outcome variables were found for either factor. Nevertheless, both variables improved the model fit in all analyses. In general, we may conclude that, for this sample, the educational approaches under investigation did not lead to significant differences in students’ performances in reading comprehension, knowledge of reading strategies or reading motivation.

Educational policy makers may be reassured by our findings that the reading comprehension and knowledge of reading strategies that result from DE are as favourable as those that result from PI. However, as these findings contrast with the findings of Guthrie et al. (2004) and Guthrie and Klauda (2014) regarding CORI, they require further clarification. Whereas CORI was found to have a more positive effect on reading comprehension than traditional approaches, DE was not. The possible explanations for these findings are theoretical and practical in nature. A methodological explanation may be that we controlled for both a large number of confounding variables and contextual influences (i.e. multilevel classroom level influences). As such, false positive effects were maximally discarded as were the influences of the teachers and classroom populations. Teacher quality is one of the most critical variables in student achievement; 43% of the variance in student achievement can be attributed to teacher quality (Ferguson 1991 in: Snow 2002, 48). Not controlling for the teacher’s influence may distort the results of a study. Our teacher ques-
tionnaire was directed toward the implementation of the approaches and did not provide information about teacher quality or actual classroom practices. According to McKeown et al. (2009), it is possible that either some reading activities are more effective than others or that instructional activities matter less than simply the amount of time spent reading and the attention given to the text. Different aspects of DE and PI may contribute to the same outcomes. In PI, reading comprehension may be improved by a fixed amount of scheduled time and attention for reading tasks; whereas in DE, improvements in reading comprehension may be elicited by the focus on meaning. Following this line of reasoning, the focus on meaning applied in DE may lead, for example, to extensive classroom discussion and a reduction in the amount of time spent on the reading task itself (Allington 2002).

Strikingly, research on CORI has systematically reported positive effects on reading motivation compared to other approaches, whereas our investigation of DE did not find such effects. These findings are even more surprising given that CORI and DE share a number of basic tenets related to reading for meaning. A possible explanation may be related to the different contexts in which these studies were conducted. Whereas DE is an existing practice, CORI is an intervention. Therefore, in contrast with DE, in the studies of CORI, the enhancement of motivation may have been novel to students and teachers and may have influenced the outcomes. In other intervention studies, motivational enhancement has also been found to affect reading motivation (Aarnoutse and Schellings 2003; Droop et al. 2012). Moreover, in this study, groups were studied in their natural context, in which many parameters cannot be controlled for as would be the case in an intervention.

Another explanation may be related to the construct of reading motivation itself, which requires further clarification (Schiefele et al. 2012), and the limited set of subscales used in this study. Only one out of three subscales of Guthrie’s MRQ (2010), curiosity, could be used because of low reliability, and four additional subscales tapping intrinsic motivation, self-efficacy, utility-value and instrumental motivation. Moreover, in DE, reading is not the only activity that is used by students in the inquiry-oriented curriculum to answer questions about content. Children engage in classroom talks, listen to expert explanations, perform experiments or participate in field trips; these activities may motivate students to a greater extent than reading per se. In general, specific content may contribute to students’ motivation to read a specific text at a specific moment, but this does not necessarily lead to increased motivation for reading in general. Meaning is an important factor for reading, but reading is not the only way to construct meaning in DE.

A more practical explanation for the absence of differences in reading motiva-
tion may be our disregard for the fact that we do not know whether evidence from research in the US can be straightforwardly transferred to the Dutch educational system, which has its own specific characteristics. An indication of this non-transferability may be found in our questionnaire about the participating teachers’ reading practices. The responses revealed that the two approaches did not differ in terms of motivational aspects as much as we had expected they would. The teachers employing the PI approach did not differ significantly from those employing the DE approach in three of the six aspects of the questionnaire that involved motivation: interesting texts, self-efficacy and collaboration. It is possible that the two approaches did not differ from each other in these respects in practice as much as they did in theory. Modern reading programs that are based on textbooks in the Netherlands have integrated these motivational aspects to a certain extent. However, this explanation is speculative because our data did not provide sufficient systematic information regarding the actual practices that teachers employed in the classrooms.

An extensive research base has provided evidence that knowledge of reading strategies is required to understand informative texts (NICHHD 2000). The manner in which these strategies should be instructed is less evident. Our results do not support the prevailing model of PI as the best method for providing strategy instruction. Strategy instruction may be as effective if it is provided flexibly, i.e. if it is required for understanding as is the case in DE. In this respect, the present study contributes to the relatively small number of studies of content-based approaches (McKeown et al. 2009).

Several limitations of this research should be noted. First, the design consisted of a limited number of schools (12 schools in each group), which may have resulted in limited power and prevented the observation of the intended effect, which may exist in reality (i.e. within the total populations of schools and students). Second, the participating schools were not selected randomly. The number of schools that have adopted and implemented the DE concept in the upper grades is limited, and because we wanted the sample populations to vary in terms of ethnicity and SES, only a small number of DE schools met the criteria for selection. The small number of students from low SES families and ethnic minorities may be the reason why the influence of parental education could not be established or further explained.

Finally, it is a limitation of the present research that the examinations of the teachers’ instructional practices within both approaches were based on self-reports. DE schools may be heterogeneous as they may implement different procedures for teaching reading for meaning. Systematic classroom observations would have been more reliable; however, such observations would have entailed insur-
mountable difficulties in terms of time and logistics. Another possibility would have been to ask students for their perception of the classroom practices as was done by Guthrie and Klauda (2014).

Despite these limitations, it may be cautiously concluded that the innovative DE approach produces results that are as good as those produced by the reading approach of Programmatic Instruction. However, we were not able to confirm the assumption that the reading approach of DE adds value; i.e. we were unable to determine whether DE with its focus on reading for meaning, motivated students to read informative texts. Further research is needed to gain more insight into the added value of engagement in reading in relation to the other, further-reaching, goals of DE of identity development, agency and citizenship.
CHAPTER 4

Reading for meaning: the effects of Developmental Education on disadvantaged students in primary school when reading informative texts

Abstract: The appropriateness of innovative educational concepts for students from a low SES or ethnic minority background is sometimes called in question. Disadvantaged students are supposed to benefit more from traditional approaches with a fixed curriculum and direct instruction. The approach examined here is Developmental Education (DE), an innovative approach, inspired by Vygotskian learning theory, in which reading skills are developed through meaningful reading of texts that correspond to students’ self-generated problems.

In the present study the effectiveness of this approach is compared to the traditional approach of Programmatic Instruction. It is examined to what extent an ethnic minority or low SES background affects reading comprehension, knowledge of reading strategies, and reading motivation of fourth-grade students, in both approaches.

In a pretest-posttest natural two-group design, tests and questionnaires were administered to 143 students from an ethnic minority background and 74 students from low SES families. The outcomes of the Developmental Education curriculum were as good as those from the Programmatic Instruction approach, with one exception, i.e. students with an ethnic minority background in DE performed better on knowledge of reading strategies than similar students in PI. These results are discussed in relation to previous studies that have reported on the appropriateness of innovative curricula for disadvantaged students.

Keywords: disadvantaged students, innovative learning, reading for meaning, reading, Developmental Education

1 Based on: Van Rijk, Y., De Mey, L., De Haan, D., Van Oers, B., & Volman, M. (submitted). Reading for meaning: the effects of Developmental Education on disadvantaged students in primary school when reading informative texts.
Introduction

In the educational field the appropriateness of using innovative educational concepts for students from a low socio-economic or ethnic minority background and a disadvantaged educational position is sometimes called in question. Hornstra, Mansfield, Van der Veen, Peetsma and Volman (2015), for example, found that teachers in primary education believed that controlling teaching practices were more suitable and beneficial to ‘at-risk’ students than innovative, autonomy-supportive practices. By using a traditional, controlling teaching style, teachers felt they were adapting to the needs and preferences of their disadvantaged student population. Few studies, however, have actually investigated the effects of innovative educational practices on the achievements of students with a disadvantaged position in school. Salinas and Garr (2009) examined the effect of ‘learner-centered’ education on the academic achievements of minority and non-minority third to sixth grade students. Whereas the scores of minority students were lower at traditional schools, they scored as high in learner-centered schools. Hornstra, Van der Veen, Peetsma and Volman (2015b) studied the relation between the extent of innovative learning in classrooms (according to teachers themselves) and student achievements in a population that varied in SES and ethnic minority backgrounds. Innovative learning was defined as collaborative learning, authentic learning, and a focus on self-regulation. No significant relations between innovative learning and reading comprehension were found for any of the student groups.

In this study we focus on an innovative approach, known as Developmental Education, and its effect on reading in primary school. Developmental Education (DE) is an innovative approach, inspired by Vygotskian learning theory that is practiced in about 5% of primary schools in the Netherlands. Teachers create meaningful thematic units in which all activities relate to the theme. Reading is embedded in an ‘inquiry curriculum’; students select and read informative texts and the selection of texts is driven by students’ research questions. Teachers seek to involve all students in reading texts that correspond to their self-generated problems, interests and reading levels. In a previous study (Van Rijk, De Mey, De Haan, Van Oers, & Volman, 2016) it was found that reading results of students from DE schools were equal to those of students from schools with traditional reading programs. The aim of this study is to get a better understanding of the effects of DE on students from disadvantaged backgrounds. For this purpose we compare school achievements of students from ethnic minority groups and students with low-educated parents in DE schools and of the same groups in more traditional schools. Since reading is a key subject matter in the curriculum, the focus is on the development of three components of reading: reading comprehension, knowledge of reading strategies and reading motivation.
Theoretical background

The educational position of disadvantaged students

There is an overwhelming body of research into the educational position of two categories of students that are considered as disadvantaged, i.e. students from ethnic minorities / second language learners and students from lower socio-economic milieus. Large scale and review studies have been carried out pertaining to among others the European (Nusche, 2009; OECD, 2012), U.S. (Perie, Grigg, & Donahue, 2005) and the Dutch situation. In the Netherlands, ethnic minority and low SES students on average lag behind one up to two and a half years in reading comprehension at the end of grade 6 (Gijsberts, 2003; Driessen, 2013) and have the lowest scores on the final test in primary and secondary education (Mulder, Fettelaar, Schouwenaars, Ledoux, Dikkers, & Kuiper, 2014).

Effectiveness of educational approaches

Studies into the effectiveness of innovative educational approaches are rare, in particular for these groups of students. The bulk of educational and reading research involves the search for factors that are effective in teaching and learning in general. The meta-meta-analysis of Hattie (2009) of ‘what works’ in teaching, for example, does not differentiate for different groups of students. The top factors in effective teaching, such as the quality of teaching, providing feedback and good teacher-student relationships occur in both traditional and innovative approaches. Moreover, Hattie’s (2009) educational factors are not studied in conjunction (Driessen, 2013) and leave aside educational content, i.e. ‘the pedagogical significance of subjects, reflections about problems, and possibilities of legitimizing curricular decisions’, despite his emphasis on content-oriented learning (Terhart, 2011, p. 431). These educational factors thus provide insufficient indications to judge innovative educational approaches based on specific theoretical views such as Developmental Education in the Netherlands.

The meta-analysis of the RAND reading study group showed that there is a fairly detailed knowledge base about effective instructional practices for reading. Innovative approaches such as the embedding of strategy instruction in the context of subject matter learning, considerate provision of meaningful choices, autonomy and responsibility of students and collaborative learning structures are positively evaluated in general (Snow, 2002). As yet there is little evidence, however, about how teachers should combine and prioritize instructional practices for low achievers in high poverty schools and students who are second language learners of the language in these schools (Snow, 2002).
The relationship between family and school: parenting styles and teaching practices

The reason for skepticism about innovative educational practices for students from disadvantaged backgrounds mentioned in the introduction lies in the assumed misfit between students’ home environment and such educational practices. In contrast to traditional learning environments in which the teacher directs the learning process and is oriented towards transmission of knowledge, innovative approaches demand a more active role of students in their own learning process giving more room to their initiatives, choice, responsibility and collaborative participation, and challenge students’ curiosity (Huber, 2003; Van Hout-Wolters, Simons, & Volet, 2000; Wells & Claxton, 2002). Students from high-educated ethnic majority families are expected to benefit from such innovative educational environments, as this would fit the parenting style they are used to. Disadvantaged students are supposed to benefit more from traditional approaches in which a fixed curriculum, direct instruction and rehearsal are core, as this would fit the more authoritarian socialization in their homes (De Kock, Sleegers, & Voeten, 2004; Heemskerk, Brink, Volman, & Ten Dam, 2005; Overmaat & Ledoux, 2002; Pels, Nijsten, Oosterwegel, & Vollebergh, 2006). Low-educated parents and parents from ethnic minority backgrounds indeed report more authoritarian and directive parenting behaviors oriented towards conformity rather than individual autonomy. This in comparison to high-educated majority parents who report a more authoritative parenting style encouraging children’s initiative and responsibility (Hermans, 1995; Pels & Nijsten, 2006; Pels et al., 2006). There is little empirical research of the moderating role of parenting styles in educational achievements; the limited research indicates that authoritative styles may facilitate achievement, but that this is not consistently the case across socio-economic milieus and ethnicity (Spera, 2005).

The relationship between type of education and achievement

Recently, some studies have investigated the fit between types of education of disadvantaged students and their achievements. Salinas and Garr (2009), Hornstra, Van der Veen et al. (2015b), and Van Oers and Duijkers (2012) investigated the relation between innovative educational practices and achievement of students with a disadvantaged position in school. Salinas and Garr (2009) examined the effect of ‘learner-centered’ education on the academic achievements of minority and non-minority third to sixth-grade students. Learner-centered education involved, among others, a constructive nature of the learning process, an orientation towards motivational and affective processes, a social climate that facilitates meaningful learning and attention for individual differences. Schools were selected on the basis of self-description in US nationwide databases. Two sets of measures for achievement were
used: standard academic achievement measures for language, math and subject matter, and non-traditional measures for assessing 21st century skills like initiative, creativity, active learning strategy, receptiveness to diversity and ability to collaborate. Differences were found between minority and non-minority groups in academic achievements in the traditional schools, with lower scores for minority students, but not in the learner-centered schools. Students of the learner-centered approach scored higher on most of the non-traditional measures, regardless of ethnicity.

Participants in the Hornstra, Van der Veen et al. (2015b) study were fifth and sixth-grade primary school students, varying in SES and ethnic minority / majority backgrounds. The focus was on the relation between teachers’ perceptions of their innovative practices relating to three components, authenticity of the learning environment, collaborative learning and focus on self-regulation on the one hand, and the reading and math achievements measured by tests of the Dutch National Institute for Educational Measurement (CITO) on the other hand. No significant relations were found between (teachers’ perceptions of) the extent of innovativeness of their teaching practices and reading comprehension scores of the two groups of students, but for math the picture was mixed. Nevertheless, teachers of schools with many disadvantaged children and students from disadvantaged groups perceive innovative autonomy-supportive teaching styles as less suitable than traditional, more directive and controlling methods (Hornstra, Van der Veen et al., 2015a).

Teachers from schools with many disadvantaged children reported that they used more directive teaching irrespective of their personal preference for autonomy-supportive styles. Students’ perceptions and preferences of teaching styles were contingent upon the teaching styles of their teachers in these schools. In the same vein, school directors found a more constructivist teaching model for the characteristics and needs of disadvantaged children only appropriate in a limited way (Overmaat & Ledoux, 2002, p. 365). Tesser and Ledema (2001, p. 103) suggest that “effective education for students with disadvantaged backgrounds asks for a well-structured, teacher-centered, whole-class approach in which priority is given to key subjects (such as reading and math) and the teacher is working towards clearly defined standards of performance” (by which is meant outcomes on standardized tests).

Van Oers and Duikers (2012) studied vocabulary acquisition of students in grade 1 – 4 of primary school, varying in SES and ethnic minority / majority backgrounds. They compared two classroom conditions, a teacher-driven task-based program and a Developmental Education learning environment, in which students learn new vocabulary by taking part in meaningful joint activities. Students in DE had better outcomes than students in the programmatic condition.
For theoretical as well as for policy reasons the results of these studies make it interesting to investigate the achievements of students with a disadvantaged educational position in schools for Developmental Education as an innovative approach, compared to schools with a more traditional approach. Before presenting the study we briefly explain how this approach differs from traditional instruction. For a more elaborate discussion of DE, the reader is referred to Van Rijk, Volman, De Haan and Van Oers (2016), and Van Oers (2009).

Reading instruction in the programmatic approach and in Developmental Education

The regular, traditional approach of reading instruction in the vast majority of Dutch schools is a textbook-driven programmatic instruction approach, in which strategy instruction is a central issue, in addition to exercises for vocabulary and textual skills such as pronominal procedures. The reading curriculum is delivered through a grade-leveled series of textbooks published by an educational publisher. Schools are free to choose any of the publishers. In accordance with research findings, modern reading programs teach a limited set of multiple strategies (Davis, 2010; NICHD, 2000; Snow, 2002).

Whereas in programmatic instruction the learning process is programmed in a detailed manner with strict adherence to textbooks and with emphasis on strategy instruction, in Developmental Education the focus is on meaningful content; strategy instruction is provided when needed for understanding of the content of the text.

The theoretical basis of Developmental Education (DE) is the Cultural Historical Activity Theory (CHAT) originating in the work of Vygotsky (Wells & Claxton, 2002). The basic assumption of this theory is that learning is fundamentally shaped by social interaction. Central concepts are ‘mediation’ and ‘psychological tools’, referring to the role of human and symbolic intermediaries in the transformation of the cultural world by the learner, to make sense of this world. In CHAT, culture is a dynamic notion, referring to values, experiences, artefacts and conventional patterns of social interactions ‘indexed in our everyday practices’ (Pacheco & Gutiérrez, 2009). Learning is embedded in these practices. The aim of teachers in educational approaches inspired by CHAT, such as Developmental Education, is to design authentic and meaningful learning experiences that relate to and build upon students’ funds of knowledge acquired in their environments (Moll, Amanti, Neff, & González, 1992; Wardekker, 2012; Wells, 2000). Meaningful activities are central in the curriculum in order to engage students in learning. The main purpose is for students to learn to make sense of the world they live in, in such a way that they acquire agency, i.e. learn to create meaning themselves by becoming participants in the classroom as a
community of learners. The ultimate goal is to strengthen students’ agency.

In the approach to literacy in Developmental Education (DE), reading (and writing) is primarily seen as an activity aimed at interpreting the world. In the teaching of reading the search for meaning is the starting point. This is in line with the view of the RAND reading study group which states that “the main purposes for reading are gaining meaning and gaining knowledge” (Snow, 2002, p. 40). Reading comprehension instruction is defined as giving “students access to culturally important domains of knowledge and provides a means of pursuing affective and intellectual goals” (Snow, 2002, p. 29). In particular the Concept Oriented Reading Instruction (CORI) of Guthrie and colleagues (Guthrie, McRae, & Klauda, 2007; Guthrie & Wigfield, 2000) has been a source of inspiration for the DE reading program. In the CORI approach of reading, engagement is core. These engagement processes are assumed to mediate the effect of instructional classroom practices on reading comprehension to a large extent. Reading engagement is defined as “interacting with text in ways that are both strategic and motivated” (Guthrie, Wigfield, & You, 2012, p. 602). The view is that, if reading practices in the classroom provide students with content that is meaningful to them and relevant to their lives, they will be motivated to read. This motivation, conceived as student’s goals, values and beliefs with regard to the reading activity, is thought to energize and direct cognitive-behavioral engagement processes such as the use of strategies involved in reading. The effortful and deliberate processes of strategic behavior in their turn lead to understanding a text and, ultimately, to reading competence.

Although the engagement perspective of Guthrie and Wigfield (2000) is related to the DE approach, reading in DE has a broader range than the focus on integrating reading in the teaching of subject matter in CORI (Van Rijk, Volman et al., 2016). In the DE curriculum, inquiry is the core activity in the higher grades (cf. Wells, 2000). Teachers create meaningful thematic units in which all activities relate to the theme. The selection of informative texts is driven by students’ self-generated research questions. Teachers seek to engage all students in reading texts that correspond to their interests and reading levels. Students are encouraged to bring relevant texts from home into the classroom and to share their ideas and thoughts. Students perform inquiries in collaborative expert groups and visualize their questions in ‘wall posters’. They may interview experts in their own environments or invite them to the classroom, or may set up an experiment to find answers. Strategy instruction and teaching of vocabulary and textual skills are an integrated part of the activities, as they pertain to understand the content of what is read. Whole classroom instruction is alternated with flexible instruction adjusted to the needs
of individual students or expert groups. Oral interaction and writing are inseparably connected to reading. Students write down answers to their questions to give each other information. Classroom discussions are occasions for collaborative thinking about problems and the student’s answers, inspiring students to revise their texts. Together with other products from the thematic unit, the revised texts are prepared for presentation, often to an audience of parents and students from other groups (Van Rijk, Volman et al., 2016).

The present study
Innovative approaches are considered suitable and profitable for students who belong to the ethnic majority, and who have parents with relatively high educational levels. The aim of DE teachers and -schools, however, is that their students will all benefit from the innovative DE approach, including students with disadvantaged backgrounds. In a former study (Van Rijk, De Mey et al., 2016) reading results of students in DE schools appeared to be equal to those of students in schools with traditional reading programs.

In the present study we exclusively focus on students with a disadvantaged background (ethnic minority, low-educated parents). It is examined to what extent such a background affects reading comprehension, knowledge of reading strategies and reading motivation of fourth-grade students in Developmental Education (DE) compared with the traditional approach which we refer to as Programmatic Instruction (PI). The focus is on the reading of informative texts.

The research questions are as follows:
1. To what extent do students from ethnic minorities in grade 4 in innovative DE schools differ from similar students in traditional PI schools with regard to reading comprehension (RC), reading strategies (RS) and reading motivation (RM)?
2. To what extent do students from low SES families in grade 4 in innovative DE schools differ from similar students in traditional PI schools with regard to RC, RS and RM?
Methods
Design
This study employed a pretest-posttest natural two group design. An innovative approach, Developmental Education (DE) was compared to a more traditional approach, Programmatic instruction (PI), the latter being default in the Netherlands. For these two approaches we were aiming to find out how students’ reading comprehension, knowledge of reading strategies, and reading motivation would evolve in the course of a school year, for two groups of students with a risk of educational disadvantage, i.e. students with an ethnic minority background and students from families with a low parental education level. Control variables were reading vocabulary, non-verbal IQ, and gender.

The pretests were administered in the beginning of the school year (September and October), while the posttests were conducted at the end (May and June). At both points in time tests of reading comprehension, and reading vocabulary were administered to the students, with students moreover completing questionnaires about reading motivation and knowledge of reading strategies. However, non-verbal IQ tests were administered only at the pretest. Both during the pretest and the posttest no more than two or three test sessions per day were scheduled to minimize test fatigue.

Participants
170 fourth-grade students (aged nine to ten) from ethnic minorities or with low parental education were selected from 24 classes in 24 schools (one class per school). 143 students were from an ethnic minority background and 74 students from low SES families. These categories overlap; 47 students were from both ethnic minority and low SES families. The DE group (n = 84 students) consisted of students from twelve classes. Five classes combined students from the third and fourth grades, but only fourth-graders participated in this study. The PI group (n = 86 students) consisted of students from twelve fourth-grade classes. Schools and teachers voluntarily participated in this study, and informed consent was obtained from the students’ parents.

74 students from ethnic minorities were in a DE school versus 69 students in a PI school. Of the students with low parental education level, 34 students were in a DE school versus 40 students in a PI school. 79 students were boys, 91 students were girls.

Procedures of school selection had taken place for a previous study (see Van Rijk, De Mey et al., 2016).
Table 1. Number of minority and low SES students per approach (DE and PI)

<table>
<thead>
<tr>
<th>Approach</th>
<th>Minority high SES</th>
<th>Minority low SES</th>
<th>Dutch low SES</th>
<th>Subtotal minority</th>
<th>Subtotal low SES</th>
<th>Sum total</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>50</td>
<td>24</td>
<td>10</td>
<td>74</td>
<td>34</td>
<td>84</td>
</tr>
<tr>
<td>PI</td>
<td>46</td>
<td>23</td>
<td>17</td>
<td>69</td>
<td>40</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td><strong>96</strong></td>
<td><strong>47</strong></td>
<td><strong>27</strong></td>
<td><strong>143</strong></td>
<td><strong>74</strong></td>
<td><strong>170</strong></td>
</tr>
</tbody>
</table>

Variables and instruments

Data regarding the background characteristics of the students were collected from the school administrations and included student gender, SES (parental education level), and ethnic minority / majority (parental country of origin and home language).

To determine ethnic minority / majority, we also asked students to provide the country of origin of their parents because the schools used different systems for the registration of parental country of origin. Since the extent to which the language spoken at home may be a predictor of reading comprehension, we also asked them about the language(s) spoken predominantly at home (Dutch, another language or a mix of both). The data regarding country of origin and home language provided by the students were combined into one dichotomous variable, ethnic minority / majority. The majority category was native Dutch, i.e. both parents are native Dutch, and Dutch is the home language; in the minority category one or both parents are not native Dutch and Dutch is not the only language spoken at home.

SES represents parental education level. This variable had two values: high SES, i.e. at least one of the parents has finished more than the lowest level of prevocational secondary education, and low SES, i.e. one of the parents has finished not more than primary education or both parents have finished only the lowest levels of prevocational secondary education.

All tests used in this study were national or international standardized tests for which the validities and reliabilities have been established in previous research.

Reading motivation was measured with a questionnaire that consists of 46 items, spread over seven subscales that have been validated and tested in previous research (De Milliano, 2013; Guthrie, 2010; Tellegen & Frankhuisen, 2002; Wigfield & Guthrie, 1997). Students were asked to indicate the extent to which each item applied to them on a five-point scale (1=does not suit me at all; 5=suits me very well), or a three-point scale (1=always, 2=sometimes, 3=never), depending on the origin of the scale.

Table 2 shows the subscales used.
Table 2. Subscales of the reading motivation questionnaire

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Nr of items</th>
<th>Measures the extent to which students</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>curiosity</td>
<td>7</td>
<td>read out of curiosity or interest for certain subjects.</td>
<td>There are different subjects that I like to read about.</td>
</tr>
<tr>
<td>preference for challenge</td>
<td>4</td>
<td>are ready to make an effort to understand a difficult text.</td>
<td>I like to read a rather difficult book.</td>
</tr>
<tr>
<td>extrinsic motivation</td>
<td>6</td>
<td>read because they have to, or because they will be rewarded.</td>
<td>I am going to read because I will get a high grade at school.</td>
</tr>
<tr>
<td>intrinsic value</td>
<td>10</td>
<td>read informative texts because they like to read them for reading itself.</td>
<td>I like to read for subject matters like History and Geography.</td>
</tr>
<tr>
<td>utility value</td>
<td>6</td>
<td>read because they find it useful.</td>
<td>In your spare time it is useful when you are good at reading.</td>
</tr>
<tr>
<td>self-efficacy</td>
<td>6</td>
<td>are confident about their ability to understand a text.</td>
<td>I am good at reading.</td>
</tr>
<tr>
<td>instrumental motivation</td>
<td>7</td>
<td>read as a means to gain knowledge, to reach a goal.</td>
<td>If I want to know something about my hobby, I read about it.</td>
</tr>
</tbody>
</table>

The curiosity, preference for challenge and extrinsic motivation subscales originated from the Motivation for Reading Questionnaire (MRQ) (Guthrie, 2010). We used the translation for the Dutch context (Förrer & Van de Mortel, 2010). The other subscales have been developed and tested by Dutch researchers: intrinsic value, utility-value, self-efficacy by De Milliano (2013), and instrumental motivation by Tellegen and Frankhuisen (2002).

For the present sample, reliability was calculated using Cronbach’s α. Reliability of the subscales from the MQR was poor for preference for challenge (.58) and utility value (.65). These subscales were not retained in further analyses. For the five subscales retained, the mean sum scores were used, which ranged from 0 to 19. Reliability was estimated using Cronbach’s α, which was between .68 and .80. This is acceptable (Field, 2009; Sijtsma, 2009).

Reading comprehension was assessed using the 2006 Progress in International Reading Literacy Study (PIRLS) for students aged nine and ten in forty countries (Mullis, Martin, Kennedy, & Foy, 2007). We used the test part consisting of a booklet with informative texts (three texts about Searching for food). Students answered 15 questions, eight of which were multiple choice and seven of which
were open-ended questions. For three open-ended questions a score of two points could be obtained, making the overall maximum score 18. The questions assessed the following four categories: (1) the ability to focus on and retrieve explicitly stated information, (2) the creation of straightforward inferences, (3) the interpretation and integration of ideas and information, and (4) the examination and evaluation of content, language and textual elements. An open-ended question was, for example: ‘What is similar in the way ants and pill bugs find their food?’ The open-ended questions were scored by two fellow researchers, using the PIRLS scoring guide. Answers were discussed to obtain consensus. For the present sample, Cronbach’s α was used to calculate reliability of the sum scores, and was .73. Reliability, therefore, is moderate, but acceptable.

Knowledge of reading strategies was assessed via a questionnaire that was developed by Brand-Gruwel (1995). This questionnaire consisted of 22 multiple choice questions regarding strategies that are to be applied before, during and after reading, such as goal setting and predicting, question answering and summarizing. Questions were of the type ‘What is best to do… (e.g. before reading)?’ Students had to choose the best option out of three: the most adequate strategy, a less adequate strategy and an irrelevant strategy. The sum score ranged from 0 to 44. For the present sample, Cronbach’s α was .68, which means that reliability is moderate, but acceptable.

Reading vocabulary was measured using a standardized test (Verhoeven & Vermeer, 1995). This test consists of 30 multiple choice items. From among four possible answers, students were required to choose the meaning of the word that was underlined in a sentence. The sum score ranged from 0 to 30. For the present sample, reliability was good (Cronbach’s α was .84).

Non-verbal IQ was measured using the Raven Standard Progressive Matrices (SPM) (Raven, Raven, & Court, 2000). This test measures students’ reasoning abilities and consists of 60 items that are listed by order of difficulty. Each item presents a set of geometrical figures of which one figure was missing. The missing item must be selected from a set of six or eight answers. The test was administered to the entire group. The sum score ranged from 0 to 60. For the present sample Cronbach’s alpha was .79, which means that reliability was moderate, but acceptable.

In order to verify whether reading instruction was provided as intended in DE and PI a teacher questionnaire was used. The questionnaire consisted of 26 statements on a five-point Likert scale. The maximum sum score was 130. The statements were divided into six categories. The first category was about the programmatic or non-programmatic character of the approach (e.g., ‘I use a pre-programmed textbook for reading comprehension’). This was followed by five sets of statements,
each covering one of the motivational components that were distinguished by Guthrie et al. (2004) and have been incorporated into DE – integration of reading instruction in subject matter, providing interesting texts, choice of text, collaboration, fostering successful reading experiences by providing appropriate texts and positive feedback (self-efficacy). Items were, for example, ‘In my class students use information from texts read for other learning activities’ or ‘In my class students may choose informative texts to read’.

Additionally, during data collection, a researcher was present five or six times in every classroom. Informal observation of the classrooms and informal conversation with the teachers offered an opportunity to verify features of the reading approaches: the types of text used (textbooks for PI, and no extra texts visible in PI classrooms versus a variety of meaningful texts for DE), the classroom context, such as the way in which teachers provided reading instruction (teacher manuals for PI, flexible instruction adjusted to students’ level from teachers for DE), visibility of research questions (wall posters) and collaboration in DE classrooms.

Data-analysis
In the present study, analyses were performed for ethnic minority students (n = 143) and low SES students (n = 74) separately (with an overlap regarding 47 students that were from both ethnic minority and low SES families). The student data had a two-level hierarchical structure; i.e. students (level 1) were nested within classrooms (level 2, n = 24). As only one class per school participated, the classroom level was equal to the school level. The assumption of the independence of the observations was tested. We deduced from the intra-class correlations (ICC’s) that multilevel modelling was the most suitable approach for data analysis. Intra-class correlations ranged from 8% to 24%. We used the mixed-model procedures of SPSS (20.0) with maximum likelihood (ML) estimation² (Hox, 1995).

Inspection of the missing values revealed that, for some covariates, the missing data points were substantial (> 5%). Therefore, multiple imputation was applied, as this technique is favorable for parameter estimation (Tabachnick & Fidell, 2011). In addition to the original dataset, five imputed sets were created, using the multiple imputation procedure in SPSS 20. The outcomes of the ‘pooled’ imputed set were used in subsequent analyses.

² In SPSS, two estimation methods are available: restricted maximum likelihood (RML) and ML. The latter estimation method is preferable when comparing the fit indices (-2 log likelihood) of two models that differ only in the numbers of fixed-effect parameters as was the case in the present study.
As we were interested in effects of the educational DE and PI approaches on the outcome variables of reading comprehension, knowledge of reading strategies, and reading motivation for minority students (research question 1) and low SES students (research question 2) effects on these variables were analyzed for both categories of students (minority and low SES) using a step-up model building strategy (West, Welch, & Galecki, 2007). Standardized scores (z-scores) were used for analyses and, following Tymms (2004), we calculated effect sizes for dichotomous and continuous variables, using Cohen’s d as a standardized measure for hierarchical linear modeling. According to Cohen’s guidelines (1988), d = 0.2 represents a small effect size, d = 0.5 represents a medium effect size, and d = 0.8 represents a large effect size. For testing the results, a 95% confidence level was used.

All analyses begin with intercept-only (or unconditional) models in which the intercepts (mean levels) of the dependent variables were estimated and the random effects (or estimations of variance) of the following two components were also estimated: classroom means (i.e. classroom intercepts) and the individual errors (i.e. residuals). Subsequently, the predictors (covariates) at level 1 (student) were included one by one while testing their fixed effects. First, the pretest measurement of the outcome variable was included as a covariate to increase the power of the analyses (Lipsey & Hurley, 2009). Next, the variables related to reading (that were also analyzed separately as outcome variables) were included in the model, i.e. reading comprehension, knowledge of reading strategies, and reading motivation. Since every outcome variable may also be a predictor of another outcome variable, these variables are included in the regression, along with the possible confounders. The confounders at level 1 were vocabulary, non-verbal IQ, and gender. The approach (DE versus PI) was added to the model at level 2 to test the effects of DE and PI. We controlled for SES in the regression of ethnic minority students, and for minority in the regression of low SES students. Each covariate was tested for its contribution to the model fit and its effect on the outcome variable. The calculated deviance statistics (-2 log likelihood) of the different models were compared and tested with a χ² difference test to draw conclusions about the improvement of the model. A positive conclusion led to the inclusion of the predictor in the model. The final models were constructed on the basis of the parsimony principle. More parsimonious models were created by removing non-significant predictors whose removal did not negatively affect the model fit.
Results

Preliminary analyses

This section begins with descriptions of the means and standard deviations of all variables for the categories minority and low SES by educational approach (DE or PI) and measurement occasion (Table 3).

An ANOVA revealed that responses of teachers in the DE and the PI approach on the teacher questionnaire differed significantly in three aspects: the use of a program that was based on a textbook, \( F(1,22) = 10.80; p < 0.05 \) (DE: \( M = 3.37, SD = 0.74 \); PI: \( M = 2.33, SD = 0.75 \)), the provision of choice of texts, \( F(1,22) = 19.08; p < 0.05 \) (DE: \( M = 3.67, SD = 0.74 \); PI: \( M = 3.42, SD = 0.54 \)), and the integration of reading instruction with content, \( F(1,22) = 12.10; p < 0.05 \) (DE: \( M = 4.00, SD = 0.64 \); PI: \( M = 3.00, SD = 0.75 \)). These results revealed that DE teachers were indeed teaching according to the DE approach and PI teachers according to the PI approach. No significant differences were found in teachers’ answers about three other aspects. These were providing interesting texts, \( F(1,22) = 0.69, p > 0.05 \) (DE: \( M = 3.67, SD = 0.75 \); PI: \( M = 3.43, SD = 0.54 \)), organizing collaboration, \( F(1,22) = 0.82, p > 0.05 \) (DE: \( M = 4.13, SD = 0.83 \); PI: \( M = 4.33, SD = 0.71 \)), and fostering successful reading experiences by providing appropriate texts and positive feedback (self-efficacy), \( F(1,22) = 0.36, p > 0.05 \) (DE: \( M = 3.56, SD = 0.73 \); PI: \( M = 3.26, SD = 0.85 \)). The contrasts between these approaches were considered sufficient for further analyses, also because these outcomes were confirmed by informal observation of the classrooms and informal conversation with the teachers.

Next, the dependencies of the data were tested. The intra-class correlations were used as an indication of dependency. Table 5 presents the results of the intercept-only models of the outcome variables; i.e. reading comprehension, knowledge of reading strategies and reading motivation. The deviance of the intercept-only models may be compared to the deviance of the final models.

The final model for reading motivation was based on fixed effects at student level. Although for knowledge of reading strategies the intra-class correlation ICC (8%) indicated that the variance in the data was mainly attributable to the child level, the effects of the predictors could, in theory, still vary randomly across classrooms. Therefore fixed effects predictors were also allowed to vary randomly across units at classroom level.

These categories overlap; 47 students were from both ethnic minority and low SES families.
| Table 3. Means and standard deviations of the variables for ethnic minority students (minority) and students with low parental education level (low SES) by group and measurement occasion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DE group |  |  | PI group |  |  |
|  | Pretest | Posttest | Pretest | Posttest |
|  | n | M | SD | n | M | SD | n | M | SD |
| minority |  |  |  |  |  |  |  |  |  |  |  |  |
| reading comprehension | 71 | 6.28 | 3.10 | 72 | 7.87 | 3.40 | 63 | 6.29 | 2.61 | 68 | 8.37 | 3.32 |
| knowledge of reading strategies | 71 | 35.23 | 3.93 | 72 | 37.86 | 3.45 | 65 | 34.03 | 4.03 | 69 | 36.14 | 3.60 |
| reading motivation | 56 | 13.95 | 1.56 | 58 | 14.09 | 1.57 | 54 | 13.75 | 1.36 | 65 | 14.08 | 1.10 |
| vocabulary | 68 | 15.00 | 4.59 | 73 | 14.42 | 4.91 | 66 | 17.08 | 4.62 | 67 | 16.75 | 5.06 |
| non-verbal IQ | 69 | 34.77 | 9.49 | 68 | 37.51 | 7.06 |  |  |  |  |  |  |
| SES |  |  |  |  |  |  |  |  |  |  |  |  |
| reading comprehension | 34 | 5.76 | 2.65 | 30 | 6.93 | 3.51 | 37 | 5.32 | 2.64 | 41 | 7.15 | 3.14 |
| knowledge of reading strategies | 34 | 34.88 | 3.56 | 30 | 36.60 | 4.04 | 38 | 32.66 | 3.78 | 40 | 35.92 | 3.62 |
| reading motivation | 22 | 13.84 | 1.48 | 28 | 13.83 | 1.17 | 29 | 13.67 | 1.43 | 37 | 14.09 | 0.92 |
| non-verbal IQ | 32 | 33.84 | 8.00 | 38 | 35.89 | 6.71 |  |  |  |  |  |  |

*a total score: range 0 to 17; b total score: range 0 to 44; c mean sum: range 0 to 19; d total score: range 0 to 30; e total score: range 0 to 60*
Table 4. Means and standard deviations of the variables in the teacher questionnaire per group

<table>
<thead>
<tr>
<th>Variable</th>
<th>DE group (n = 16)</th>
<th>PI group (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>non-programmatic character</td>
<td>3.37</td>
<td>(.74)</td>
</tr>
<tr>
<td>interesting texts</td>
<td>3.67</td>
<td>(.74)</td>
</tr>
<tr>
<td>choice of texts</td>
<td>3.32</td>
<td>(.38)</td>
</tr>
<tr>
<td>collaboration</td>
<td>3.56</td>
<td>(.73)</td>
</tr>
<tr>
<td>appropriate texts and positive feedback</td>
<td>4.12</td>
<td>(.83)</td>
</tr>
<tr>
<td>integration of reading instruction</td>
<td>4.00</td>
<td>(.64)</td>
</tr>
</tbody>
</table>

Table 5. Intercept-only models of reading comprehension, knowledge of reading strategies, and reading motivation of ethnic minority students (minority) and students with low parental education (low SES) of the entire group (DE and PI) (n=170)

<table>
<thead>
<tr>
<th></th>
<th>Comprehension</th>
<th>Strategies</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate (SE)</td>
<td>Estimate (SE)</td>
<td>Estimate (SE)</td>
</tr>
<tr>
<td>minority (N=143)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fixed effect parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intercept</td>
<td>-.36** (.13)</td>
<td>-.12 (.10)</td>
<td>.11 (.07)</td>
</tr>
<tr>
<td>random effect parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>residuals (students)</td>
<td>.76** (.10)</td>
<td>.71** (.09)</td>
<td>.75** (.09)</td>
</tr>
<tr>
<td>intercept (subject = classroom)</td>
<td>.18 (.10)</td>
<td>.06 (.05)</td>
<td>-</td>
</tr>
<tr>
<td>intraclass correlation (icc)</td>
<td>.19</td>
<td>.08</td>
<td>-</td>
</tr>
<tr>
<td>deviance (-2 log likelihood)</td>
<td>352</td>
<td>342</td>
<td>350</td>
</tr>
<tr>
<td>low SES (N=74)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fixed effect parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intercept</td>
<td>-.65** (.17)</td>
<td>-.34* (.15)</td>
<td>-.01 (.13)</td>
</tr>
<tr>
<td>random effect parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>residuals (students)</td>
<td>.68** (.13)</td>
<td>.73** (.14)</td>
<td>.54** (.10)</td>
</tr>
<tr>
<td>intercept (subject = classroom)</td>
<td>.22 (.14)</td>
<td>.14 (.13)</td>
<td>.10 (.09)</td>
</tr>
<tr>
<td>intraclass correlation (icc)</td>
<td>.24</td>
<td>.16</td>
<td>.16</td>
</tr>
<tr>
<td>deviance (-2 log likelihood)</td>
<td>177</td>
<td>177</td>
<td>151</td>
</tr>
</tbody>
</table>

Notes:
A dash means that classroom variance could not be reliably computed by spss.
Minority and low SES categories partially overlapped: 47 students were in both categories.
### Multilevel analyses: Effects of educational approach for ethnic minority students

Table 6 presents the final multilevel models for ethnic minority students and reveals the effects of the approach (DE versus PI) on reading comprehension, knowledge of reading strategies and reading motivation.

#### Table 6. Final multilevel models of reading comprehension, reading motivation, and knowledge of reading strategies of ethnic minority students (DE approach versus PI approach) (N=143)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Comprehension</th>
<th>Strategies</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>SE</td>
<td>d</td>
</tr>
<tr>
<td>intercept</td>
<td>-.13</td>
<td>(.10)</td>
<td>-.09</td>
</tr>
<tr>
<td>level 1 fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pretest</td>
<td>.27**</td>
<td>(.08)</td>
<td>.81</td>
</tr>
<tr>
<td>pretest comprehension</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>strategies</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>motivation</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vocabulary</td>
<td>.20**</td>
<td>(.08)</td>
<td>.60</td>
</tr>
<tr>
<td>non-verbal IQ</td>
<td>.18**</td>
<td>(.06)</td>
<td>.54</td>
</tr>
<tr>
<td>gender (0=girl)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES (0=low)</td>
<td>-.13</td>
<td>(.14)</td>
<td>.19</td>
</tr>
<tr>
<td>level 2 fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>approach (0=DE)</td>
<td>.40*</td>
<td>(.19)</td>
<td>.56</td>
</tr>
<tr>
<td>random effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>residual</td>
<td>.76**</td>
<td>(.10)</td>
<td>.51**</td>
</tr>
<tr>
<td>class / school</td>
<td>.18</td>
<td>(.10)</td>
<td>.05</td>
</tr>
<tr>
<td>icc</td>
<td>.19</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>$-2\log$ likelihood</td>
<td>352</td>
<td>277</td>
<td>272</td>
</tr>
<tr>
<td>$\chi^2$ difference test</td>
<td>$\chi^2(4) = 98**$</td>
<td>$\chi^2(3) = 61**$</td>
<td>$\chi^2(3) = 78**$</td>
</tr>
</tbody>
</table>

**Notes:**
- Blanks: no improvement of the model fit, and no significant effect, the variable was removed from the model.
- ** (p < .01); * (p < .05)
- Level 1 is the student level, and level 2 is the classroom level.
- SES represents the level of parental education.
- Gender is coded 0 for girls and 1 for boys; SES is coded 0 for low SES and 1 for high SES; the approach is coded 0 for DE and 1 for PI.
Effects on reading comprehension for ethnic minority students
Table 6 shows that the educational approach (DE or PI) had no effect on comprehension outcomes (this is represented by a blank for the approach). In other words, no differences in reading comprehension were found between DE and PI for ethnic minority students.

Of the predictors, vocabulary ($b = 0.20$, $SE = 0.08$, $p < 0.01$, $d = 0.60$) and non-verbal IQ ($b = 0.18$, $SE = 0.06$, $p < 0.01$, $d = 0.54$) had a positive effect on reading comprehension with a medium effect size. SES improved the model fit and was therefore retained in the model.

Effects on knowledge of reading strategies for ethnic minority students
As illustrated in Table 6, the educational approach (DE or PI) had an effect on the knowledge of reading strategies ($b = 0.40$, $SE = 0.19$, $p < 0.05$, $d = 0.56$). In other words, ethnic minority students in DE had better knowledge of reading strategies than their counterparts in PI. Vocabulary was the only predictor with a positive effect on knowledge of reading strategies ($b = 0.19$, $SE = 0.08$, $p < 0.05$, $d = 0.54$). SES had a small effect size ($b = -0.18$, $SE = 0.15$, $p > 0.05$, $d = 0.25$) and improved the model fit; it was therefore retained in the model.

Further exploration of the DE group and the PI group separately revealed that PI accounted for the positive effect of vocabulary ($b = 0.35$, $SE = 0.13$, $p < 0.01$, $d = 0.97$). This means that for ethnic minority students in PI, a rich vocabulary benefits their knowledge of reading strategies. In DE, a negative effect was found for SES ($b = -0.47$, $SE = 0.18$, $p < 0.01$, $d = 0.75$), which means that ethnic minority students with low parental education level have less knowledge of reading strategies than students with more educated parents. Furthermore, a medium effect size was found in DE for reading comprehension ($b = 0.21$, $SE = 0.09$, $p > 0.05$, $d = 0.66$), which also improved the model fit. This indicates that in DE, ethnic minority students with good reading comprehension tend to have a good knowledge of reading strategies, but not so in PI.

Effects on reading motivation for ethnic minority students
As seen in Table 6, which contains a blank for the approach, the educational approach (DE or PI) had no effect on reading motivation. This means that no differences were found between DE and PI for ethnic minority students on reading motivation.

None of the predictors had an effect on the outcomes of reading motivation at the end of grade 4. SES improved the model fit and was therefore retained in the model.
Multilevel analyses: Effects of educational approach for low SES students

Table 7 presents the final multilevel models for low SES students and reveals the effects of the approach (DE versus PI) on reading comprehension, knowledge of reading strategies and reading motivation for this category of students.

Table 7. Final multilevel models of reading comprehension, reading motivation, and knowledge of reading strategies of students with low parental education level (DE approach versus PI approach) (N=74)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Comprehension</th>
<th>Strategies</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>d</td>
</tr>
<tr>
<td>intercept</td>
<td>-.25*</td>
<td>(.12)</td>
<td>-.16</td>
</tr>
<tr>
<td>level 1 fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pretest</td>
<td>.61**</td>
<td>(.10)</td>
<td>1.90</td>
</tr>
<tr>
<td>comprehension X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>strategies X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>motivation X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vocabulary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>non-verbal IQ</td>
<td>.22**</td>
<td>(.10)</td>
<td>.69</td>
</tr>
<tr>
<td>gender (0=girl)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>minority (0=not Dutch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>level 2 fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>approach (0=DE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>random effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>residual</td>
<td>.41**</td>
<td>(.08)</td>
<td>.52**</td>
</tr>
<tr>
<td>class / school</td>
<td>.06</td>
<td>(.05)</td>
<td>.16</td>
</tr>
<tr>
<td>icc</td>
<td>.13</td>
<td>.24</td>
<td>.26</td>
</tr>
<tr>
<td>-2*log likelihood</td>
<td>136</td>
<td>158</td>
<td>147</td>
</tr>
<tr>
<td>$\chi^2$ difference test</td>
<td>$\chi^2 (2) = 41**$</td>
<td>$\chi^2 (1) = 19**$</td>
<td>$\chi^2 (2) = 14**$</td>
</tr>
</tbody>
</table>

Notes:
Blanks: no improvement of the model fit, and no significant effect, the variable was removed from the model.
** (p < .01); * (p < .05)
Level 1 is the student level, and level 2 is the classroom level.
Minority represents parental country of origin and home language not exclusively Dutch.
Gender is coded 0 for girls and 1 for boys; minority is coded 0 for parents and home language not exclusively Dutch and 1 for both parents and home language are Dutch; the approach is coded 0 for DE and 1 for PI.
Effects on reading comprehension for low SES students
The educational approach (DE or PI) had no effect on comprehension outcomes as seen in Table 7, which contains a blank for the approach. In other words, no differences were found between DE and PI for students with low parental education level on reading comprehension.

Of the predictors, non-verbal IQ ($b = 0.22$, $SE = 0.10$, $p < 0.01$, $d = 0.69$) had a positive effect on reading comprehension with a medium effect size. This means that intelligent students with low parental education level have better reading comprehension than their less intelligent counterparts.

Effects on knowledge of reading strategies for low SES students
The educational approach (DE or PI) had no effect on knowledge of reading strategies as seen in Table 7, which contains a blank for the approach. This means that no differences were found between DE and PI for students with low parental education level on the knowledge of reading strategies.

None of the control variables had an effect on knowledge of reading strategies or improved the model fit.

Effects on reading motivation for low SES students
The educational approach (DE or PI) had no effect on low SES students’ reading motivation as seen in Table 7, which contains a blank for the approach. In other words, no differences were found between DE and PI for students with low parental education level on reading comprehension.

Of the predictors, non-verbal IQ had a small effect size ($b = 0.10$, $SE = 0.09$, $p > 0.05$, $d = 0.30$), and improved the model fit. This means that intelligent students with low parental education level are more motivated to read informative texts, than their less intelligent counterparts.

Conclusion and Discussion
The aim of the present study was to compare the effects on students with a disadvantaged background of two approaches to reading comprehension instruction, i.e. the innovative meaning-oriented practice of Developmental Education (DE) and the more traditional practice of Programmatic Instruction (PI). We focused on students with an ethnic minority background and students from low SES families. The effects of the DE and PI approach were compared in terms of students’ reading comprehension, knowledge of reading strategies and reading motivation. It was assumed
that DE, with its focus on meaning, adds value to reading instruction, and motivates students to read informative texts.

The research questions focused on the extent to which fourth-grade disadvantaged students in innovative DE schools differ from similar students in traditional PI schools regarding the outcome variables reading comprehension, knowledge of reading strategies, and motivation for reading informative texts. For ethnic minority students no differences were found between the approaches regarding reading comprehension and reading motivation, after controlling for vocabulary, non-verbal IQ, SES, and gender. Ethnic minority students in DE, however, were found to have significantly better knowledge of reading strategies than students in PI. For students from low SES families, no differences between DE and PI were found for any of the outcome variables.

In general we may conclude that the innovative DE approach is as suitable for disadvantaged students as the traditional PI approach regarding reading informative texts. Whereas no differences between the approaches were found for reading comprehension and reading motivation, ethnic minority students in DE performed better on knowledge of reading strategies than their counterparts in PI.

Contrary to what was expected, however, the focus on reading for meaning in DE did not lead to higher motivation among disadvantaged students to read informative texts. This corresponds with our earlier findings from a mixed sample, containing ethnic minority / majority students with low-educated and high-educated parents (n=570) (Van Rijk, De Mey et al., 2016). For both the present and the previous samples we were unable to determine whether DE’s orientation on meaning motivated students to read informative texts.

It is sometimes assumed that students with disadvantaged backgrounds would benefit more from traditional approaches in which a fixed curriculum, direct instruction and rehearsal are core (Hornstra, Mansfeld et al., 2015; Overmaat & Ledoux, 2002). The results of the present study suggest that disadvantaged students benefit equally from an innovative approach with a focus on an active role of students in their own learning process and a teacher who guides rather than transmits knowledge. This is in line with Van Oers (2012). The finding that ethnic minority students in DE had higher scores on knowledge of reading strategies corresponds with earlier findings. This has been explained by a tendency of these students to compensate their inadequate language skills for the language used in their school by making an extra effort for reading strategies (Snow, 2002). It remains to be explained, however, why this is the case to a greater extent in DE than in PI. It leads us to think that characteristics of the DE approach may account for the effect. It may be the instruction
of reading strategies in DE (modeling more than direct instruction, making reading personally meaningful and functional reading instead of textbook-driven reading) which makes the use and the usefulness of reading strategies clearer to ethnic minority students. It may also be that reading strategies are more meaningful to students when needed for understanding text content that is meaningful to them. It remains unclear why this is not also the case for students from low SES families, including ethnic minority students from low SES families.

Noticeable for students with a low parental education level is the absence of predictors (except non-verbal IQ), in combination with the high percentages for classroom influence. For these students, classroom variance was high (ranging from 13% to 26%). Although the present study does not offer an explanation for this finding, it indicates that, with regard to learning to read informative texts, variables at classroom level matter for students with low parental education. However, in this study we have not been able to identify these variables. These variables may be related to classroom composition or teacher quality. Allington (2002, p. 2) suggests that good teachers matter much more than particular curriculum materials, pedagogical approaches, or ‘proven program’. The teacher is the first factor in line to influence effectiveness (Hattie, 2009). Other studies have shown that 43% of the variance in student achievement in reading comprehension can be attributed to teacher quality (Ferguson, 1991 in: Snow, 2002).

An important limitation to the present study are the small numbers of students with an ethnic minority background and students with low parental education level that could be included in the study. Since DE is a relatively recent, innovative concept that appeals mostly to highly-educated native Dutch parents in urban contexts, large numbers of disadvantaged students could not be found in DE. This was especially the case for native Dutch students with a low parental education level. Moreover, almost two thirds of the students with a low parental education level also belonged to the ethnic minority group. Numbers were too small to focus on the category of low SES minority students. Moreover, in our analyses we have calculated the main effects of the predictors. It would have been interesting to also establish interaction effects between the approach (DE or PI) and minority and between the approach and low SES. Again, numbers were too small. However, the findings of the present study provide indications that innovative education is as favorable to disadvantaged students concerning reading informative texts as traditional education is. For more detailed insights, a larger sample would be required. In future research, as the number of DE schools increases, it may become possible to focus more on reading achievements and motivation of disadvantaged students.
Finally, it is a limitation of the present study that the examinations of the teachers’ instructional practices within both approaches were based on self-reports. DE and PI schools may be more heterogeneous in their reading approaches than the measures used indicated. Systematic classroom observations would have provided more insight into actual practices. Future research on teaching to read informative texts to disadvantaged students could make use of classroom observations and study the perceptions of the teachers and the students of the educational approach.

The present study has raised some more issues for future research. Teachers in the study of Hornstra, Van der Veen et al. (2015) were reluctant to adopt an innovative approach for disadvantaged students, although no significant relations were found between (teachers’ perceptions of) the extent of innovativeness of their reading practices and reading comprehension scores of disadvantaged students. Future research on teachers’ reluctance to adopt innovative approaches may shed some light on teachers’ needs in terms of schooling and support.

In this study, ethnic minority students in DE were found to have better knowledge of reading strategies than their counterparts in PI. However, in DE (not in PI), ethnic minority students with a low parental education level have less knowledge of reading strategies compared to ethnic minority students with more highly educated parents. Our study did not enable us to obtain a more detailed view of this issue. Since this is a group that needs teachers’ special attention, further research may investigate the educational needs of this particular group of disadvantaged students.

In the present study we were unable to confirm the assumption that the DE reading approach adds value in terms of motivating students; DE with its focus on reading for meaning, was not found to motivate students with disadvantaged backgrounds to read informative texts more than PI did. Further research is needed to gain more insight into the added value of DE in terms of the other, further-reaching DE goals of identity development, agency and citizenship.
CHAPTER 5

Reader identities in developmental and programmatic primary education

Abstract: The present study investigates reader identities in primary education, with a focus on reading informative texts. We examined which reader identities occurred among fourth-grade students, whether they differed between schools with a textbook-driven approach (Programmatic Education) and an innovative Vygotskian approach (Developmental Education), between strong and struggling readers, and between boys and girls. Semi-structured interviews were held with 32 students about their reading activities, attitudes, emotions and perceived ability regarding reading informative texts. Content analysis revealed three types of reader identities, differing in the way students see themselves as readers and the meaning they attribute to reading as a social practice: 1) discoverers, for whom reading informative texts is a way of discovering the world, 2) instrumentalists, who see reading as a requirement for societal success and 3) compliers, who read informative texts because that is a school demand. In DE and PI similar reader identities were found, although DE students’ notions of reading ability were more focused on understanding while those of PI students were more focused on technical aspects. Also communication about text was a more prominent feature of the accounts of the DE students. Strong readers and relatively many boys belonged to the discoverers category, whereas struggling readers and girls were mostly instrumentalists or compliers. The underrepresentation of girls in the category of discoverers seems to be related to the kind of informative texts the girls associated reading at school with, and which seemed to fit their interests less than those of boys.

Keywords: reader identities, informative texts, reading for meaning, gender

1 Based on: Van Rijk, Y., Volman, M., Lemat, M., & Van Oers, B. (submitted). Reader identities in developmental and programmatic primary education.
Chapter 5

Introduction
In the last decade, theories of reading comprehension increasingly emphasize the central role of making meaning (e.g. Guthrie & Wigfield, 2000). Developmental Education is an educational approach based on Vygotskian theory (Van Oers, 2009, 2012) that takes making reading meaningful to students as a central pursuit. According to Vygotskian perspectives, learning to read needs to be both personally and culturally meaningful (Claxton & Wells, 2002); beyond specific literacy skills, reading aims at shaping identity and citizenship. Informative texts are viewed as cultural resources, which are used with a communicative purpose (Van Oers, 2009). It may be expected that in reading approaches based on such a perspective students think differently about reading and about themselves as readers, compared to students in traditional programmatic education, i.e. they develop different reader identities. This study aims to explore whether reader identities of students in Developmental Education (DE) and in schools using a programmatic approach to reading comprehension differ, with a focus on reading informative texts. Developing a positive reader identity in relation to informative texts is crucial for students’ educational careers since learning in many school subjects relies on reading such texts. Research into reader types related to fictional texts has revealed differences between girls and boys (Millard, 1997) and between strong and struggling readers (Anderson, 2009). We will therefore also explore differences between these student categories for reading informative texts.

Reader identity
In this study we consider reading a sociocultural practice (Van Oers, 2009) and define ‘reader identity’ as a student’s narrative about how he/she views him/herself as a participant of the sociocultural practice of reading. With this definition, we build on and extend earlier research into reader types (e.g. Anderson, 2009; Guthrie, Coddington, & Wigfield, 2009).

Guthrie, Coddington and Wigfield (2009) defined four reader profiles, in terms of intrinsic motivation and avoidance. This resulted in a typology that distinguishes between (1) avid readers—high intrinsic motivation, low avoidance; (2) ambivalent readers—high intrinsic motivation, high avoidance; (3) apathetic readers—low intrinsic motivation, low avoidance; (4) averse readers—low intrinsic motivation, high avoidance. The more motivated students are and the lower their avoidance is, the better they perform in reading.

Anderson (2009) defines four types of (dyslectic) readers, based on interest (interested vs. uninterested readers) and reading ability (good vs. poor readers, re-
ferring to abilities concerning the technical aspect of reading): ‘interested reader’, ‘uninterested reader’, ‘interested dissembler’, and ‘uninterested dissembler’. Observations revealed that students may fit more than one type, depending on the content of the text. When a text was meaningful to the reader, he/she tended to fit the ‘interested’ types. Besides, the classroom context appeared to be a vital element in students’ self-image in terms of ability. Millard (1997) relates gender to reader types. Her research shows that boys tend to read much more for practical ends than do girls who generally prefer fiction and storybooks.

In our study we are interested in reader types from the perspective of the student him/herself: the way in which they see themselves as readers, or their reader identities. Reading identities were previously investigated by Hall (2010). She argues that the decisions students make are influenced by how students identify themselves as readers and how they want others to identify them. In another study, Hall (2012) found that sixth grade students who self-identified as high-performing readers talked about texts and strategies in ways that were different from students who self-identified as being average or low-performing readers. This illustrates the importance of reader identities in mediating future actions.

In order to understand how students relate to and deal with reading, we assume a sociocultural perspective, which not only focuses on students’ motivation and reading ability, but also on students’ perceptions of reading as a social practice—what reading is and what it is good for. In a sociocultural approach of reader identity, how students think about themselves as readers is intertwined with their perception of reading as a social practice. Moreover, identity is seen as a dynamic construct that is under continuous shaping and re-shaping in interactions between the individual and the social practices in which he or she participates (Penuel & Wertsch, 1995; Ten Dam, Volman, & Wardekker, 2004). Students define who they are towards others and themselves by their actions and the narratives they articulate, and thus shape and re-shape their identities (Sfard & Prusak, 2005). Students’ reader identities are shaped by their experiences of reading and learning to read. They are also defined by others as a certain kind of reader (Hall 2010; cf. Coll & Falsafi’s definition of learner identity, 2010), and at the same time students learn about the kind of social practice reading is. This happens at home (with family and other community members), in interaction with peers and friends (Millard, 1997), and is connected to prior knowledge and former experiences (Ryan & Anstey, 2003). School, however, is a major site for the development of reader identities.

In the current study, reader identity is considered a narrative about how students view themselves as readers and what reading means to them, that is con-
structured in social interaction and joint activity in sociocultural practices at school and at home.

**Reader identities in different educational approaches**

A second focus of our study is on how different educational approaches affect students’ reader identities. If identity is formed through participating in sociocultural practices, differences between such practices may result in differences in identity.

In traditional textbook-driven, programmatic education, reading instruction focuses on strategic reading skills, which are practiced by students through answering questions about texts. The course of development in reading is mainly determined by a fixed sequence of texts and learning goals. Over the past decennia it has been argued that reading should be made meaningful to students, and educational approaches have been developed that aim at promoting reading engagement (Guthrie & Wigfield, 2000; Snow, 2002; Sweet & Snow, 2003). A related approach in the Netherlands is Developmental Education (DE), a pedagogy based on Vygotsky’s ideas, described by Van Oers (2009) as an educational approach in which learning becomes meaningful through participation and collaboration in sociocultural practices. In DE, students participate and read in classroom reconstructions of authentic sociocultural practices. Reading activities are closely related to their interests, aimed at enhancing emotional engagement. In DE, the functionality of reading is emphasized by organizing and promoting reading activities as a communicative practice that serves the students’ intention to answer questions, related to their interests. Instead of being a goal in itself, learning to read is considered a means for gaining knowledge and improving one’s participation in social practices with the help of this knowledge. Reading informative texts is seen as a way in which students can connect to society; texts serve as cultural resources and as voices of absent others (Van Oers, 2009).

We expect to see some of these differences between traditional textbook-driven education and Developmental Education (DE) to be reflected in the reader identities students develop within these types of education.

**This study**

In this study we explore whether different types of reader identity related to reading informative texts can be found in primary education. Our first aim is to develop a typology of reader identities that is not only based on the dimensions ability and interest but also includes a dimension that refers to the meaning of reading for the student. Our second aim is to investigate how reader identities differ between the educational contexts of DE schools and schools that use a programmatic approach.
to reading comprehension, programmatic education (PI). A final aim of this study is to examine how different groups of students (strong versus struggling readers and boys versus girls) differ in reader identity and whether this varies between educational contexts. The research questions are the following:

1. What types of reader identities can be found in primary schools?
2. (How) do reader identities of students in Developmental Education differ from those in schools that use a programmatic approach to reading comprehension?
3. (How) do reader identities differ between struggling and strong readers?
4. (How) do reader identities differ between girls and boys?
5. (How) does the educational context (DE vs. PI) affect reader identities of struggling/strong readers and girls/boys?

**Method**

**Participants**

Thirty-two students (16 girls and 16 boys, age 9-10) from four DE schools and four schools that used a programmatic approach participated in the study. The schools were selected from a larger sample from an earlier study (Van Rijk, De Mey, De Haan, Van Oers, & Volman, 2016). The DE schools were selected, based on their instructional characteristics being in line with the pedagogical concept of DE (Pompert, 2004). Four schools with similar school populations (geographical situation, SES, ethnic diversity, i.e. home language), similar average reading comprehension scores on PIRLS 2006 (Mullis, Martin, Kennedy, & Foy, 2007), and average non-verbal IQ scores on Raven SPM (Raven, Raven, & Court, 2000) were subsequently selected.

Within the schools, we selected two strong (high reading comprehension score) and two struggling students (low reading comprehension scores), a boy and a girl in each category. Pairs of students (DE and PI) were matched, based on their reading comprehension score on the PIRLS test. Non-verbal IQ-scores were used to refine the matching. Students with extreme scores were excluded. Therefore, our sample neither includes dyslectic nor exceptionally proficient readers.

**Table 1. Participants of the study**

<table>
<thead>
<tr>
<th></th>
<th>Strong</th>
<th>Struggling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy</td>
<td>Girl</td>
</tr>
<tr>
<td>DE School</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Traditional school</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Students participated voluntarily, with consent of their teachers and parents.
Measurements

Semi-structured interviews were held focused on the reading of informative text. As ‘reader identity’ cannot be asked after directly, we used an approach that encourages students to talk about themselves as readers and the meaning informative texts has in their lives. Inspired by the interview method of Singer (2005), we invited students to talk about their reading activities (what do they do as a reader), their reading attitude (how do they appreciate reading as a social activity), their emotions (how do they experience reading emotionally) and their perceived capacity (how do they perceive their ability as a reader).

Each interview started with the interviewer presenting five representative examples of informative texts, to illustrate the type of text the interview was about. The texts were on different subjects taken from different sources. For example, there was an information booklet about how animals survive winter, a weekly newspaper for kids and an article from a textbook for geography about the natural resources that are needed for a hot shower. There was also a library book on ancient Egyptians and a recipe for homemade donuts from the internet. After that, questions were posed about reading activities, attitudes, emotions and perceived capacity. An example question for ‘activities’ is “What do you do when you are working with an informative text in the classroom?” For attitude, students were asked to choose two cards that they thought fitted them, and to explain why they chose that card. Cards referred to reading as ‘interesting’ or ‘boring’, and to the students as being ‘curious’ about reading or finding reading ‘tedious’. An example question is: “You picked the card saying ‘interesting’, what makes reading interesting for you?” Concerning their emotions, students could pick as many cards as they considered describing their emotions when reading: ‘happy’, ‘proud’, ‘smart’, ‘enthusiastic’, ‘content’, ‘helpful’, ‘nervous’, ‘don’t want to’, ‘silly’, ‘embarrassed’, ‘sad’, and ‘angry’. They were then asked to elaborate on their feelings when reading an informative text. Lastly, for ‘perceived ability’, students were asked whether they found themselves a ‘good’, ‘average’ or ‘not very good’ reader, and why. The 20 to 30 minutes during interviews took place in a private area where students could speak freely. Before starting the interview, it had been made clear to them that all information would be treated confidentially. After data collection, the taped interviews were literally transcribed.

Analyses

Content analysis (Huberman & Miles, 1994) was used to assess patterns in students’ answers. Transcripts were coded making use of ATLAS.ti version 6.2 (ATLAS.ti, 2010). The coding was carried out in multiple stages. First, eight out of 32 interviews were
coded independently by two members of the research team, using the a priori codes ‘activities’, ‘attitudes’, ‘emotions’, and ‘perceived ability’. The coders developed inductive codes that were specifications of the a priori codes while reading the transcripts. This resulted in a provisional coding scheme that was discussed and refined in the whole research team, resulting in the final coding scheme (see Appendix C). The eight interview samples were then recoded independently by the two researchers. Differences in codes were discussed until consensus was reached, and some final adjustments to the coding scheme were made. Finally, the 32 interviews were equally divided between the two coders and each coded by one of them. As coding can lead to fragmentation the interviews were also summarized into a profile of each student to keep sight of the student’s narrative as a whole.

Then, students’ coded responses were displayed in condensed form in four matrices, ‘activities’, ‘attitudes’, ‘emotions’, and ‘perceived ability’, with the sub-codes developed in the previous stage. A next step was to summarize the information from the four matrices into one general matrix, giving a full overview of the responses per student.

This matrix was used to identify patterns that could be interpreted as representing different reader identities (research question 1). Patterns were proposed by two of the researchers to the other members of the research team, and they were discussed in the team, and checked by going back to the student profiles. Then, data were displayed in a way that facilitated answering the other research questions. Thus, we looked for differences in reader identities between students from DE and schools using a programmatic approach (research question 2), strong and struggling readers (research question 3), and boys and girls (research question 4), and between students within types of school (research question 5). Again, patterns found were discussed in the research team.

Results

Reader identities

Three types of reader identities emerged from the data, differing in the meaning students attribute to reading and how they see themselves as readers. We distinguish 1) ‘discoverers’ who describe reading informative texts as a way of discovering the world; 2) ‘instrumentalists’, who say they read informative texts because it is a requirement for societal success; and 3) ‘compliers’, who read informative texts because it is a school demand. We will discuss these reader identities more extensively below.
Discoverers. 14 Students talked about themselves as reading because it is a way of discovering the world. They are eager to learn, and curious to discover. They see reading as a way to do so.

“Well, when I have, when there is a question... I always want to know, no matter what kind of question it is. And it doesn't matter how I look for it, whether I read it, hear it, see it... I always want to find out”.

Student PBo2 (PI school, strong reader, boy)

In terms of activities, ‘discoverers’ read a lot and understand what they read. When they read, their goal is to understand the text and to think about or reflect upon it. All of them report to use strategies while reading, but meanwhile they are focused on learning something new. Eleven out of fourteen students tell that they use the texts they read, either for a presentation or an assignment in school, or in their personal lives when it concerns information they find important. Typical for these students is that, after having read a text, they want to discover more. All fourteen students report that after school, they search for more information, either in the library or on the internet. Hence, their curiosity does not remain within the classroom only, but at home they continue reading and discovering about their interests.

Another notable characteristic of these students is that they mention communicating about what they have read. In class, eleven of the fourteen students like to evaluate the content of the text and share their opinion. As one boy highlights:

“I quite like it because I get to hear others’ opinions too. (...) I like to hear that because then I think the exact opposite and then I think ‘well, he is right about it too actually.’”

Student DBo1 (DE school, strong reader, boy)

At home, these students share what they have learned, talk about the content of the text or have conversations about the news.

It may be clear that in terms of attitudes, these students like reading; what they read easily relates to their inner world and gives satisfaction because it meets their hunger to learn.

They all report to be emotionally involved when reading. They feel as though they experience themselves what is described in the text, they sympathize or iden-
tify with people, animals or opinions in the text. As to these students’ perceived ability: they feel confident as a reader.

**Instrumentalists.** 11 Students talk about reading in a much more instrumental way; they see it as a requirement for societal success. Although, similar to the ‘discoverers’ they are aware of the usefulness of reading to understand the world, they mainly read because this is expected by others and because it may help to obtain a favorable position in society.

Boy: “I just don’t like it so much, but it is important, so I have to do it.”
Interviewer: “What would you miss if you didn’t read?”
Boy: “A job, actually. You can hardly find a job if you can’t read well, because for every job you have to read. That makes it pretty tough, because you can hardly find any job.”
Student DBu4 (DE school, struggling reader, boy)

The reading activities of ‘instrumentalists’ are characterized by the fact that they mainly read when this is required; reading is an assignment. They usually do not communicate about what they read, only sometimes in class with someone who sits next to them. They are not really interested in sharing opinions about what they read.

In terms of attitudes, instrumentalists do not necessarily like reading, but neither do they dislike it. When they find the subject of the text interesting, they rather like reading, as is mentioned by nine of them. Eight out of the eleven instrumentalists report to be emotionally involved with the text when they can identify with ‘a living subject’. They mostly view themselves as ‘average’ readers.

**Compliers.** The third type of reader identities is found in seven of the 32 students; they mainly see reading as a school demand with which they have to comply. Unlike the discoverers and the instrumentalists, for whom reading is something useful (although in different ways), for ‘compliers’ reading just remains a school matter. They are not motivated by the relevance of reading; their primary concern is to make progress in school.

Interviewer: “When it’s about informative texts, are they important to you?”
Boy: “A little bit. The teacher says so.”
Interviewer: “And what do you think yourself?”
Boy: “Well, a little bit. I think it’s a little bit good for me because I already have low grades in reading. So that’s why I think it’s a little bit good for me.”

Student DBu1 (DE school, struggling reader, boy)

Compliers avoid reading when they can. Typically, they prefer not to communicate about the texts they have read. Two students sometimes talk about what they have learned in school at home, when parents ask about ‘school things’. Students of this type do not continue reading at home voluntarily. The only time when they read at home is when they have to:

“My mother told me to read that book, but I still haven’t finished it. When I reach that part, I have to tell her what it is about.”

Student PGu3 (PI school, struggling reader, girl)

Compliers mostly associate reading informative texts with learning at school and therefore they find it tedious, although it may depend on the subject. Four of them mention that they sometimes identify or are concerned with the person in a text. Although all students of this type are struggling readers according to their scores on the PIRLS reading comprehension test, and are mainly concerned with technical aspects of reading, the way they perceive their reading ability varies from ‘not very good’, to ‘average’ or ‘good’ reader.

**Students from DE and schools using a programmatic approach (PI)**

Differences between the reader identities of students in DE and those in schools using a programmatic approach to reading comprehension (PI) are small. As displayed in Table 2, eight of 16 DE-students view reading as a way of discovering the world against six students from schools that use a programmatic approach. Five of the DE-students fit the type of reader identity that views reading as a requirement for societal success, against six students from PI schools. And three students from DE view reading as a school demand compared to four readers from PI schools.

The clearest difference is that the majority of boys in DE views reading as a way of discovering the world, whereas boys in PI schools are more equally spread over the different types of reader identities.
Table 2. Number of students per reader identity in DE and traditional schools, with a distinction for boys and girls

<table>
<thead>
<tr>
<th>Reader identity</th>
<th>DE</th>
<th>Traditional</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
</tr>
<tr>
<td>A way of discovering the world</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>A requirement for societal success</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>A school demand</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

A closer look at the students’ narratives, however, reveals some more subtle differences. The emphasis on communication in DE seems to be reflected in the students’ activities. DE students report to talk about text in school in couples or small groups and with the teacher, whereas students in PI schools say they communicate very little about text. At most they incidentally mention funny things in a text to their friends, and communication with the teacher consists of answering questions. In both groups half of the students talk with their family about what they read. Furthermore, most DE students (twelve out of sixteen) mention ‘understanding’, ‘reading a lot’ and/or ‘liking to read’ when asked to explain how they perceive their reading ability of informative texts. This is in contrast with students from PI schools, who all mainly report technical aspects as constituents for their perceived ability as a reader. No differences between DE students and students from PI schools were found concerning emotional involvement in reading. Neither did the groups differ in the extent to which they reported on reading being functional, looking for information in and using texts for specific purposes.

Strong and struggling readers
Although reading ability and type of reader identity do not totally coincide, they are clearly related.

Table 3. Strong and struggling readers per reader identity, with a distinction for boys and girls

<table>
<thead>
<tr>
<th>Reader identity</th>
<th>Strong</th>
<th>Struggling</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
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<tr>
<td>A way of discovering the world</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A requirement for societal success</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>A school demand</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

As can be seen from Table 3, by far the majority of strong readers (ten students) can be characterized as discovering readers; they consider reading as a way of discovering the world. Struggling readers are mainly instrumentalists, who view reading as
a requirement for societal success or compliers, who approach reading as a school demand. Nevertheless, the narratives of four struggling readers, all boys, are characteristic of a discoverers’ reader identity, and within the category of instrumentalists four strong readers are found next to seven struggling readers.

Five struggling readers who just comply with the fact that reading is a school demand, emphasize that they read mostly because they have to practice and improve their performance, whereas the two strong readers mention having a strong sense of aversion against reading. Their goal is to perform just well enough in school.

Differences between boys and girls
The most striking difference in reader identities was found between boys and girls.

Table 4. Boys and girls per reader identity, with a distinction for strong and struggling readers

<table>
<thead>
<tr>
<th>Reader identity</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strong</td>
<td>Struggling</td>
<td>Strong</td>
</tr>
<tr>
<td>A way of discovering the world</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>A requirement for societal success</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A school demand</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4 shows that the category of discoverers mainly consists of boys, both strong and struggling readers. The category of instrumentalists mainly consists of (both strong and struggling reading) girls. Boys and girls are more or less evenly represented in the category of compliers.

A closer look at the students’ narratives reveals that girls and boys have different interests in reading. The following conversations are typical illustrations of the difference in emotions and reading interests of boys and girls.

Conversation 1

Interviewer: “And can you remember a text you read this year that you did find interesting?”

Girl: “Yes, that of yesterday, no Wednesday, about the Titanic. It sank. That was nice.”

Interviewer: “What was interesting about it?”

Girl: “Well I found it sad because all the women and children had to leave first, and those men had to remain on board. And there were so many people on board. And it was a nice ship but they
“didn’t put the shelves all unto the top [by this, the girl means to refer to the reason why the Titanic sank], or else nothing would have happened.”

Interviewer: “So that you found interesting. And, tell me, are there other things that can make texts interesting?”

Girl: “When it’s about something that happened to people, I like that.”

Student DGo1 (DE school, strong reader, girl)

Conversation 2

Interviewer: And do you read informative texts outside school?

Boy: Yes, mostly informative books about, yeah I’m a real fan of animals (...) I like them so much and I find snakes such interesting animals!

Interviewer: Tell me, when you read about that, how does that go?

Boy: For example I get, first I look at the content, like ‘yes! There, that page, it was there!’ or something like that, about predators. Those, or animals with a toxic skin, such as poison dart frogs or animals like that, I just find it interesting, like ‘how do they do that?!’

Interviewer: And what do you mostly read?

Boy: Mostly such informative books. I absolutely love those.

Interviewer: Are they important to you?

Boy: Yes! Ha ha.

Interviewer: Yes? What makes them so important to you?

Boy: I like learning new things. About nature or new experiments you can carry out at home. Such things and that I just find amazing to do.

Interviewer: I can tell! You’re nearly jumping up and down!

Student DB02 (DE school, strong reader, boy)

Most girls, whether they read because they like it or because they have to, prefer to read about people or other stories they can get emotionally involved in. Boys, on the other hand, emphasize gaining new facts and knowledge. Discoverer boys,
in particular, are thrilled by learning about new facts, such as the existence of rare species. Discoverer and instrumentalist girls refer to social goals when talking about what reading means to them. They like reading as a way to come to know ‘what is happening’, which enables them to join in conversations, explain things to others, or help younger children.

Also for the students who were categorized as compliers, differences occurred between girls and boys in reading interests and emotions. Although all these students report that they do not like to read informative texts, the girls point out that they do like to read story books. The boys on the contrary are even less positive about reading story books than about reading informative texts.

**Educational context and the reader identities of different student categories**

Finally, we could not conclude that the educational context (DE vs. PI) differently affects the reader identities of struggling and strong readers and girls and boys (see Table 5).

**Table 5. Disposition of students per reader identity type, with a distinction for DE and traditional schools, strong and struggling readers, boys and girls (N=32)**

<table>
<thead>
<tr>
<th>type I</th>
<th>type II</th>
<th>type III</th>
</tr>
</thead>
<tbody>
<tr>
<td>a way of discovering the world</td>
<td>a requirement for societal success</td>
<td>a school demand</td>
</tr>
<tr>
<td>strong boys</td>
<td>DE</td>
<td>4</td>
</tr>
<tr>
<td>tradition</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>strong girls</td>
<td>DE</td>
<td>2</td>
</tr>
<tr>
<td>tradition</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>struggling boys</td>
<td>DE</td>
<td>2</td>
</tr>
<tr>
<td>tradition</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>struggling girls</td>
<td>DE</td>
<td>3</td>
</tr>
<tr>
<td>tradition</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

The only pattern that may be mentioned is that reader types seem to be a bit more pronounced for DE than for PI; in DE all strong boys being discovering readers, and almost all struggling DE girls are instrumentalists.
Conclusion and discussion

In this study we focused on reader identities of grade 4 students, with a focus on reading informative texts. We identified three types of reader identities: 1) discoverers, who read as a way to discover the world; 2) instrumentalists, who see reading as a requirement for societal success; and 3) compliers, who dislike reading but comply with the fact that reading is a school demand. Reader identities did not differ between Developmental Education (DE) schools, in which a Vygotskian approach is used, and schools with a textbook-driven, programmatic approach (PI) to reading comprehension. Neither were these educational contexts found to affect strong and struggling, and boys and girls differently. Our data do, however, suggest a relation between reading ability (being a strong or a struggling reader) and reader identity, and between gender and reader identity. Most strong readers were discoverers, whereas struggling readers tended to be instrumentalists or compliers. The majority of the boys were discoverers, whereas the majority of girls were instrumentalists.

The reader identities found in our study add to earlier work on reader profiles and reading identities. Our sociocultural approach suggested not only to focus on individual motivation and ability of students but also to look at the way a student relates to reading as a social practice, thus including the meaning reading has for a student in the definition of reader identity. The category of ‘avid readers’ distinguished by Guthrie et al. (2009), for example, who read for enjoyment and curiosity and have low avoidance, resembles our ‘discoverers’ category. However, in our definition of ‘discoverers’ the function of reading as a social practice is more prominent.

Hall (2010, 2012) analyzed reading identities and how they mediate reading from a less explicitly sociocultural, but nevertheless similar perspective, focusing on social context and the mediating role of identities, however, our focus on reading informative texts is novel. Also relations between the type of instruction/education students receive and the reading identities they develop has not previously been investigated. The fact that we did not find the expected differences between DE and PI deserves some closer attention, however. Because of the emphasis on meaningful reading in DE, one would expect that more students in DE would be discoverers, and only few students would be compliers. However, although relatively many DE boys were indeed discovering readers, this did not apply to the girls. Of the struggling girls in DE even none was characterized as a discoverer. The number of compliers in the DE schools was almost as high as in the PI schools, while seeing reading merely as a school demand is completely opposite to DE’s educational goals. A few more subtle differences between students from DE and PI schools were in line with our expectations, however: Students in DE schools more often mentioned communicating about
text as part of their reading activities, which may reflect the emphasis on reading as a tool for communication in DE. And DE students conceived of reading ability in a broader way than students in PI (‘understanding’, ‘reading a lot’ and ‘liking to read’ vs. abilities concerning technical aspects of reading as indicators of ability as a reader).

One explanation for not finding the expected differences between reader identities in DE and PI might be that nowadays Dutch schools that assume a programmatic, textbook-driven approach to reading, also aim at making reading meaningful to students by using texts that are appealing for students. Another explanation may be that individual differences between students are stronger than those between school types. The fact that we did find rather clear differences between the reader identities of strong and struggling students and between girls and boys seems to confirm this.

The differences found between the reader identities of strong and struggling readers are not surprising; struggling readers, who need to focus on the skill of reading itself, may not arrive at enjoying reading for getting to know interesting things. Although DE schools aim at a meaningful choice of texts, also for struggling readers, this does not seem to be experienced as such by the majority of struggling students themselves. In a similar vein, we did expect to find some gender differences in reader identities, as it is known that girls and boys differ in their reading interests (Millard, 1997). Nevertheless, the differences we actually found surprised us. Many boys who liked reading informative texts told that they did so because reading enabled them to acquire new knowledge, thus ending up in the ‘discovers’ category. Many girls, who were assigned to the ‘instrumentalist’ or ‘compliers’ category, did like reading informative texts when these concern people or things they can emotionally sympathize or identify with. One of the girls, for example, who said she disliked reading about extinct species and that kind of topics, was extremely engaged when reading about the Titanic. We did not investigate the texts actually used in the schools involved in this study. The narratives of the girls in our study, however, suggest that typical informative texts in school concern science subjects more often than cultural or social subjects. The overrepresentation of boys in the category of ‘reading as a way of discovering the world’ might thus be explained by the assumption that in the informative texts used in schools, also in DE schools, discovering the natural or technical world is more central than the cultural, social or emotional world, whereas the latter is favoured as a topic to read about by many girls.

Limitations
Although the number of students involved in our study was limited and generalizations therefore are delicate, our interviews have revealed a variety of ways in
which students may view themselves as readers of informative texts. It should be noted, however, that the reader identities found in this study are developed in a particular context, i.e. the primary schools involved in this study. As we see identity as socially constructed, we expect to find different emphases in students’ reader identities in other educational contexts.

Also, although we did discuss reading activities at home in the interviews, the role of students’ home environment in developing a reader identity was not thoroughly investigated. In this study our focus was on the school environment. Parents’ attitude towards reading and reading activities in the family are, however, an important factor to be included in future research on reader identities.

A methodological limitation to this study may be that the texts that were shown to the students as examples of informative texts were of a specific type, not concerning the world of emotions and relationships that girls are found to be interested in. A wider variance of subjects in the texts used as examples may reveal other types of reader identities than those that were found in this study. Further research into gender specific behavior in the DE inquiry curriculum may investigate the type of research questions, and the type of texts that girls and boys may choose when working on various themes.

Finally, our theoretical framework suggests us to consider reader identity as mediating participation in reading activities. A next step in research would therefore be to use observation methods, to relate students’ reader identities to their actual reading behavior in the classroom or at home. Hall’s (2012) approach of involving students in discussions about texts they have actually been reading would also be an interesting way of extending this study.

Implications
As we see identity as dynamic and changing over time, we think it is possible and worthwhile to develop ways to more explicitly influence students’ reader identities in primary schools. Along with Hall (2010) we argue that it is important for teachers to understand how students see themselves as readers. ‘Discoverer’ seems to be the most desirable reader identity type, as it is associated with engagement in reading and high reading performance. Our interviews show that students do not develop this type of reader identity as a matter of course, even not in an educational context like DE that aims at meaningful reading. Most teachers will agree that informative texts that students read at school should be appropriate in terms of students’ reading abilities, and personally meaningful to them. Our findings suggest that it is important for teachers to let students experience more explicitly that
reading in schools is not done because adults find that necessary, but because it is a way to engage with worlds, perspectives, people and emotions that are not directly available in one’s environment. Our results also suggest that text choice can be ‘in favor’ of readers with certain interests. Teachers should be aware of that and aim at a balance in the issues addressed in the informative texts they offer, so that all students can come to see themselves as able readers who can use written text to discover the world of science as well as the social world.
This study investigated the implementation and effectiveness of teaching reading of informative texts in the upper grades of primary schools for Developmental Education. Developmental Education (DE) is an innovative educational approach in the Netherlands, based on Vygotskian learning theory. Meaningful learning is the keyword, and with respect to reading it is the teachers’ aim that students learn to read and understand texts in a way that is meaningful to them. The research questions central to this dissertation therefore focus on

1. the characteristics of the DE learning environment for the teaching of meaningful reading of informative texts in the upper grades of primary education;
2. the effects of the DE reading approach in the upper grades, with respect to the development of reading comprehension, knowledge of reading strategies and reading motivation (compared with programmatic instruction);
3. the effects of the DE reading approach in the upper grades for students with a low SES and/or ethnic minority background;
4. the reader identities that students develop in DE and in programmatic learning environments.

We addressed these issues in different sub-studies. In this chapter the main findings are summarized, and the contributions to theory this dissertation offers are discussed. In conclusion, we consider the implications of our research for educational practice.
Summary of findings

Study 1: Maximizing meaning: creating a learning environment for reading comprehension of informative texts from a Vygotskian perspective

In the first study of this dissertation, presented in chapter 2, our aim was to gain a more profound understanding of learning environments for meaningful reading in Developmental Education. The following question was answered: What are the characteristics of a learning environment for reading comprehension of informative texts, based on a Vygotskian approach of meaningful reading? In a multiple case study we examined how five fourth-grade expert DE teachers provide meaningful reading in DE classroom practice by interviewing and observing them and by studying policy documents of the school. Data collection took place over a period of six to eight weeks per teacher, corresponding to a thematic unit, which is the basic unit of the DE curriculum. Since teachers design their lessons themselves according to DE principles within themes related to sociocultural practices, the main challenge for this study was how to grasp their creativity and their skillfulness in making reading informative texts meaningful to all students. Teacher interviews were analyzed, using a coding scheme consisting of components of effective and motivational instruction drawn from the reading for meaning and CORI research base. Classroom observations and documents served for triangulation.

Five motivational components of teaching reading that were described in earlier research by Guthrie and his team on Concept Oriented Reading Instruction (CORI) (Guthrie & Wigfield, 2000; Guthrie et al., 2004), are central in the DE reading practice. They are relevance, choice of texts, experiencing success in reading comprehension, collaboration and integration of reading with other activities. These components also guided the presentation of the results.

Relevance was clearly the central point for making reading informative texts meaningful in DE. To create relevance, teachers went beyond using interesting texts and (hands-on) activities as a means to motivate students. They addressed student emotions and deeper personal motives (affect) by connecting reading to personal interests and values in their students’ real life. Relevance was maintained by emphasizing the functionality of reading, as it enabled students to answer their own questions about the theme and thus to participate more effectively in the related sociocultural practice. The instruction of reading was meaningful as it was provided in various ways (such as classroom discussion, small-group activities) and at the appropriate time, relevant for the activity and experienced as such by the students.

In DE, teachers share control and support autonomy in more elaborated ways than by just providing a choice of texts. The teachers that were observed encouraged
Summary and General Discussion

students to share their knowledge, ideas, and questions in classroom discussions. In this way, teachers helped students understand they have a choice, and allowed them to co-determine the course of the classroom activities.

Teachers were alert to student success in reading. They talked frequently with students to establish what they already could read independently and where they needed support. Reading instruction and support were provided if required for student understanding. Moreover, if their text comprehension was successful, which was mostly reported by them writing their own texts, this was valued by using their own texts as newly constructed knowledge for the entire classroom community.

In DE, collaboration was more than enhancing social motivation for reading; interaction with others (including the teacher) and participation were crucial for making meaning. The teacher herself collaborated in different roles, i.e. as an equal partner if students were able to understand text, but as a more knowledgeable partner if students needed support.

Integration, in DE, not only refers to the instruction of reading strategies being integrated in subject matter, but has an extra dimension; all classroom activities are centered on a theme that reflects a sociocultural practice. We found reading comprehension to be an integrated part of the activities, as a tool for making sense of texts and practices related to the theme.

The findings of this study showed that in DE, the concept ‘meaningful’ has a broader and more profound scope than in CORI. In DE, meaning is broadened by students’ participation in sociocultural practices as a context calling for cultural meaning, and deepened by the teacher addressing motives and emotions for personal meaning.

From these results, we conclude that DE learning environments are focused on maximizing meaning of texts for students. This is achieved by organizing learning on the basis of goals emerging during students’ participation in sociocultural practices and in the process of gaining knowledge about these practices.

Study 2: Reading for meaning: the effects of Developmental Education on motivation and achievement in reading informative texts in primary school

In chapter 3 the innovative Developmental Education approach was compared with the textbook-based Programmatic Instruction approach (PI), which has been adopted by the majority of schools in the Netherlands. The main research question was: *With respect to informative texts, what are the effects of the Developmental Education approach compared to those of the Programmatic Instruction approach in terms of reading comprehension, knowledge of reading strategies and reading*
motivation in fourth-grade primary education? Evidence from earlier studies into reading from an ‘engagement perspective’ (Guthrie et al., 2007; Guthrie & Wigfield, 2000; Guthrie et al., 2004) suggests that a combination of strategy instruction and motivation enhancement is more effective for reading comprehension than merely strategy instruction. We hypothesized that DE, through maximizing meaning in reading by enriching the construct of ‘meaningful’, also enhances reading motivation and reading achievement. 570 fourth-grade students in 24 schools participated in a quasi-experimental study using a pretest-posttest natural two group design. The effects of both approaches (DE and PI) were investigated in terms of reading comprehension, knowledge of reading strategies and reading motivation. Students were administered the PIRLS reading comprehension test (Mullis, Martin, Kennedy, & Foy, 2007) and questionnaires for knowledge of reading strategies (Brand-Gruwel, 1995) and motivation for reading. Motivation for reading was measured by five subscales that were validated or tested in previous research, notably curiosity (Guthrie, 2010), intrinsic value, utility-value, self-efficacy (De Milliano, 2013), and instrumental motivation (Tellegen & Frankhuisen, 2002). We accounted for classroom influences by conducting multilevel analyses. Control variables, i.e. ethnic background (home language), SES (parental education level), non-verbal IQ, gender, vocabulary and decoding skills were taken into account. The outcomes that resulted from the Developmental Education approach were as good as those from the Programmatic Instruction approach. However, our assumption that DE would have positive effects on reading motivation compared to PI was not confirmed.

Study 3: Reading for meaning: the effects of Developmental Education on reading informative texts in primary school for disadvantaged students

The study reported in chapter 4 aimed at getting a better understanding of the effects of DE for students from disadvantaged backgrounds, in particular ethnic minorities and low SES families. The research question was: To what extent do students from ethnic minorities and students from low SES families in innovative DE schools differ from similar students in traditional PI schools with regard to reading comprehension, reading strategies, and reading motivation at the end of grade 4? In the educational field the appropriateness of innovative educational concepts for students with a disadvantaged educational position is sometimes called in question. Skeptics assume that students with disadvantaged backgrounds would benefit more from traditional approaches in which a fixed structure, direct instruction and rehearsal are core (Hornstra, Mansfield, Van der Veen, Peetsma, & Volman, 2015; Overmaat & Ledoux, 2002). However, it is the aim of DE teachers and schools that their students
will all benefit from the innovative DE approach, including students with disadvantaged backgrounds.

It was examined to what extent a disadvantaged background has affected the reading comprehension, knowledge of reading strategies and reading motivation of fourth-grade students in Developmental Education compared with Programmatic Instruction. A subsample consisting of all students from ethnic minorities and low SES families were selected from the sample of the previous study (study 2); a total of 170 students, 84 of which were in DE schools and 86 in PI schools. The multilevel analyses from the previous study were repeated twice, firstly for ethnic minority students and secondly for students from low SES families. The results showed that ethnic minority students in DE had better knowledge of reading strategies than students in PI, whereas no differences between the approaches were found regarding reading comprehension and reading motivation. For students from low SES families, no differences between DE and PI were found on any of the outcome variables.

**Study 4: Reader identities in developmental and programmatic primary education**

In *chapter 5*, we explored reader identities of students in Developmental Education and those in schools that use a Programmatic Instruction approach to reading comprehension, in particular for struggling and strong readers, and for girls and boys. The research question was: *How do reader identities of students in Developmental Education differ from those in schools that use a programmatic approach to reading comprehension, in particular for struggling and strong readers, and for girls and boys?*

From a Vygotskian perspective, learning to read needs to be both personally and culturally meaningful (Wells & Claxton, 2002); teaching reading not only aims at attaining literacy skills, but also has a more ambitious goal, i.e. shaping identity and citizenship. Informative texts are considered cultural resources, which are used with a communicative purpose (Van Oers, 2009).

We expected that in a reading approach based on such a perspective, students would think differently about reading and about themselves as readers, compared to students in traditional programmatic education, i.e. that they would develop different reader identities, in particular a more inquisitive type of reader identity. Therefore, we explored whether the experience of meaningful reading comprehension instruction in Development Education yields a specific type of readers.

Another subsample from study 2 consisting of 32 students were interviewed, i.e. 16 students in four DE schools and 16 students in four PI schools. In every school semi-structured interviews were held with two strong readers (a boy and a girl) and two struggling readers (idem) about their reading activities, attitudes, emotions and
perceived ability regarding reading informative texts. These categories, based on Singer (2005), were used as a priori codes, and were specified by inductive codes while reading the transcripts. Content analysis (Huberman & Miles, 1994) revealed three types of reader identities, differing in the way students see themselves as readers and the meaning they attribute to reading as a social practice: 1) discoverers, for whom reading informative texts is a way of discovering the world, 2) instrumentalists, who see reading as a requirement for societal success and 3) compliers, who read informative texts because that is a school demand. In DE and PI similar reader identities were found, although DE students’ notions of reading ability were more focused on understanding while those of PI students were more focused on technical aspects. Also communication about text was a more prominent feature of the accounts of the DE students. Strong readers and relatively many boys belonged to the discoverers category, whereas struggling readers and girls were mostly instrumentalists or compliers. The underrepresentation of girls in the category of discoverers seemed to be related to the kind of informative texts the girls associated reading at school with, and which seemed to fit their interests less than those of boys.

Discussion

Theoretical contributions

To the best of our knowledge, this dissertation is the first study into reading within a learning environment that is a unified and coherent application of sociocultural educational theory. Moreover, until now, the effectiveness of this approach, Developmental Education, had not been studied in the upper grades of primary schools.

In extant literature, reading for meaning usually refers to helping students relate to the reading content (Guthrie & Wigfield, 2000; Guthrie et al., 2007; Guthrie et al., 2004; Snow, 2002). In Developmental Education, reading for meaning is the central pursuit of teaching reading, and considered as a means to the more ambitious goal of improving student participation in cultural practices. Our analysis has helped us to clarify how teachers create a learning environment in which they maximize the meaning of reading informative texts by addressing motives and emotion for personal meaning, and by organizing student participation in sociocultural practices as a context calling for cultural meaning. This may be considered a contribution to sociocultural educational theory, in which little research has been done so far on meaningful learning in reading (Smagorinsky, 2011). This study contributes to the further elaboration of this theory with respect to the DE inquiry curriculum in the upper grades (Dobber & Van Oers, 2015; Van Oers & Dobber, 2013), by elucidating
Summary and General Discussion

how reading informative texts can be made personally and culturally meaningful, and by lending support to the need to use relevant texts that originate from resources outside the classroom (such as internet). More in general, our detailed and practical description of how motivation to read informative texts is enhanced in DE may also be considered as a follow-up to Van Steensel, Oostdam and Van Gelderen (2013), who concluded from a longitudinal study of the development of reading motivation that it is highly important that teachers enhance reading pleasure and continue to stimulate it. This is especially important for students who will be going to prevocational education.

The main contribution of this dissertation is the insight it yielded into the effectiveness of the innovative DE approach in the upper grades of primary education. From our analyses we concluded that students learn to read and understand informative texts just as well in the DE approach in which reading is aimed to be meaningful as in a programmatic, textbook-based approach. Thus, this dissertation contributes to the relatively small number of studies of the effectiveness of content-based approaches, which also revealed that outcomes on reading achievement were similar or in favor of the content approach, when compared to a strategy-based approach (McKeown, Beck, & Blake, 2009). It is a remarkable finding that ethnic minority students in DE actually had better knowledge of reading strategies than their counterparts in PI. This conclusion may remove doubts in the educational field about the appropriateness of innovative educational concepts that do not program the learning process in a detailed manner with strict adherence to textbooks, especially where students with a disadvantaged educational position are concerned (see Hornstra, Mansfield et al., 2015; Overmaat & Ledoux, 2002).

Reflection on the findings

Students in DE did not outperform their counterparts in PI in reading comprehension, whereas Guthrie’s Concept Oriented Reading Instruction CORI did when it was compared to strategy instruction only (Guthrie & Klauda, 2014; Guthrie et al., 2007; Guthrie et al., 2004). A methodological explanation may be that we controlled for a large number of confounding variables (vocabulary, reading skills, non-verbal IQ, gender, SES, and minority). Through multilevel analyses we also controlled for contextual influences.

Moreover, the question arises whether PIRLS, the instrument that was used to measure reading comprehension, does full justice to DE students. DE students are not trained systematically to answer questions about texts in the way PI students are. DE students learn, choose and read texts looking for answers to their own ques-
tions and to discuss their understanding of a text with others, and to read texts in a functional way, aiming at more knowledgeable participation in sociocultural practices. These learning outcomes can perhaps be better evaluated by a different type of test, such as dynamic assessment (see Van der Veen, Dobber, & Van Oers, 2016). Dynamic Assessment combines instruction or feedback with assessment or testing, which may do more justice to the way DE students were taught.

Ethnic minority students in DE were found to perform better on knowledge of reading strategies than their counterparts in PI. This finding corresponds with earlier findings, and has been explained by a tendency of these students to compensate for their disadvantages in mastery of the language used in school by making an extra effort with reading strategies (Snow, 2002). It remains to be explained, however, why—in our sample—this is the case in DE and not in PI. A number of characteristics of the DE approach may account for the effect; the type of instruction of reading strategies in DE (modeling more than direct instruction, making reading personally meaningful and functional reading instead of textbook-based) may make the use and the usefulness of reading strategies clearer to ethnic minority students. It may also be that reading strategies are more relevant to students when needed for understanding text content that is meaningful. It remains unclear why this is not also the case for students from low SES families.

Because of the emphasis on meaningful reading in DE, we expected that students in DE would be more motivated to read informative texts than their counterparts in PI, and that they would develop different reader identities compared to students in PI. We did not find such differences. Research of CORI has systematically reported positive effects on reading motivation compared to other approaches (Guthrie et al, 2007), and similar effects were found in other intervention studies (Aarnoutse & Schellings, 2003; Droop, Van Elsäcker, Voeten, & Verhoeven, 2012). Our finding that DE did not have positive effects on reading motivation as compared to programmatic education is even more surprising given that CORI and DE share a number of basic tenets related to making reading meaningful.

A possible explanation may be related to the different contexts in which these studies were conducted. In intervention studies the enhancement of motivation may have been novel to students and teachers and this may have influenced the outcomes. Also, in our study, groups were studied in their natural context, in which many parameters cannot be controlled in the way they can be during an intervention. Although, according to our questionnaire, teachers adhered to the principles of DE and the reading programs, their actual practices may have varied to a certain extent.

A second explanation may be that the subscales available to determine reading
motivation are not sensitive enough for what we wanted to measure; in the literature there is discussion about the construct of reading motivation itself, the dimensions of which, according to some authors, require further clarification (Schiefele, Schaffner, Möller, & Wigfield, 2012). Reliability of our reading motivation questionnaire was moderate, although the validity of the seven subscales that focused on reading motivation for informative texts had previously been established (De Milliano, 2013; Guthrie, 2010; Tellegen & Frankhuisen, 2002; Wigfield & Guthrie, 1997). Unfortunately, two subscales of the most widely used instrument, the Motivation for Reading Questionnaire (Guthrie, 2010), could not be used because of low reliability.

A plausible third explanation for not finding an effect on reading motivation may be that the two approaches did not differ from each other in motivation-enhancing qualities in practice as much as they did in theory. Modern reading programs that are based on textbooks in the Netherlands try to make reading attractive to students by using texts on subjects that children aged nine and ten generally like. Teachers of programmatic education stated in their responses to our questionnaire about their actual reading practices, that they also enhanced motivation for reading (especially by promoting relevance, success and collaboration). However, this explanation is speculative because our data did not provide sufficient systematic information regarding the actual practices that teachers employed in the classroom.

A fourth explanation is related to the DE curriculum. It may be that, whereas meaning is an important factor for reading, reading is not the only way to construct meaning in DE. In the inquiry-oriented curriculum students engage in all sorts of activities, such as experiments, to answer their personal questions about subject matter. Such activities may motivate them to a greater extent than reading per se (see Dobber & Van Oers, 2015; Van Oers & Dobber, 2013). In general, specific content may contribute to student motivation to read a specific text at a specific moment, but this does not necessarily lead to increased motivation for reading in general.

Contrary to what we expected, the aims of meaningful reading instruction were not clearly reflected in the reader identities of students. The same reader identities occurred in both approaches (DE and PI), although DE student notions of reading ability were more focused on understanding, and communication about text was more prominent in the accounts of the students in DE. We had expected more students in DE to think about themselves as ‘discoverers’ (who read informative texts as a way of discovering the world), and only few students to be ‘compliers’ (who read informative texts because it is a school demand), since there is a choice for DE students in the texts they read during a theme, and they are encouraged to answer their own questions in reading. The number of compliers in the DE schools,
however, was almost as high as in the PI schools, while seeing reading merely as a school demand is completely opposite to DE’s further-reaching educational goals of identity development, agency and citizenship.

Regardless of the approach, we found relatively clear differences between strong and struggling readers and between boys and girls. Strong readers and relatively many boys belonged to the discoverers category, whereas struggling readers and girls were mostly instrumentalists or compliers. This is in line with Hall (2010), who found that students who self-identified as ‘struggling’ readers seemed to use strategies in a more mechanical way than ‘strong’ readers for whom strategies were a way to clarify or deepen their knowledge. The underrepresentation of girls in the category of discoverers seemed to be related to the kind of informative texts the girls associated reading at school with, and which seemed to fit their interests less than those of boys. This is also in line with (Hall, 2010), who found in an earlier study that the text content influences the perception of reader identity.

An explanation of these findings may be that in both educational approaches there is a lack of strategies that teachers can use to influence the relationship between student characteristics, such as capacities (strong or struggling), gender and reader identities.

Limitations and future research
The research reported in this dissertation has a number of limitations. The description of how meaningful reading was enacted in classroom practice was based on a small number of participating teachers, who were expert teachers as well. This enabled us to give a detailed description of good practices, but it also means that the characteristics that were found cannot be implemented in every classroom.

The small number of participating schools is a first limitation to our investigation of the effectiveness of Developmental Education on reading achievements and motivation for disadvantaged students, i.e. students from ethnic minorities and from low SES families; only 170 participants were available for the analyses.

A second limitation for this study is that we have only investigated the effects of the DE approach on reading comprehension, knowledge of reading strategies and reading motivation. The broad educational aim of DE, however, is further reaching; it aims to teach students to take part in sociocultural life. This means that agency and citizenship are the ultimate goals of DE. Schooling is not seen as only transmitting knowledge and teaching cognitive skills, but as an activity in which students’ learning has to make sense to them, and to enable them to act, i.e. to participate in their social environment. This may call into question the ecological validity of a
Summary and General Discussion

standardized reading test, such as the PIRLS test that was used in this study, to measure what students have actually learned in the domain of reading comprehension. Further research aiming at the improvement of reading comprehension assessment would be useful. From a Vygotskian perspective, it would be particularly useful to investigate whether forms of Dynamic Assessment (Van der Veen et al., 2016) may do more justice to what DE students have learned and may give a better view of their (potentials for) development in the domain of reading comprehension.

A third limitation of our study of the effectiveness of the DE and PI approaches is that we used a questionnaire to determine the teachers’ practices. Classroom observations could have given a more detailed view of the differences in the extent to which typical features of DE do occur in the actual reading practices of DE teachers and of teachers in programmatic education.

Since our study of students’ reader identities was a first exploratory study, the number of schools and students participating in this study was too limited to make clear statements about differences between strong and struggling readers and between boys and girls within both investigated approaches. Therefore further research is required. As we see identity as socially constructed, we expect to find different emphases in students’ reader identities in different educational contexts. Hall’s (2012) approach of involving students in discussions about texts they have actually been reading would also be an interesting way of extending this study. In addition, attitudes towards reading and reading activities in the family are an important factor to be included in future research on reader identities.

Implications for practice

The outcomes of this dissertation give a first impression of the effectiveness of the DE reading instruction in the upper grades of primary schools; we may cautiously conclude that Developmental Education offers a suitable approach to reading comprehension in the upper grades of primary education.

The description of how expert DE teachers enhance motivation while giving effective reading instruction may inspire other teachers who would like to put into practice meaningful reading comprehension in the upper grades of primary education, and maybe in the first years of secondary education as well (Van Steensel, Oostdam, & Van Gelderen, 2013).

Since outcomes about motivation and comprehension were similar for Developmental Education and for the textbook-based Programmatic Instruction, we may cautiously argue that both approaches may be considered equally suitable for realizing reading achievements for students, including students with a disadvantaged educa-
tional position, such as students from ethnic minorities and/or from low SES families. These conclusions may reassure teachers of Developmental Education that their hard work is worthwhile. Policymakers may be reassured about the benefits of the Developmental Education approach to reading comprehension. Other teachers may be inspired to cautiously introduce more meaningful elements in their teaching of reading comprehension to students with ethnic minority and/or low SES backgrounds.

From the findings of the present study it may be evident that creating learning environments such as DE puts high demands on teacher qualities. Allington (2002) and Smagorinsky (2011) already stated that reading for meaning can never be implemented by only carrying out a set of instructional methods. Teachers not only need to have a good overview of the curriculum content, but also resourcefulness in the design of both learning activities and the learning environment. Moreover, teacher qualities like flexibility and dynamic class management skills, as well as a sensitivity and skilled adjustment to student needs, are crucial for teaching reading comprehension in DE across the curriculum. To create learning environments that may contribute to the process of maximizing meaning from informative texts demands more than being proficient in teaching reading as a discrete skill.

According to Smagorinsky (2011), expert teachers make decisions locally and relationally based on careful and systematic observation of students. He considers this “situated action (…) at the heart of a Vygotskian approach to literacy instruction” (Smagorinsky, 2011, p. 108). These teacher qualities may be strong determinants for proficiency in DE. In order to provide future teachers with a broad range of ways to make learning meaningful for students, initial teacher education might introduce different approaches to reading instruction, i.e. not only a programmatic approach, but also a meaningful reading approach. It must be emphasized, however, that meaningful reading instruction as described in this dissertation is part of the all-encompassing pedagogical approach of Developmental Education, and that the DE teachers in this study had several years of experience in DE and had received post-initial in-service schooling by teacher educators to become proficient teachers of Developmental Education.

The ultimate goals of Developmental Education are the development of students’ identities as agent citizens. Teaching students to read and understand informative texts is an important part of that development, and the results of our study of reader identities raise questions about whether DE should give more explicit attention to the development of reader identity. As we see identity as dynamic and changing over time, we think it is possible and worthwhile to develop ways to more explicitly influence students’ reader identities in primary schools. Along with Hall
(2010) we argue that it is important for teachers to understand how students see themselves as readers. ‘Discoverer’ seems to be the most desirable reader identity type within the context of reading informative texts, as it is associated with engagement in reading and high reading performance. Our interviews show that students do not develop this type of reader identity as a matter of course, not even in an educational context like DE that aims at meaningful reading. Most teachers will agree that informative texts that students read at school should be appropriate in terms of students’ reading abilities, and be personally meaningful to them. Our findings suggest that it is important for teachers to make students experience more explicitly that reading in schools is not done because adults find that necessary, but because it is a way to engage with the world, with people, experiences and emotions that are not directly available in one’s environment. Our results about gender differences also suggest that in order to engage more girls into reading as a way to discover the world, schools might provide more texts of cultural, social and emotional interest.

The shaping of identity and citizenship change over time and are influenced by changes in society. Student populations also change, therefore meaningful reading instruction requires dynamic and flexible teachers whose aim is to connect their students in a personally meaningful way to the cultural world in which they live.
Appendix A: Paradigm case chapter 2

Paradigm case
The theme in Maureen’s classroom is called: ‘Give me space!’ For seven weeks all learning activities are centred on the galaxy, planets, and space shuttles. Maureen defined a number of developmental (broad) goals: experimentation and model making. The description follows the three successive phases typical of a theme.

Orientation phase: starting activities
Teacher Maureen introduces the thematic activity: “We are going to set up a real space lab in our classroom. There we can experiment to find out more about outer space, just like real astronauts.” In the discussion circle, students tell about what they already know on the subject and their personal experiences. Together, they create a concept map.

Maureen has already set up some test installations to conduct experiments on gravitation, upward pressure, and change of air pressure. The space lab will be further equipped by the students. In order to conduct the experiments, students read the informative texts accompanying the installations, while talking about outer space and space travel. In doing so, students already use some specific vocabulary and come up with ideas and questions, like: What are astronauts doing in a space lab? How does a rocket work? Is there life on the moon? These and other questions are discussed in the circle, as well as some illustrations of satellites and a Hubble telescope. The class also watches a video that shows a boy launching a rocket and explaining how it works. Students are impressed. They also read a story about the little dog Laïka traveling into space. In the following classroom discussion, students fantasise about going into space. Next, they write a fantasy story about their personal journey into space. When finished, students read each other’s texts and give advice on the application of writing strategies.

As students become more interested in the subject, they bring objects from home to the space lab, as well as newspaper articles and books they want to show. Many texts are thus brought to the classroom. In the course of days, planets and space travel are the subjects of students’ presentations to the class. Student ques-
tions are posted on the Question wall. Meanwhile, text reading serves for elucidating students’ questions. Sometimes teacher Maureen needs to delve into books herself.

A lively full class discussion is held about Elsa’s question whether there is life on the moon. Maureen listens with interest, thinks along and expresses her understanding of what students say. She does not give any answers herself nor does she judge student views. Instead, she draws other students into the discussion or asks a question. In the end, she visualises all the arguments on the whiteboard in two columns: ‘life’ versus ‘no life’ on the moon. She says: “This is what we think now. But we need to know for sure. How can we find out?” Some students go straightaway to the book table.

Now that her students are motivated to read texts to search for answers, teacher Maureen considers the time is right for instruction of the strategy of text selection. Jody wants to know whether there is food on the moon. The teacher models how she proceeds to decide whether a text is appropriate: “Let’s see, is this about food? No, it is not about food.” When she notices that many students are already familiar with text selection, she quickly changes her plan: In pairs, students get the assignment to select texts that may contain answers to their questions, while the teacher herself remains at the disposition of students needing support in performing this strategy. In the ensuing small-group conversations Maureen asks questions to diagnose what students can already do without help and when her support is needed.

As soon as all students have found appropriate texts, the teacher assigns a sequence of short collaborative reading and writing activities (using a kitchen timer) directed to finding answers to their questions. In pairs, students first clarify their questions and make a list of what they already know on the subject. Next the lists are exchanged and completed by a few other students. Then all pairs read their own text, mark keywords and write down a trial answer. After the trial answers have been commented on by a few other pairs, they are discussed in the discussion circle. Two weeks later, the Question wall is filled. Students are now aware of what they really want to find out in the space lab.

Elaboration phase: Inquiry activities
Now students will perform their inquiry in expert groups, based on shared interest. Some expert groups are especially interested in constructing a satellite or a space shuttle (model making). Other groups want to design experiments to generate solar energy, discover the functioning of a GPS, or calculate the distance to the moon (experimentation).

The expert groups explore the large supply of resources containing a mixture of easier and more difficult texts to read, aiming to find texts that answer their ques-
tions: What resources do we have? Which texts are convenient? Using post-it notes, they mark texts that may be useful to them or interesting to another expert group. That evening Maureen reads and makes copies of the texts selected by the students. From her knowledge about her students, she can tell which students will find it difficult to read the text of their choice, and in her journal, she plans to support them.

The next day the expert groups read together the texts copied for them, looking for answers to their questions. Maureen regularly goes around and enters into conversation with students about their thinking, ideas, and questions. In this way she scaffolds reading strategies flexibly. When students want to read a difficult text, such as a newspaper article on a Chinese space station, Maureen joins in. She suggests applying the reading strategy scanning, and students express their ideas about the text: “So they (the Chinese) want to have their own space station. Why would they want that?” And then: “Oh, there is something about money here, oh yes!” Talking and thinking aloud together helps make the text comprehensible. In this conversation, the teacher is diagnosing student use of strategies, and provides positive feedback on their text comprehension.

Maureen challenges a few good readers to investigate the historical background of space travel by reading a few interesting but difficult texts about famous inventors. The students write a summary to inform the whole class.

Once the expert groups have found answers to their questions, it is evaluation time. In the discussion circle, students talk about their inquiry: these were our questions, these are the answers we have found. Maureen always asks: “Tell us, how did you find those answers?” It makes students talk about the text, about text features and the impressions they got from the texts. Students write down their answers in texts that then serve as newly acquired knowledge.

Texts are not the only resources for checking the accuracy of student ideas. An expert is invited to talk about his work as a researcher and the entire class goes on an excursion to an observatory nearby.

After a while the expert groups are sufficiently informed to perform their experiments. Every expert group describes its experiment. In the lab the groups examine each other’s designs and perform all the experiments.

A class discussion is held in the circle about how to present the newly acquired knowledge to a public consisting of parents and other students from the school.

**Conclusion phase: Closing activities**

In the final stage of the project, students mainly read each other’s texts and give advice. New texts are only read when supplementary information is needed. Once
all questions are answered, students concentrate on the products needed for the presentation of their space lab to the public. Products include instructional texts (posters) accompanying the experiments installed in the space lab, and an animated movie showing the functioning of all experiments in the lab. Finally, there is a full class discussion centered on reflection and metacognition.
## Appendix B: Table A1 and A2 chapter 3

### Table A1. Final multilevel models of reading comprehension, reading motivation, and knowledge of reading strategies of the DE approach

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Comprehension</th>
<th>Strategies</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>$f^2$</td>
</tr>
<tr>
<td>Intercept</td>
<td>-.00 (.08)</td>
<td>-.12 (.09)</td>
<td>-.01 (.09)</td>
</tr>
<tr>
<td>Level 1 Fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>.15** (.06)</td>
<td>.39** (.07)</td>
<td>.50** (.06)</td>
</tr>
<tr>
<td>Comprehension</td>
<td>X</td>
<td>.21** (.07)</td>
<td>.22** (.07)</td>
</tr>
<tr>
<td>Motivation</td>
<td>.10* (.05)</td>
<td>.06</td>
<td>.17</td>
</tr>
<tr>
<td>Strategies</td>
<td>.14** (.05)</td>
<td>.03</td>
<td>X</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>.21** (.06)</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Decoding skills</td>
<td>.13* (.05)</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Non-verbal IQ</td>
<td>.12* (.05)</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>SES (0=low)</td>
<td>-.13 (.14)</td>
<td>.28</td>
<td>-.30 (.16)</td>
</tr>
<tr>
<td>Ethnicity (0=not Dutch)</td>
<td>-.18 (.13)</td>
<td>.03</td>
<td>.28* (.13)</td>
</tr>
<tr>
<td>Gender (0=girl)</td>
<td>.28** (.11)</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Level 2 Fixed effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest classroom</td>
<td>.17** (.06)</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Random effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>.36** (.04)</td>
<td>.52** (.05)</td>
<td>.63** (.07)</td>
</tr>
<tr>
<td>Class / school</td>
<td>.03 (.02)</td>
<td>.01 (.01)</td>
<td>.03 (.03)</td>
</tr>
<tr>
<td>Icc</td>
<td>.08</td>
<td>.02</td>
<td>.05</td>
</tr>
<tr>
<td>-2*log likelihood</td>
<td>350</td>
<td>421</td>
<td>466</td>
</tr>
<tr>
<td>$\chi^2$ difference test</td>
<td>$\chi^2 (9) = 289**$</td>
<td>$\chi^2 (5) = 223**$</td>
<td>$\chi^2 (3) = 205**$</td>
</tr>
</tbody>
</table>

**Notes:**

Blanks: no improvement of the model fit, and no significant effect, the variable was removed from the model.

** (p < .01); * (p < .05)

SES represents a low level of parental education.

Ethnicity represents a home language other than Dutch, or a mix of Dutch and another language.

Level 1 is the student level, and level 2 is the classroom level.

Pretest classroom was the first measurement occasion of the outcome variables at the classroom level.
Table A2. Final multilevel models of reading comprehension, reading motivation, and knowledge of reading strategies of the PI approach

| Parameters | Comprehension | | | Strategies | | | | Motivation | | |
|------------|---------------|----|----|-----------|----|----|---------------|----|
|            | b  | SE  | $f^2$ | b  | SE  | $f^2$ | b  | SE  | $f^2$ |
| Intercept  | .02 | (.06) | -.16 | (.11) | -.03 | (.08) |
| Level 1 Fixed effects | | | | | | | |
| Pretest    | .23** | (.05) | .08 | .30** | (.07) | .07 | .37** | (.06) | .17 |
| Comprehension X | | | | | | | |
| Motivation  | .05 | (.05) | .00 | .21** | (.06) | .05 | X |
| Strategies  | .02 | (.05) | .00 | X |
| Vocabulary  | .31** | (.06) | .11 |
| Decoding skills | | | | .22** | (.06) | .05 |
| Non-verbal IQ | .35** | (.06) | .11 | .14 | (.08) | .01 |
| SES (0=low) | -.19 | (.13) | .00 | .11 | (.17) | .00 | .33* | (.15) | .00 |
| Ethnicity (0=not Dutch) | | | | | | | |
| Gender (0=girl) | | | | | | | |
| Level 2 Fixed effects | | | | | | | |
| Pretest classroom | | | | | | | |
| Random effects | | | | | | | |
| Residual    | .46** | (.04) | .75** | (.07) | .68** | (.06) |
| Icc         | .04 | | .12 | | .04 | | |
| -2*log likelihood | 514 | 651 | 621 |
| $\chi^2$ difference test | $\chi^2$ (6) = 220** | $\chi^2$ (5) = 123** | $\chi^2$ (5) = 161** |

Notes:
Blanks: no improvement of the model fit, and no significant effect, the variable was removed from the model.

** (p < .01); * (p < .05)

SES represents a low level of parental education.

Ethnicity represents a home language other than Dutch, or a mix of Dutch and another language.

Level 1 is the student level, and level 2 is the classroom level.

Pretest classroom was the first measurement occasion of the outcome variables at the classroom level.
### Appendix C: Coding scheme chapter 5

<table>
<thead>
<tr>
<th>Construct</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavior</strong></td>
<td>Approach</td>
<td>What the student does when reading an informative text.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E.g. answer questions that go with a text, apply reading strategies, ask for support.</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>The student does/not use texts for other purposes (functionality). This may indicate functional reading, or making notes, an essay or a presentation.</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td>The student talks with others about texts (in the classroom / at home).</td>
</tr>
<tr>
<td>Reading at home</td>
<td></td>
<td>The student reads / does not read informative books at home.</td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td>Likes to read</td>
<td>The student chooses card(s) indicating liking to read (‘curious’, ‘interesting’) or does not like to read (‘tedious’, ‘boring’) and comments on it.</td>
</tr>
<tr>
<td>Further reading</td>
<td></td>
<td>The student sometimes continues reading at home about a subject treated at school, or sometimes brings a book from home to school.</td>
</tr>
<tr>
<td>Investigation</td>
<td></td>
<td>The student looks / does not look for information in books, when he wants to know something.</td>
</tr>
<tr>
<td><strong>Meaning</strong></td>
<td></td>
<td>The meaning reading has to the student. Inductive codes are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>learn things</td>
</tr>
<tr>
<td></td>
<td></td>
<td>know / understand what is happening</td>
</tr>
<tr>
<td></td>
<td></td>
<td>live up to expectations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>job / school / have to</td>
</tr>
<tr>
<td>Fiction</td>
<td></td>
<td>The student talks explicitly about story books.</td>
</tr>
<tr>
<td>Meaning at home</td>
<td></td>
<td>The difference between meaning of reading in school context or home context.</td>
</tr>
<tr>
<td>Appendices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Emotions</strong></td>
<td><strong>Positive</strong></td>
<td>The student picks up card(s) expressing positive emotions regarding reading informative texts (‘happy’, ‘enthusiastic’, ‘smart’, ‘content’, ‘proud’) and comments on it.</td>
</tr>
<tr>
<td></td>
<td><strong>Discomfort</strong></td>
<td>The student picks up card(s) indicating discomfort when reading informative texts (‘don’t want to’, ‘help!’ , ‘nervous’) and comments on it.</td>
</tr>
<tr>
<td></td>
<td><strong>Negative</strong></td>
<td>The student picks up card(s) expressing negative emotions regarding reading informative texts (‘silly’, ‘embarrassed’, ‘sad’, ‘angry’) and comments on it.</td>
</tr>
<tr>
<td></td>
<td><strong>Feeling</strong></td>
<td>Reading may evoke feelings, e.g. empathy or imagination.</td>
</tr>
<tr>
<td></td>
<td><strong>Feeling at home</strong></td>
<td>The difference between emotions while reading in school context or home context.</td>
</tr>
<tr>
<td><strong>Self-image</strong></td>
<td><strong>Good</strong></td>
<td>The student picks up the card ‘good reader’ and comments on it.</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td>The student picks up the card ‘average reader’ and comments on aspects of his reading that are good and others that are not very good.</td>
</tr>
<tr>
<td></td>
<td><strong>Not very good</strong></td>
<td>The student picks up the card ‘not a very good reader’ and comments on it.</td>
</tr>
<tr>
<td></td>
<td><strong>Feature good</strong></td>
<td>The student defines what makes a good reader.</td>
</tr>
<tr>
<td></td>
<td><strong>Perspective</strong></td>
<td>The way in which the student thinks he is viewed as a reader by others (peers, teacher, family).</td>
</tr>
</tbody>
</table>
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Nederlandstalige samenvatting

Inleiding
Informatieve teksten kunnen lezen en begrijpen is een van de belangrijkste vaardigheden die kinderen leren op de basisschool. Kinderen die niet goed zijn in begrijpend lezen ondervinden daar hinder van bij het lezen van studieteksten in het vervolg van hun schoolloopbaan en hun toekomstig maatschappelijk leven. Dit proefschrift gaat over het leren lezen en begrijpen van informatieve teksten in de midden- en bovenbouw van het basisonderwijs op scholen voor Ontwikkelingsgericht Onderwijs (OgO).

OgO-leerkrachten stellen zich ten doel om leerlingen teksten te leren lezen en begrijpen op een voor hen betekenisvolle manier. Dit past bij de OgO-visie die gebaseerd is op de Vygotskiaanse theorievorming. Primaire doelen van het onderwijs zijn daarin identiteitsvorming (de persoonlijke ontwikkeling van leerlingen) en burgerschapsvorming (de ontwikkeling tot actieve, verantwoordelijke deelnemers aan het maatschappelijk leven) (Lee & Smagorinsky, 2000; Wells & Claxton, 2002). Om de ontwikkeling van leerlingen op die twee gebieden te bevorderen is een eigen pedagogisch-didactische aanpak ontwikkeld. In die aanpak ontwerpen leerkrachten voor leerlingen betekenisvol thematisch onderwijs en verbinden zij alle leeractiviteiten, waaronder het leesonderwijs, met het thema dat in een bepaalde periode centraal staat.

In de midden- en bovenbouw krijgen de thema’s vorm in een ‘onderzoekscurriculum’. De leesteksten worden geselecteerd op basis van onderzoeksvragen die leerlingen zelf hebben geformuleerd, zodat zij al lezend op zoek kunnen naar antwoorden op hun eigen vragen. Op deze manier wil OgO persoonlijk betekenisvol en motiverend leesonderwijs bieden, met als uitkomst – naast leesvaardigheden – een specifieke lezersidentiteit: een onderzoekend type lezer, voor wie lezen meer is dan een schoolse vaardigheid.

Over innovatieve onderwijsconcepten zoals OgO klinken soms sceptische geluiden bij beleidsmakers, leerkrachten en onderzoekers. Verondersteld wordt dat leerlingen meer baat hebben bij een traditionele programmatische aanpak met directe instructie en veel oefening. Dat zou vooral gelden voor leerlingen uit etnische minderheidsgroepen en/of met laag opgeleide ouders (Dijsselbloem, 2008; Hornstra,
Mansfield, Van der Veen, Peetsma, & Volman, 2015; Overmaat & Ledoux, 2002; Tesser & Iedema, 2001). Voorspel nog is niet onderzocht of die sceptis terecht is.

De meeste Nederlandse basisscholen hanteren een programmatische leesaanpak, waarbij alle leerlingen aan de hand van een begrijpend leesmethode en volgens een vooraf vastgesteld schema dezelfde teksten lezen. Directe instructie aan de hele klas wordt gevolgd door opdrachten die leerlingen individueel maken. De teksten gaan over onderwerpen die voor kinderen aantrekkelijk zijn in het algemeen, maar die daarmee nog niet per definitie persoonlijk betekenisvol zijn voor leerlingen.

Hoewel de ontwikkelingsgerichte leesaanpak beschreven is (Pompert, 2004) en er een scholings- en begeleidingsaanbod voor OgO-leerkrachten bestaat, is er tot nu toe weinig bekend over hoe OgO-leerkrachten vormgeven aan betekenisvol leesonderwijs in de dagelijkse klassenpraktijk en over de effectiviteit van de ontwikkelingsgerichte benadering. De enkele effectstudies die zijn uitgevoerd laten over het algemeen positieve resultaten voor OgO zien (Helms-Lorenz & De Jong-Heeringa, 2006; Poland, 2007; Suhre, 2002; Van der Veen, De Mey, Van Kruistum, & Van Oers, in press; Van Oers & Duijkers, 2012). Deze studies zijn echter allemaal gericht op de onderbouw van de basisschool. Vooralsnog is er geen effectonderzoek gedaan naar OgO in de midden- en bovenbouw. Onduidelijk is dan ook of de innovatieve, betekenisgerichte aanpak van het leren lezen van informatieve teksten van OgO meer, minder of even effectief is als een programmatische leesaanpak.

De onderzoeksvragen die in dit proefschrift centraal staan richten zich daarom op:

1. de kenmerken van de OgO-leeromgeving voor het betekenisvol leren lezen van informatieve teksten in de midden- en bovenbouw van het basisonderwijs
2. de effecten van de OgO-aanpak voor begrijpend lezen in de midden- en bovenbouw, in termen van de ontwikkeling van leesbegrip, kennis van leesstrategieën en motivatie om te lezen (vergeleken met programmatisch leesonderwijs)
3. de effecten van de OgO-aanpak voor begrijpend lezen in de midden- en bovenbouw voor leerlingen uit etnische minderheidsgroepen en/of met laag opgeleide ouders (vergeleken met programmatisch leesonderwijs)
4. de lezersidentiteiten die leerlingen ontwikkelen in OgO-onderwijs en in programmatisch leesonderwijs.
Samenvatting van de belangrijkste bevindingen

In hoofdstuk 2 wordt gerapporteerd hoe OgO-leerkrachten betekenisvol leesonderwijs vormgeven in hun dagelijkse klassenpraktijk. Onderzoeksvraag 1 luidt: *Wat zijn de kenmerken van een leeromgeving voor het leren lezen van informatieve teksten die gebaseerd is op een Vygotskiaanse benadering van betekenisvol lezen?*

Inspiratiebron voor OgO is de aanpak van betekenisvol lezen volgens Concept Oriented Reading Instruction (CORI). De primaire doelstelling van die aanpak is leerlingen leren lezen met het oog op de verwerving van conceptuele kennis. Het leesonderwijs is daarom geïntegreerd in de wereldoriënterende vakken en de instructie van leesstrategieën wordt gecombineerd met het bevorderen van leesmotivatie (Guthrie & Klauda, 2014; Guthrie, McRae, & Klauda, 2007). In een meervoudige casestudy is bestudeerd hoe vijf ervaren OgO-leerkrachten in groep 6 in hun dagelijkse klassenpraktijk vormgeven aan betekenisvol leesonderwijs. Gegevens werden verzameld gedurende zes tot acht weken (de duur van een thema) bij elke leerkracht door middel van klassenobservaties, interviews met de leerkrachten en analyse van scholdocumenten. Leidraad voor de analyse waren de componenten van effectieve en motivatie-bevorderende leesinstructie uit de literatuur (Guthrie et al., 2007; Snow, 2002).

Vijf kenmerken die volgens Guthrie en zijn team bijdragen aan leesmotivatie blijken het hart van de OgO-leespraktijk te vormen: relevantie, keuze van teksten door leerlingen, ervaring van succes, samenwerken en integratie van lezen met andere leeractiviteiten (Guthrie & Wigfield, 2000; Guthrie et al., 2004). De casestudy laat zien op welke manier deze kenmerken vormkrijgen in de praktijk van het OgO-leesonderwijs.

**Relevantie** blijkt het belangrijkste kenmerk te zijn waarmee OgO-leerkrachten lezen betekenisvol maken. Leerkrachten zoeken bij leerlingen naar persoonlijke motieven en emoties die betrekking hebben op het thema dat in een bepaalde periode centraal staat. Teksten die aansluiten bij persoonlijke motieven en emoties laten leerlingen het functionele karakter van lezen ervaren. Leerlingen kunnen een socioculturele praktijk die verbonden is met het thema onderzoeken door hun eigen onderzoeksvragen te beantwoorden met behulp van zelfgekozen teksten. De OgO-leerkrachten werken met nabootsing in de klas van socioculturele praktijken uit de echte wereld, zoals een winkel, een museum, of een onderzoeks laboratorium, zodat leerlingen ook deelnemer aan die praktijken kunnen zijn, eventueel met doelgerichte ondersteuning. Ook voor het geven van leesinstructie gebruiken de leerkrachten instructievormen (bijvoorbeeld een klasengesprek of een activiteit in de kleine kring) die betekenisvol zijn. Zij zetten die instructievormen flexibel in, passend bij wat relevant is voor de leesactiviteit.
De OgO-leerkrachten geven hun leerlingen de gelegenheid om zelf teksten te kiezen. De leerlingen krijgen bovendien ruimte om hun kennis, ideeën en vragen met de groep te delen. Op die manier ervaren zij dat ze invloed kunnen hebben op wat zij leren en lezen.

De OgO-leerkrachten in de casestudy richten zich bovendien bewust op het creëren van *succeservaringen* bij het lezen. Zij geven positieve feedback. Via gesprekjes peilen ze wat leerlingen zelf al kunnen en op welke punten ze hulp nodig hebben. Leerlingen ervaren ook succes doordat zij de kennis die ze uit teksten hebben verworven kunnen delen met de hele klas.

**Samenwerken** is een kenmerkend aspect van de bestudeerde OgO-praktijk, ook in het leesonderwijs. Samenwerken is niet alleen bedoeld om leerlingen te motiveren (om te lezen), participatie en interactie met anderen (klasgenoten, maar ook de leerkracht als meerwetende partner) is vanuit de socioculturele theorie ook essentieel voor betekenisverlening.

**Integratie** van leesonderwijs in andere vakken gaat in de OgO-praktijk verder dan de instructie van leesstrategieën in de zaakvakken: begrijpend lezen is een integraal onderdeel van de andere activiteiten binnen het thema.

De uitgevoerde meervoudige casestudie laat zien dat het begrip ‘betekenisvol’ in OgO meer diepgang en een grotere reikwijdte heeft dan in CORI (Guthrie & Wigfield, 2000). Leerlingen lezen teksten die persoonlijke betekenis voor hen hebben en zij kunnen culturele betekenis aan hun leesactiviteiten ontlenen door onderzoek te doen naar en te participeren in socioculturele praktijken.

**Hoofdstuk 3** beschrijft de resultaten van een onderzoek waarin de effecten van de OgO-aanpak van begrijpend lezen worden vergeleken met de effecten van – het meer gangbare – programmatische leesonderwijs. Onderzoeksvraag 2 luidt: *Wat zijn de effecten van de OgO-leesaanpak in vergelijking met programmatische instructie, in termen van leesbegrip, kennis van leesstrategieën en motivatie om te lezen in groep 6 van het basisonderwijs met betrekking tot informatieve teksten?*

Uit eerder onderzoek naar resultaten van de CORI-aanpak blijkt dat strategie-instructie in combinatie met het bevorderen van de leesmotivatie – via de vijf hierboven genoemde kenmerken – tot betere leesprestaties leidt dan onderwijs waarin alleen strategie-instructie geboden wordt (Guthrie et al, 2007; Guthrie et al., 2004; Guthrie, Wigfield, & You, 2012; Snow, 2002). Onze aannames was dat OgO een positief effect zou hebben op leesmotivatie, met name vanwege de focus op betekenis. De juistheid van deze aannamen is onderzocht in een quasi-experimentele studie met een pretest-posttest natural two group design. Aan het onderzoek namen 570 leerlingen uit groep 6 deel. Zij waren afkomstig van twaalf OgO-scholen en twaalf scholen met
een reguliere programmatische aanpak. Leesbegrip werd onderzocht met de PIRLS leesbegriptoets (Mullis, Martin, Kennedy, & Foy, 2007), kennis van leesstrategieën met de vragenlijst van Brand-Gruwel (1995). De motivatie voor lezen werd gemeten aan de hand van bestaande, gevalideerde schalen, te weten nieuwsgierigheid, voorkeur voor uitdaging, extrinsieke motivatie (Guthrie, 2010), intrinsieke motivatie, nut, vertrouwen (De Milliano, 2013) en instrumentele motivatie (Tellegen & Frankhuisen, 2002). In multilevel-analyses werd gecontroleerd voor technische leesvaardigheid, leeswoordenschat, non-verbaal IQ, geslacht, SES en etniciteit.

De prestaties van de OgO-leerlingen op het gebied van leesbegrip en kennis van leesstrategieën bleken in deze studie even goed te zijn als die van leerlingen die programmatisch onderwijs kregen. De verwachting dat leerlingen op OgO-scholen meer gemotiveerd zouden zijn om informatieve teksten te lezen werd niet bevestigd. De leerlingen waren in beide contexten even gemotiveerd.

In het verlengde van deze studie zijn de effecten van het OgO-leesonderwijs onderzocht voor een meer specifieke groep leerlingen, namelijk leerlingen uit etnische minderheids groepen en/of met laagopgeleide ouders. De resultaten van dit onderzoek worden beschreven in hoofdstuk 4. Onderzoeks vraag 3 luidt: **In hoeverre verschillen leerlingen uit etnische minderheids groepen en leerlingen met laagopgeleide ouders op innovatieve OgO-scholen van vergelijkbare leerlingen op traditionele programmatisch werkende scholen op het gebied van leesbegrip, kennis van leesstrategieën en motivatie voor lezen aan het eind van groep 6?**

Om deze vraag te beantwoorden werden uit het totale leerlingenbestand van deelonderzoek 2 alle leerlingen uit etnische minderheids groepen en/of van laagopgeleide ouders geselecteerd. In totaal ging het om 170 leerlingen, van wie 84 op een OgO-school en 86 op een school met programmatisch lees onderwijs. Opnieuw zijn de effecten van beide aanpakken vergeleken door te kijken naar de resultaten van de leerlingen op het gebied van leesbegrip, kennis van leesstrategieën en motivatie voor lezen. De multilevel-analyses uit deel onderzoek 2 werden opnieuw uitgevoerd voor deze onderzoeks groep, eerst voor leerlingen uit etnische minderheids groepen en vervolgens voor leerlingen met laagopgeleide ouders.

Er blijken geen verschillen in leesbegrip en -motivatie te zijn tussen leerlingen uit etnische minderheids groepen en/of laagopgeleide ouders op OgO-scholen en op scholen met een programmatische leesaanpak. Wel hebben de OgO-leerlingen uit etnische minderheids groepen meer kennis van leesstrategieën dan vergelijkbare leerlingen in het programmatisch onderwijs.

In hoofdstuk 5 staat de vraag centraal of OgO-lees onderwijs een specifiek type lezer of een specifieke lezersidentiteit oplevert in vergelijking met een programma-
tische leesaanpak. In het daarvoor uitgevoerde onderzoek is ook gekeken naar verschil- len tussen sterke en zwakke lezers en tussen jongens en meisjes. We verwachten dat leerlingen zich in OgO ontwikkelen tot een onderzoekend type lezer, voor wie lezen meer is dan een schoolse vaardigheid. Onderzoeks vraag 4 luidt: *Hoe verschillen de lezersidentiteiten van leerlingen op OgO-scholen van die van leerlingen op scholen met programmatisch onderwijs, in het bijzonder voor zwakke en sterke lezers en voor meisjes en jongens?*

Om deze vraag te beantwoorden zijn 32 leerlingen uit de totale onderzoeksgroep van 570 groep-6-leerlingen geïnterviewd: 16 leerlingen van vier verschillende OgO-scholen, en 16 leerlingen van vier verschillende scholen met programmatisch leesonderwijs. In semi-gestructureerde interviews werden op elke school twee sterke en twee zwakke lezers, waarvan telkens een jongen en een meisje, bevraagd over vier categorieën ontleend aan Singer (2005): leesactiviteiten, attitudes, emoties en zelfbeeld als lezers van informatieve teksten. Via inhoudsanalyse (Huberman & Miles, 1994) werden patronen in kaart gebracht.

Onze bevindingen laten drie typen lezersidentiteit zien: 1) de ‘ontdekkers’, voor wie het lezen van informatieve teksten een manier is om kennis over de wereld te vergaren, 2) de ‘instrumentalisten’, die lezen zien als noodzakelijk voor maatschappelijk succes en 3) de ‘volgers’, die informatieve teksten lezen “*omdat het moet van school*”. Deze lezersidentiteiten werden ongeveer even vaak bij OgO-leerlingen als bij leerlingen in programmatisch onderwijs gevonden.

Ongeacht hun lezersidentiteit blijken OgO-leerlingen sterker gericht op leesbegrip en op praten over teksten dan leerlingen die programmatisch onderwijs volgen, terwijl leerlingen uit het programmatisch leesonderwijs meer aandacht hebben voor de technische aspecten van lezen.

Sterke lezers, en relatief veel jongens, behoren tot de categorie van de ‘ontdekkers.’ Zwakke lezers en meisjes zijn voornamelijk ‘instrumentalist’ of ‘volger.’ De ondervertegenwoordiging van meisjes in de categorie ‘ontdekkers’ lijkt te maken te hebben met de onderwerpen van informatieve teksten waarmee meisjes lezen op school associëren en waarmee zij minder affiniteit lijken te hebben dan jongens: meisjes associëren lezen op school met lezen over (natuur)wetenschappelijke onderwerpen, terwijl zij liever lezen over culturele of sociale onderwerpen.

**Discussie**

De resultaten van dit proefschrift dragen bij aan inzicht in de aard en de effectiviteit van betekenisvol leesonderwijs van OgO-scholen. Hoewel uit socioculturele theorieën diverse aanwijzingen afgeleid kunnen worden voor de vormgeving van
betekenisvol (lees)onderwijs, is tot nu weinig empirisch onderzoek gedaan naar leeren lezen vanuit sociocultureel perspectief (Smagorinsky, 2011). Onder betekenisvol leesonderwijs wordt doorgaans leesonderwijs verstaan waarbij leerlingen betrokken zijn bij de inhoud van de teksten die ze lezen (bijvoorbeeld Guthrie & Wigfield, 2000). Dit onderzoek laat zien hoe, in de OgO-leeromgeving waarin het lezen vanuit de socioculturele leertheorie op een samenhangende manier wordt vormgegeven, leerkrachten een dergelijke betrokkenheid bevorderen door thematisch onderwijs te organiseren waarin leerlingen onderzoek doen naar en deelnemen aan een socioculturele praktijk en tegelijkertijd aansluiting zoeken bij de persoonlijke motieven en emoties van leerlingen.

Dit proefschrift draagt in het bijzonder bij aan kennis over de effectiviteit van de innovatieve OgO-benadering in de midden- en bovenbouw van het basisonderwijs, die nog niet eerder was onderzocht. De resultaten van de studies in hoofdstuk 3 en 4 wijzen uit dat OgO-leerlingen even goed informatieve teksten leren lezen en begrijpen als leerlingen die programmatisch leesonderwijs volgen. OgO-leerlingen uit etnische minderheidsgroepen hebben zelfs meer kennis van leesstrategieën dan vergelijkbare leerlingen in scholen met programmatisch onderwijs. Dit proefschrift sluit daarmee aan bij het relatief kleine aantal studies naar de effectiviteit van een inhoudsgerichte leesaanpak (McKeown et al., 2009), waaruit eveneens gebleken is dat met een leesaanpak waarin de inhoud van de tekst centraal staat (minstens) even goede leesresultaten bereikt worden als met een leesaanpak waarin de structuur van leesstrategieën centraal staat. Deze bevindingen kunnen twijfels in het onderwijsveld wegnemen over de geschiktheid van innovatieve onderwijsconcepten als OgO voor achterstandsleerlingen (zie Overmaat & Ledoux, 2002; Hornstra, Mansfield et al., 2015). Een kanttekening daarbij is dat we ons beperkt hebben tot het gebruik van de PIRLS als toets voor begrijpend lezen. Een dergelijke toets waarin leerlingen vragen moeten beantwoorden over een willekeurige tekst sluit minder goed aan bij leesonderwijs op OGO-scholen, waar leerlingen gewend zijn om teksten te lezen binnen een context die voor hen persoonlijke betekenis heeft en functioneel is.

Vanwege de focus van OgO op betekenisvol lezen en de resultaten van eerder interventieonderzoek naar betekenisvol leesonderwijs (Aarnoutse & Schellings, 2003; Droop, Van Elsäcker, Voeten, & Verhoeven, 2012; Guthrie et al., 2007) hadden we verwacht dat OgO-leerlingen sterker gemotiveerd waren voor het lezen van informatieve teksten dan leerlingen in programmatisch onderwijs. Dat bleek in onze studie niet het geval te zijn. Een verklaring hiervoor kan zijn dat in de genoemde interventiestudies de motivatie-bevorderende aspecten nieuw waren voor de leer-
lingen, wat de leesmotivatie van interventiegroep positief beïnvloed kan hebben. In onze studie vergeleken we groepen in de bestaande, dagelijkse schoolcontext. Een tweede verklaring zou kunnen zijn dat de beschikbare schalen voor leesmotivatie (interesse, intrinsieke motivering, nut, vertrouwen en instrumentele motivatie) niet gevoelig genoeg zijn voor datgene wat we wilden meten; in de literatuur bestaat discussie over de vraag uit welke dimensies het construct ‘leesmotivatie’ precies bestaat (Schiefele, Schaffner, Möller, & Wigfield, 2012). Een derde mogelijke verklaring voor het achterwege blijven van een effect van de meer betekenisvolle OgO-leesaanpak op de leesmotivatie van leerlingen kan zijn dat de twee onderzochte leesaanpakken in de praktijk minder van elkaar verschillen dan in theorie. Moderne leesmethodes proberen lezen aantrekkelijk te maken voor leerlingen door teksten aan te bieden over onderwerpen die kinderen van negen en tien jaar interessant vinden. In hun antwoorden op onze vragenlijst gaven leerkrachten uit het programmatisch onderwijs aan dat ook zij aandacht besteedden aan motivatie-bevorderende aspecten (met name aan relevantie, sukseservaring en samenwerken). Een vierde verklaring heeft te maken met het OgO-onderzoekscurriculum. Leerlingen kunnen hier ook op andere manieren dan door lezen antwoorden op hun eigen vragen vinden, bijvoorbeeld door experimenteren, wat leerlingen wellicht als motiverender ervaren dan lezen (Dobber & Van Oers, 2012). Tot slot kan de specifieke inhoud van een tekst leerlingen op een bepaald moment motiveren om te lezen, zonder dat dit betekent dat het tot uiting komt in hoge scores voor motivatie voor lezen in het algemeen.

Ook de resultaten van onze studie naar lezersidentiteiten (hoofdstuk 5) leverden niet de verwachte verschillen tussen OgO en programmatisch onderwijs op; in beide typen onderwijs komen dezelfde lezersidentiteiten voor. Wel vonden we, ongeacht de leesaanpak, tamelijk duidelijke verschillen tussen sterke en zwakke lezers en tussen jongens en meisjes. Kennelijk bestaan in geen van beide onderwijscontexten manieren om de sterke relatie tussen leerlingkenmerken als capaciteiten en sekse en lezersidentiteit te beïnvloeden.

Beperkingen van het onderzoek en suggesties voor verder onderzoek

Dit proefschrift heeft een aantal beperkingen. De beschrijving van de OgO-klassenpraktijk is gebaseerd op onderzoek bij een klein aantal leerkrachten, die bovendien ervaren waren. Dat stelde ons in de gelegenheid een gedetailleerde beschrijving te geven van goede voorbeelden maar het betekent ook dat de beschreven kenmerken niet zomaar in elke klas daadwerkelijk voorkomen of geïmplementeerd kunnen worden.

Een eerste beperking voor de studie naar de effectiviteit van de OgO-leesaanpak betreft het kleine aantal leerlingen uit etnische minderheidsgroepen en/of met
laag opgeleide ouders; er waren maar 170 leerlingen beschikbaar.

Een tweede beperking voor de studie naar de effectiviteit van de OgO-leesaanpak is dat er alleen is gekeken naar de effecten op begrijpend lezen, kennis van leesstrategieën en motivatie voor lezen. De doelstelling van OgO is uiteindelijk breder: de persoonlijke ontwikkeling van leerlingen en hun vorming tot actieve, verantwoordelijke deelnemers aan het maatschappelijk leven. Aanvullend onderzoek naar de ecologische validiteit van toetsen voor leesbegrip is wenselijk. Vanuit Vygotskiaans perspectief zou nader onderzocht kunnen worden of vormen van Dynamic Assessment, waarin instructie of feedback gecombineerd wordt met toetsing (zie Van der Veen, Dobber, & Van Oers, 2016), de OgO-leerlingen meer recht doen en een beter beeld geven van hun ontwikkeling (spotenties) op het gebied van begrijpend lezen.

Een derde beperking van de studie naar de effectiviteit van de OgO-leesaanpak is dat we via zelfrapportage hebben vastgesteld hoe de leerkrachten het leesonderwijs uitvoerden. In vervolgonderzoek zouden klassenobservaties een preciezer beeld kunnen geven van verschillen in de mate waarin ‘OgO-kenmerken’ ook werkelijk voorkomen in het leesonderwijs van OgO-leerkrachten én van leerkrachten in scholen waar programmatisch wordt gewerkt.

Onze studie naar lezersidentiteiten was een eerste exploratieve studie; het aantal scholen en leerlingen in het deelonderzoek naar lezersidentiteiten was te beperkt om uitspraken te doen over verschillen tussen sterke en zwakke lezers en tussen jongens en meisjes binnen de twee onderzochte onderwijsaanpakken (OgO en programmatisch onderwijs). Verder onderzoek naar lezersidentiteiten is dan ook gewenst. Aangezien we identiteit beschouwen als een sociaal geconstrueerd verschijnsel, is te verwachten dat er in verschillende onderwijscontexten verschillende accenten in lezersidentiteiten van leerlingen gevonden worden. In een volgende studie zouden we leerlingen ook kunnen betrekken in gesprekken over teksten die ze gelezen hebben. Daarnaast zou in dergelijk onderzoek ook de plaats van lezen en leesactiviteiten in de thuissituatie van leerlingen betrokken moeten worden.

Implicaties voor de praktijk

Uit dit onderzoek kunnen we concluderen dat OgO een geschikte aanpak biedt voor het leren lezen en begrijpen van informatieve teksten in de midden- en bovenbouw van het basisonderwijs.

De uitkomsten van de vergelijkende studie naar de effecten van OgO en programmatisch onderwijs geven aan dat beide leesaanpakken even geschikt zijn voor het realiseren van leesbegrip en kennis van leesstrategieën bij leerlingen. Ook voor leerlingen met een achterstandspositie, zoals leerlingen uit etnische minderheden
en/of leerlingen met laag opgeleide ouders, geldt dat de OgO-leesaanpak tot even goede resultaten leidt. Leerlingen uit etnische minderheidsgroepen verwerven via OgO zelfs iets meer kennis van leesstrategieën dan via een programmatische aanpak. Deze conclusie kan OgO-leerkrachten en OgO-scholen een hart onder de riem steken; uit deze studie blijkt dat eventuele twijfels met betrekking tot de leesopbrengsten van OgO niet gegrond zijn.

De beschrijving van hoe ervaren OgO-leerkrachten de leesmotivatie van hun leerlingen bevorderen en effectieve leesinstructie geven, kan een inspiratiebron zijn voor leerkrachten die betekenisvol lezen in de praktijk willen brengen in de midden- en bovenbouw van het basisonderwijs en wellicht ook de onderbouw van het voortgezet onderwijs. De beschrijving van OgO-leesonderwijs dat voldoet aan alle kenmerken van ‘betekenisvol’ leesonderwijs maakt duidelijk dat het creëren van betekenisvolle leermogelijkheden, zoals in OgO, hoge eisen stelt aan leerkrachten. Allington (2002) en Smagorinsky (2011) stelden al dat betekenisvol lezen nooit kan worden opgevat als het afwerken van een lijstje technische instructies. Leerkrachten moeten een goed overzicht hebben van de inhoud van het curriculum en tegelijkertijd vinden in het ontwerpen van de leeromgeving en van leeractiviteiten. Daarnaast zijn leerkrachtkwaliteiten zoals flexibiliteit en dynamisch klassenmanagement, evenals een gevoeligheid voor en kundige afstemming op behoeften van leerlingen essentiële kwaliteiten om begrijpend leesonderwijs in het OgO-curriculum vorm te kunnen geven. Het creëren van leermogelijkheden die bijdragen aan het proces van maximale betekenisverlening aan informatieve teksten vraagt meer van leerkrachten dan bekwaamheid in het onderwijzen van begrijpen lezen als een apart schoolvak. Het uiteindelijke doel van OgO is de persoonlijke ontwikkeling van leerlingen evenals hun vorming tot actieve, verantwoordelijke deelnemers aan het maatschappelijk leven. Leesonderwijs maakt een belangrijk deel uit van deze vorming. Om aankomende leerkrachten een breed spectrum mee te geven aan manieren waarop zij hun onderwijs voor leerlingen betekenisvol kunnen maken, zouden opleidingen tot leraar basisonderwijs verschillende benaderingen van het leesonderwijs kunnen introduceren, met de kanttekening dat voor de kwaliteit als OgO-leerkracht extra training on-the-job door nascholers en interne begeleiders nodig is.

Aangezien leesonderwijs een belangrijk deel uitmaakt van de identiteits- en burgerschapsvorming van leerlingen, roepen de uitkomsten van onze studie over lezersidentiteit vragen op of OgO explicietere dan tot nu toe daaraan aandacht zou moeten besteden (Hall, 2010). ‘Ontdekker’ lijkt het meest wenselijke lezerstype te zijn in de context van het leren lezen van informatieve teksten. Ontdekkers zijn het sterkst betrokken bij wat zij lezen, het meest gemotiveerd om te begrijpen wat zij...
lezen, en komen langs die weg tot goede leesprestaties (Guthrie et al., 2007). De meeste leerkrachten zullen de ervaring hebben dat leesteksten die voor leerlingen persoonlijk betekenisvol zijn, beter worden gelezen en begrepen, omdat leerlingen zich er ook meer voor inspannen. Leerkrachten zouden leerlingen duidelijker kunnen laten ervaren dat er op school niet gelezen wordt omdat volwassenen dat nodig vinden, maar omdat lezen een manier is om betrokken te raken bij de wereld, bij mensen en bij ervaringen en emoties die niet direct beschikbaar zijn in iemands eigen omgeving. Dit impliceert ook dat scholen meer informatieve teksten over culturele, sociale en emotionele onderwerpen moeten aanbieden, om verschillende groepen leerlingen lezen te laten ervaren als een manier om de wereld te ontdekken. Identiteits- en burgerschapsvorming veranderen met tijd, ontwikkeling en maatschappelijke omstandigheden. En ook leerlingenpopulaties veranderen. Betekenisvol leesonderwijs vraagt daarom om dynamische en flexibele leerkrachten die blijven nadenken over thema’s en teksten die hun leerlingen op een voor hen persoonlijk betekenisvolle manier in contact brengen met de culturele wereld waarin zij leven.
Chapters in this dissertation and contributions of co-authors

Chapter 2 is published as:

Contributions:
Yvonne van Rijk is the first author of this paper. She reviewed literature, collected and analyzed data, and drafted the various versions of the manuscript. The research team further consisted of Dorian de Haan, Bert van Oers and Monique Volman, who were the supervisors of Yvonne van Rijk. The research team collaboratively conceptualized and designed the study. As a form of audit, the research team discussed all the steps in the process of analysis and its outcomes, and where necessary the primary data were rechecked. The supervisors contributed to the analysis and interpretation of the data, and reviewed and revised the manuscript.

Chapter 3 is published as:

Contributions:
Yvonne van Rijk is the first author of this paper. She reviewed literature, collected and analyzed data, and drafted the various versions of the manuscript. The research team further consisted of Dorian de Haan, Monique Volman and Bert van Oers, who were the supervisors of Yvonne van Rijk. Langha de Mey contributed to the analysis, reviews and revisions of the manuscript. The research team collaboratively conceptualized and designed the study. The supervisors audited the analysis and interpretation of the data, and contributed to reviews and revision of the manuscript.
Chapter 4 is based on:

Contributions:
Yvonne van Rijk is the first author of this paper. She reviewed literature, collected and analyzed data, and drafted the various versions of the manuscript. The research team further consisted of Dorian de Haan, Bert van Oers and Monique Volman, who were the supervisors of Yvonne van Rijk. Langha de Mey contributed to the analysis, reviews and revisions of the manuscript. The research team collaboratively conceptualized and designed the study. The supervisors audited the analysis and interpretation of the data, and contributed to reviews and revision of the manuscript.

Chapter 5 is based on:

Contributions:
Yvonne van Rijk is the first author of this paper. She reviewed literature, collected and analyzed data, and drafted the initial manuscript. The research team further consisted of Monique Volman and Bert van Oers, who were the supervisors of Yvonne van Rijk. Mariëlle Lemat, research assistant at the Research Institute of Child Development and Education at the University of Amsterdam, contributed to data collection and analysis. The research team collaboratively conceptualized and designed the study. As a form of audit, the research team discussed all the steps in the process of analysis and its outcomes, and where necessary the primary data were rechecked. The supervisors contributed to the analysis and interpretation of the data, and reviewed and revised the manuscript.
Dankwoord

In 2009 deed zich voor docenten die werkzaam zijn in het hbo een nieuwe kans voor. Een samenwerkingsverband tussen Hogeschool Inholland en de Vrije Universiteit bood docenten zoals ik de gelegenheid een promotietraject te starten. De eerste onderzoeksvormingen had ik toen al opgedaan in de kennisring Ontwikkelingsgericht Onderwijs van lector Dorian de Haan. Nu lag er een kant-en-klar onderzoeksvoorstel over begrijpend leren lezen in Ontwikkelingsgericht Onderwijs. Het begeleidingsteam bestond uit Dorian de Haan als dagelijks begeleider, Monique Volman en Bert van Oers als promotoren.

Het leek een unieke kans en het liep uit op een enorm avontuur. Voor een meisje met een opleiding in de Letteren viel er een wereld te ontdekken in de methoden en technieken van de sociale wetenschappen en in de conventies van de wetenschap in het algemeen. Het parcours was hobbelig; vaak voelde het alsof andere, meer ervaren onderzoekers als het ware soepel een rondje liepen over een goed onderhouden atletiekbaan, terwijl ik buiten de baan probeerde me een weg door de modder te ploeteren om de eindstreep te bereiken. Toch was het werken aan dit proefschrift vooral een zeer leerzame ervaring die van grote betekenis is geweest voor zowel mijn professionele als mijn persoonlijke ontwikkeling. Ik ben blij dat ik dit traject heb afgelegd, terwijl ik natuurlijk ook opgelucht ben dat de eindstreep bereikt is.

Langs de kant stonden vele helpers die ik zeer dankbaar ben voor hun bijdrage aan het onderzoek en voor de steun en ook de ruimte die zij boden wanneer dat nodig was.

Allereerst bedank ik mijn begeleiders; jullie hebben me laten ervaren wat een goede begeleiding kan betekenen.

Dorian, je hebt me gestimuleerd om aan dit onderzoek te beginnen en je gaf me extra ruimte binnen het lectoraat toen de tijd om was, maar het onderzoek nog niet af. Jouw kennisring bood een zeer prettige en inspirerende onderzoeksomgeving. Onze gedeelde werkkamer, je niet aflatende belangstelling voor hoe het me verging en ons internationale congresbezoek maakte dat we veel meer werden dan collega's. Je pensionering veranderde niets aan je grote inzet en betrokkenheid bij
Dankwoord

mijn onderzoek. Een deel van dit proefschrift is tot stand gekomen in een turbulente periode van mijn leven. Jij hebt altijd vertrouwen gehouden en me met raad en daad bijgestaan, ook op moeilijke momenten. Zonder jouw bijdrage was het niet gelukt en ik ben je daar zeer dankbaar voor.

Monique, we hadden jaren eerder al samengewerkt aan het project Onderzoek Online. Toen al, tijdens onze autorijden op weg naar basisscholen in alle uithoeken van de Zaanstreek, merkte ik al dat je niet alleen heel erg deskundig was, maar ook een ontzettend leuk mens. Het vooruitzicht dat jij mijn promotor zou worden gaf voor mij de doorslag om aan dit onderzoek te beginnen. En je hebt mijn verwachtingen meer dan waargemaakt. Je hebt me door de moeilijke momenten gesleept en actie ondernomen wanneer dat nodig was. Ik ben je enorm dankbaar voor je deskundigheid, betrokkenheid en persoonlijke benadering. Ondanks al je drukke werkzaamheden maakte je altijd tijd en was je heel snel en minutieus in je commentaar. Ik heb er grote bewondering voor dat je dat steeds weer voor elkaar krijgt! En vanzelfsprekend heb ik het persoonlijke en warme contact enorm gewaardeerd.

Bert, met je unieke deskundigheid op het gebied van de cultuurhistorische theorie heb je toegezien op de theoretische passages in dit proefschrift. Vanwege je gezondheid moest je wat meer op de achtergrond blijven dan je misschien gewenst had. Desondanks reisde je zo vaak je kon naar de UvA om deel te nemen aan het begeleidingsoverleg. Je kritische, altijd positieve en vriendelijke commentaar heeft me vaak gedwongen scherper te formuleren. Ik ben je dankbaar voor je waardevolle bijdrage aan dit proefschrift.

Langha, hoewel je officieel geen deel uitmaakte van het begeleidingssteam, ben ik je wel als zodanig gaan beschouwen. Met eindeloos geduld heb je me wegijs gemaakt in de statistiek. Van jou heb ik geleerd hoe je multilevel-analyses uitvoert en interpreteert. Altijd kon ik bij je terecht met vragen en dacht je mee over oplossingen. Je hebt een belangrijke bijdrage geleverd aan twee artikelen in dit proefschrift. Daarnaast ben ik je dankbaar voor je tijd, geduld en trouwe betrokkenheid; bij dat laatste denk ik aan je vele sms’jes (‘hoe staat het ermee?’). Ook je scherpe humor en de vele malen dat je belangeloos klaar stond met koffie hebben veel voor mij betekend.

Verder bedank ik graag Bonne Zijlstra, Merlijn Karssens en René Reumerman voor hun methodologische adviezen. Heleen van Loon ben ik dankbaar voor het corrigeren van het Engels van een flink deel van het proefschrift. Het was een plezier jouw commentaar te lezen. Aan de studie over lezersidentiteit heeft Mariëlle Lemat een belangrijke bijdrage geleverd in het kader van haar research-master thesis. Twee
konden veel meer leerlingen interviewen dan één en ook bij de data-analyse was de samenwerking met jou heel plezierig.

Mijn bijzondere dank gaat uit naar alle scholen, leerlingen en leerkrachten die hebben meegewerkt aan dit onderzoek. Zij hebben me de gelegenheid gegeven de gegevens voor dit onderzoek te verzamelen. De contacten met leerlingen en leerkrachten op zoveel scholen overal in het land vormden een heel plezierig onderdeel van het onderzoek. Telkens opnieuw was het een bijzondere ervaring om in een OgO-klas aanwezig te zijn; het is een aanstekelijk mooie vorm van onderwijs.

Met plezier denk ik terug aan de kennisring Ontwikkelingsgericht Onderwijs. Sylvia, Marian, Marianne, Marleen, Dorian, Marian, Hanneke en Els, we bespraken elkaars onderzoek en deelden lief en leed (en dat doen we nog steeds, maar nu via onze leesclub De Kleine Letertjes). In het bijzonder bedank ik Marianne Boogaard, associate lector Ontwikkelingsgericht Onderwijs, kamergenote in Haarlem en zeer ervaren onderzoeker. Ze was altijd bereid tot luisteren en meedenken en tot het geven van kritisch commentaar in de allervriendelijkste bewoordingen. Marianne, dank voor alles wat je me geleerd hebt.

Ook het intervisiegroepje bij Inholland heeft een belangrijke rol gespeeld. Door de jaren heen deelden we onder de bezielende (bege)leiding van Alard Joosten onze onderzoekservaringen als hbo-promovendi. Niet alleen de ervaringen met het promotieproces kwamen ter sprake, maar ook ons persoonlijk leven. In deze periode is er veel veranderd, voor ons allemaal. Marij, Pieter, Marian, Sylvia en Alard, ik ben blij dat wij dit samen hebben kunnen delen.

Hogeschool Inholland stelde mij vier jaar vrij voor een deel van mijn taken bij de stafafdeling Onderwijs Kwaliteit en Research en bij de pabo in Haarlem. Daar ben ik de hogeschool dankbaar voor. Leidinggevende Wilbert Zwanenburg en de collega’s van Pabo Haarlem ben ik dankbaar voor hun belangstelling en waardering. De Universiteit van Amsterdam, in het bijzonder de leiding van het Research Institute for Child Development and Education, dank ik voor de geboden onderzoekstijd om aan de voltooiing van dit proefschrift te werken. HvA-collega’s van het cluster Talen en van de masteropleidingen, promovendi van het kenniscentrum, bedankt voor jullie hartelijke ontvangst van mij als nieuwe collega en voor de interesse die jullie getoond hebben in mijn onderzoek, maar ook voor de ontspannende momenten.
Dankwoord

Mijn laatste woorden van dank wil ik richten tot mijn familie en vrienden. Alle vrienden wil ik bedanken voor de getoonde interesse, hun bemoedigende woorden, hun luisterend oor en voor de gastvrijheid, koffie, thee, wijn, etentjes, wandelingen en uitstapjes ter afleiding. Barrère et Ginette, Alessio et Daniella, merci infiniment de votre amitié inestimable. Jullie hebben tijdens het promotieonderzoek meegeleefd en me laten zien dat ik altijd op jullie kan terugvallen. Lieve Yoeri en Pepijn, jullie bedank ik voor alle ruimte en aanmoediging die jullie me zo ruimhartig gegeven hebben om aan dit proefschrift te werken. Jullie hebben me thuis heel wat uren in de studeerkamer zien doorbrengen. Maar het onderzoek is ook een beetje van jullie; tijdens het invoeren van de data waren we soms net een familiebedrijfje. Yoeri, fijn dat je op 10 mei samen met Juliënne naast me staat, als mijn paranimf. Pepijn, fijn dat je bij me bent.