

CHAPTER 8

Concluding remarks

The research presented in this thesis focused on individual differences in primary school children's reading enjoyment and comprehension. Most previous studies have focused on either the cognitive side of reading (e.g., reading comprehension), or on the motivational side (e.g., reading enjoyment). However, these two domains are inextricably connected. That is, children in the upper grades of primary school who enjoy reading, read more frequently, and therefore their reading comprehension skills improve, which contributes to their reading enjoyment (Baker & Wigfield, 1999; Guthrie et al., 2007a; Guthrie et al., 2007b; Mol & Bus, 2011; Stanovich, 1986). Combining the research domains of reading enjoyment and reading comprehension therefore gives a more complete view of individual differences in the reading development of children in the upper grades of primary school.

Children's reading enjoyment and comprehension were studied in this thesis from three different perspectives. First, child-related factors, such as individual differences in mental imagery skills and in picture reading ability, were assumed to be related to the variety in reading development among primary school children. Second, the home literacy environment, including parents' reading beliefs and literacy activities, were examined as potential sources that might be related to individual differences in children's reading enjoyment and comprehension. Third, the school context, such as teachers' reading enjoyment and perceptions, was investigated to shed more light on the relations with children's reading development.

This chapter reflects on the main research findings. In addition, recommendations for educational practice and suggestions for future research will be provided. Finally, an intervention that was carried out as a bachelor thesis project will be described as an example of a training for primary school children. This pilot study was developed in line with the findings of the research in this thesis.

Child-Related Factors Contributing to Reading Enjoyment and Comprehension

Child-related factors that might contribute to children's reading enjoyment and comprehension were considered in three studies. Chapter 2 showed that three different aspects of fifth- and sixth-graders' reading motivation, i.e., reading attitude, self-concept, and task value, were interrelated. Girls scored higher than boys on reading attitude and task value, and were also perceived as better

readers by their teachers. Importantly, teacher perceptions predicted girls' reading motivation, whereas this was not the case for boys.

Chapter 7 focused on the way children in the higher grades of primary school deal with pictures they encounter in texts. Importantly, children with higher mental imagery skills were found to be better able to understand the information that was displayed in pictures in a book chapter and to integrate this with information from the text into a coherent mental model of the story.

In Chapter 5 individual differences in children's home literacy environment were examined in relation to their reading comprehension. The study showed that children's mentalizing skills and their print exposure were involved in these relations. That is, children's ability to infer other people's mental states (including story characters') was predicted by the stimulation that they received from their home environment. Their mentalizing skills in turn predicted their reading comprehension positively. In addition, children from a rich home literacy environment recognized more books, which was also related to better reading comprehension.

In conclusion, the studies in Chapters 2, 5, and 7 have extended our knowledge of the child-factors that are related to individual differences in children's reading enjoyment and comprehension by taking a more social, motivational, and neuropsychological point of view. For example, this thesis showed that children's mentalizing skills and mental imagery skills were important factors that predicted children's reading development. However, developing these skills does not seem to be a common classroom practice in most schools. Finally, the studies in Chapter 2 and 5 showed the role of children's home literacy environment and their school environment in relation to their reading development. This will be explained in more detail in the following paragraphs.

The Home Context

In Chapters 3, 4, and 5 children's reading enjoyment and comprehension were studied in relation to their home literacy environment. Interestingly, we were able to combine parental and child data to shed more light on the importance of the home environment for children in the upper grades of primary school. Most studies on the home literacy environment so far have focused on children in preschool or kindergarten. However, the home literacy activities, and parents' reading beliefs and own reading enjoyment are also involved in the reading development of children in the upper grades of primary school. Chapter 5 showed

a direct relation between children's home literacy environment, operationalized by parents' print exposure and the amount of books at home, and their reading comprehension. Furthermore, there was an indirect effect, as the home literacy environment was found to predict children's reading comprehension through a positive relation with children's mentalizing skills and print exposure. Parents who read more and have more books at home appear to provide a home context in which children both read more as well, and learn to understand the mental states of other people, including characters in books.

Chapter 3 focused on the home literacy activities that parents of third to sixth graders actually engaged in. It was shown that parents are well able to adjust the frequency of these activities according to the reading interest of their children. They were able to set aside their own lack of reading interest if they noticed that their children enjoyed reading. Combining these parental data with child data provided insight in the effect of engaging in home literacy activities. It was shown that children whose parents undertake more literacy activities actually show more interest in reading.

In Chapter 4 we investigated children's home literacy environment in relation to mothers' beliefs about the contribution of reading to the development of active citizenship competences, and to their educational expectations for their children. The study showed that mothers who believed that reading could contribute to becoming an active citizen had higher educational expectations and provided a higher quality home literacy environment. In addition, mothers who believed that their children would have a successful academic career, had more positive beliefs about reading, which in turn predicted a richer home literacy environment.

In conclusion, the research in these chapters shows that the home environment is an important factor to consider in relation to children's reading development, even when they are able to read independently. Parents can still support children to reinforce a positive reading routine (Mol & Bus, 2011; Stanovich, 1986), for example by engaging in home literacy activities with their children, such as discussing books or helping their children selecting new reading material. Parents' ideas about the importance of reading, their educational expectations, and their own reading behavior and reading interest all predicted the home literacy environment that they provided, which was in turn related to children's reading enjoyment and comprehension. Interestingly, even parents who were not interested in reading themselves were able to affect children's reading enjoyment if they let their children's reading interest prevail

over their own and adjusted the frequency of their home literacy activities to their children's reading interest.

The School Context

The third perspective from which individual differences in children's reading enjoyment and comprehension were examined is the school context. Children in the upper grades of primary school spend a considerable amount of time at school, and reading is considered an important school activity. Teachers especially strive to increase children's reading comprehension skills. However, teachers can also encourage children to enjoy reading by creating literacy-rich classroom environments and by using effective literacy classroom practices that promote reading enthusiasm. In addition, Chapter 2 showed that teacher perceptions of their students' reading comprehension can predict students' reading motivation. Especially for girls, teacher perceptions were related to their reading self-concept and reading task value, whereas this was not the case for boys.

The focus of Chapter 6 was on the reading enjoyment of future teachers in relation to their teaching. First-year pre-service teachers who enjoyed reading were better equipped to teach literacy classes, as they had more knowledge of classroom practices that effectively promote literacy. In addition, they had more knowledge of children's literature, which made them better able to recommend books to children in their class. Finally, they showed more awareness after the first semester at university of the importance of reading many books themselves, compared to their non-enthusiastically reading peers. This study shows that a lack of reading enjoyment might actually be negatively related to pre-service teachers' literacy teaching quality. Knowing more about pre-service teachers' reading enjoyment at the start of their education is especially important, because in the Netherlands pre-service teachers start working as a trainee teacher in primary school classrooms right from the beginning of their university education.

In conclusion, the research described in Chapter 2 and 6 shows that the school context is indeed an important perspective to consider when examining children in the upper grades of primary school. Both teachers' own reading enjoyment and their perceptions of their students' reading skills were related to children's reading enjoyment and motivation.

Implications and Future Directions

The findings that are presented in this thesis can have important implications for education, as well as for parents and teacher education programs. It must however be noted that the studies presented in this thesis are mostly concurrent and correlational. Therefore, our results should be interpreted with care. Longitudinal studies and experimental intervention studies might be conducted in future research to examine the causality, the direction, and the development of the relations that were found in this thesis.

Importantly, individual differences in child-related factors beyond linguistic factors (i.e., vocabulary, oral reading fluency) were found to predict children's reading comprehension. Specifically, the studies in this thesis showed that neuropsychological factors, such as mental imagery and mentalizing skills predict children's performance on reading tasks. Mental imagery skills appeared to be especially involved when reading stories that included pictures. Therefore, educational interventions should be developed which are aimed at increasing children's mental imagery and mentalizing skills, as well as their ability to deal with pictures they encounter when reading narratives.

As readers who easily engage in mental imagery are generally better able to understand stories (Bell, 1991; De Koning & Van der Schoot, 2013; Hibbing & Rankin-Erickson, 2003; Snow, 2002), it might be worthwhile to teach children how to create pictures in their mind's eye while reading. Recent analyses of reading comprehension textbooks that are used in Dutch primary schools showed that many books do not provide instruction on visualization strategies that can facilitate reading comprehension (Bos, Boerma, De Koning, & Van der Schoot, 2013; Stoeldraaijer & Vernooij, 2007). Therefore, interventions might be developed that focus on teaching children to visualize the story (i.e., events, characters, settings). This can be expected to stimulate their imagination, enhance the vividness of their mental models, and therefore their understanding of the story. Mentalizing should also be a part of this intervention, as thinking about the characters' mental state will also lead to an improved mental model (Mar et al., 2006; Mar & Oatley, 2008). Engaging in literature circles that involve mental state talk is a classroom practice that could be used to help children develop their mentalizing skills (e.g., Daniels, 2002; Lecce et al., 2014).

Since there seems to be an interplay between mental imagery skills and visual literacy, such interventions should also focus on teaching children how to "read" pictures that are presented along with a text. First, children need to learn

how to grasp the complete meaning of a picture. While the global meaning of a picture can usually be understood quite easily, full understanding of the picture on a higher-order level is cognitively challenging (Ainsworth, 2008; Avgerinou & Ericson, 1997; Bartholomé & Bromme, 2009; Fei-Fei et al., 2007; Peeck, 1993; Ploetzner et al., 2013). Second, children might need support in learning how to integrate the information they deduced from the picture with the information from the text. This process requires mental imagery skills as well, as has been shown in the study that is presented in Chapter 7. In the next paragraph an intervention is presented that was aimed at teaching children to use mental imagery while reading (or listening to) a story, and to understand the pictures they encountered and transform them from “external” into “internal” images. Future studies should investigate the effects of such interventions, as well as the most effective way of teaching children mental imagery and visual literacy skills. In addition, it would be interesting to examine the effects of such trainings on children’s reading enjoyment.

An implication for teacher education programs that follows from this thesis is that teachers should be aware of their role in enhancing children’s reading enjoyment and comprehension. Children, especially girls, in the upper grades of primary school can be susceptible for their teachers’ perceptions of their reading comprehension skills, so teachers should be taught to be careful displaying these perceptions. Teacher education programs can play a role in teaching future teachers how to create a rich, supportive literacy environment at school. For example, literacy practices such as providing texts that are interesting for the child, allowing children to choose their own texts, providing time to read, using collaborative activities, and emphasizing the importance and value of reading have been shown to increase children’s interest in reading (e.g., Guthrie et al., 2007b).

In addition, teacher education programs might perform an early screening of their students to investigate future teachers’ own reading enjoyment as this was found to have consequences for their teaching quality (see Chapter 6). Further studies should investigate whether the relation between future teachers’ reading enjoyment and teaching quality can also be found for students beyond the first year at university. In addition, special teacher education programs might be developed for future teachers who lack reading enthusiasm.

The studies presented in this thesis also have some implications for parents. Parents should be made aware, for example by psychoeducational programs,

regional or national campaigns, or via school meetings, of the importance of engaging in home literacy activities with their children, also when their children are able to read independently. Engaging in many home literacy activities was positively related to children's reading interest (see Chapter 3), which, according to the reciprocal causation model will lead to frequent and continued reading (Mol & Bus, 2011; Stanovich, 1986). Furthermore, parents should be informed about the literacy activities that are appropriate for older children, because children in the upper grades of primary school obviously benefit from different home literacy activities than preschoolers. For example, sharing their own books with their child, recommending books to them, and discussing about books or articles are home literacy activities that parents could engage in with older children and adolescents (Klauda, 2009). Finally, parents should be made aware that their own reading behavior and their beliefs about the positive effects of reading might be reflected in the quality of their home literacy environment, which in turn predicts their children's reading enjoyment and comprehension.

Intervention: An Example

In order to examine how our findings and the possible implications might work out in an actual educational setting, an intervention was set up, aimed at increasing primary school children's ability to "read" pictures and to create mental images of a story. Four bachelor students who combined their study to become a primary school teacher with a university education in Child Studies, conducted the intervention at the primary school where they worked as a trainee teacher. In collaboration with the bachelor students, I created eight lessons of thirty minutes. These lessons were given twice a week over the course of four weeks. The intervention was carried out among second to fifth graders, depending on the classrooms the trainee teachers were working.

The lessons were aimed at teaching children to gradually move from interpreting ("reading") external pictures, to creating an internal picture based on an external picture, and finally, to creating internal images based on a story text only. The latter specifically required children to create a coherent mental model of the story in their mind. For example, children were taught to carefully look at pictures and make questions for each other about the scene or story that was displayed. They were supposed to answer each other's questions without having access to the picture. In another lesson, the children were instructed to create and draw a mental image of the story that their teacher read to them. A short

overview of the content of these eight lessons is shown in the Appendix at the end of this chapter.

One of the students asked her third and fourth graders to self-report on what they had learned from the intervention (Bos-Van den Berg, 2015). She interviewed the children individually, using a semi-structured design, after four lessons (halfway the intervention) and after eight lessons (after having finished the intervention). Halfway the intervention 81.1% of the children reported that the lessons had helped them or had helped them a bit, to understand stories better. After the intervention, this percentage had increased to 90.9%. About half of the children (48.8%) reported to have acquired some mental imagery skills. For example:

"Now I am very well able to make a movie in my mind. I do that automatically. I can see what I read."

"I have learned how to make pictures in my mind. I read a book and I picture the things in my mind. Sometimes I am so involved in a story that I do not even hear the other children."

Some children also mentioned that they had improved their mentalizing skills. This was the case for 21.1% of the sample. For example:

"I think about what it would look like if I were one of the persons in the picture."

"You can "pull" yourself into the character."

Finally, the children were generally positive about the lessons. 90.9% evaluated the lessons positively and 9.1% reported an intermediate evaluation. For example:

"It is nice to listen to stories. I like to fantasize."

"Quite nice. I especially liked predicting what would happen in that wordless book."

Conclusion

The studies in this thesis have contributed to the existing knowledge about determinants of children's reading enjoyment and comprehension. This thesis has shown the value of taking multiple perspectives into account in order to get a more complete picture of the child-, school, and home-factors involved. Another important insight that follows from this thesis is that because children's reading enjoyment and reading comprehension are so closely connected, studying these two domains in conjunction is recommended. In the upper grades of primary school the focus is often on increasing children's reading comprehension skills.

A more important aim, however, might be to enhance children's reading enjoyment. Both parents and teachers can support children to enjoy reading by providing rich literacy environments, expressing positive reading beliefs and expectations, and engaging in motivating literacy activities. This way, children will turn out to be enthusiastic readers with good reading comprehension skills, and, more importantly, a life-long love for reading.

APPENDIX

Outline of the intervention lessons

Lesson	Aims	Activities	Materials
1	Introduction: looking at pictures carefully	<ul style="list-style-type: none"> Show a big picture on the screen Ask the children what they see Follow the instructions of the RAKIT test 	Subtest of the RAKIT (Revised Amsterdam Children's Intelligence Test; Bleichrodt et al., 1984)
	Making children aware of the way they deal with pictures	<ul style="list-style-type: none"> Class discussion about pictures that are presented along with stories 	-
	Making a picture in your mind	<ul style="list-style-type: none"> Turn the screen off Ask the children to draw the events and the "story" that they saw on the screen 	Drawing materials
2	Introduction: looking at pictures carefully	<ul style="list-style-type: none"> Show a big picture on the screen Ask the children what they see Ask specific questions about the events in the picture 	Picture book "Sinterklaas" (Charlotte Dematons)
	Asking different kinds of questions	<ul style="list-style-type: none"> Introduce different kinds of questions to the children that you might ask about the story: memory questions, inference questions, and mentalizing questions. Ask children in pairs to create these different types of questions for each other 	Copies of the picture for each pair Pen and paper
	Using the picture in your mind	<ul style="list-style-type: none"> Children exchange questions with another pair and answer the questions They do not have access to the picture 	Pen and paper
3	Introduction: looking at pictures carefully	<ul style="list-style-type: none"> Show a big picture on the screen Hand out copies of the picture Ask the children what they see Ask specific questions about the events in the picture 	Picture book "Sinterklaas" (Charlotte Dematons) – different picture than in lesson 2, and copies of this picture
	Making a picture in your mind	<ul style="list-style-type: none"> Look at the picture carefully Tell the children they will have to answer questions about the picture, without having access to the picture 	Picture book "Sinterklaas" (Charlotte Dematons) – different picture than in lesson 2, and copies of this picture
	Using the picture in your mind	<ul style="list-style-type: none"> Answer the questions on the sheet Discuss the children's answers 	Worksheet with questions about the events and characters in the picture
4	Creating a picture/movie in your mind	<ul style="list-style-type: none"> Tell the children that you are going to read them a story Ask them to create a picture/movie of the story in their mind while listening 	Chapter 1 of the book "Mijn opa en ik en het varken Oma" [My grandpa and me and the pig Grandma] (Marjolijn Hof)
	Drawing the picture/movie in your mind	<ul style="list-style-type: none"> Ask the children to draw the picture/movie that they saw while listening Ask the children questions to get them started on their drawing, such as: What does the main character look like? Where is the story set? 	Paper and color pencils

Lesson	Aims	Activities	Materials
5	Creating a picture/movie in your mind	<ul style="list-style-type: none"> Tell the children that you are going to read them a story Ask them to create a picture/movie of the story in their mind while listening 	Chapter 2 of the book "Mijn opa en ik en het varken Oma" [My grandpa and me and the pig Grandma] (Marjolijn Hof)
	Writing down the picture/movie in your mind	<ul style="list-style-type: none"> Tell the children that you are going to ask them questions about the picture/story in their mind Ask them to write their answers down in keywords Example questions: What does grandpa look like? How does grandpa feel? What does he think? 	Pen and paper
6	Creating a coherent mental model, based on pictures	<ul style="list-style-type: none"> Show the children the cover of a book on the screen and ask them what the story might be about and why Tell them that you are going to show all the pictures of the book on the screen Ask them to think about what happens Show them the pictures for the second time This time stop at every page and ask what is happening. 	Picture book "Feest" [Party] (Arnoud Wierstra)
7	Creating a coherent mental model, based on pictures	<ul style="list-style-type: none"> Show the children the cover of a book on the screen and ask them what the story might be about and why Tell them that you are going to show all the pictures of the book on the screen Ask them to think about what happens Show them the pictures for the second time This time the children first discuss in groups of four what they saw on the picture, before the group discussion takes place 	Picture book "Aan de overkant" [Across the riverside] (Nicole de Cock)
8	Creating a coherent mental model, based on the pictures/movie in your mind and the story text	<ul style="list-style-type: none"> Tell the children that you are going to read them a story, but only the start and the end. Ask the children to listen carefully and to create a picture/movie in their mind while listening After listening to the story the children draw and/or write down what they think might have happened in the middle part of the story, based on the start and the end of the story. 	Page 448-526 from "Misschien wisten zij alles. 313 verhalen over de eekhoorn en andere dieren." [Maybe they knew everything. 313 stories about the squirrel and other animals] (Toon Tellegen) Pen, paper, and pencils

