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Aliteracy : causes and solutions

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Cover Page



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Chapter 6

General discussion

Even though most students seem to be enthusiastic readers in the early years of primary school, the motivation to read often declines late in primary school. As is demonstrated in Chapter 2 for a large sample of 7- to 13-year-old students, the reading motivation of the majority of students declines in the upper half of primary school, which implies a risk for what Boorstin (1984) called *aliteracy*: Students can read but, due to lack of practice, their skills remain underdeveloped. Reading proficiency may be an explanation for why some people end up in a downward causal spiral of disinterest and decreasing time spent reading. The interest shown by good readers remains stable or even increases whereas the reading interest of poor and average readers declines. This indicates that independent reading is (too) taxing, even for a group of average readers, and may take away their pleasure in reading. Because the time spent reading declines in poor and average readers but not in good readers, the gap in reading proficiency is likely to widen late in primary education as a result of a decline in reading interest.

We also studied students' emotions about reading as another potential factor in a downward causal spiral of disinterest and decreasing time spent reading. Due to an accumulation of negative reading experiences, students may acquire negative emotions about reading. The experiments in Chapter 3 reveal evidence of anxiety about reading. Similar to individuals with an anxiety disorder - being scared of crowded places or elevators for instance - some students suffer from anxiety about reading and show a positive attention bias towards pictures depicting books or people reading. Students suffering from anxiety about reading appeared to have low scores on title recognition lists, indicating that they indeed avoid reading. Findings thus support the hypothesis that anxiety about reading is likely to contribute to a loss of interest in reading, in the end resulting in less reading practice and skill development. Anxiety about reading is rather common in secondary education, in particular among low performing students. It affects only a minority late in primary school and in pre-academic secondary education but affects the majority of students in pre-vocational secondary education - generally the least proficient readers (cf. Kordes, Bolsinova, Limpens, & Stolwijk, 2013).

Environmental factors influencing whether students experience a downward spiral

Students' interest in reading declines late in primary school in particular when parents do not show interest in their child's reading. If parents do get involved in their child's reading and discuss books with them, motivation remains quite stable or

even increases over time (see Chapter 2). Unfortunately, about 40% of the parents do not take an interest in their child's reading by initiating conversations about books. From other research appeared that with regard to teachers it is not common for them to guide their students when they are selecting books for independent reading or engaging in free voluntary reading in school, even though guidance helps to keep students engaged in reading (Reutzel, Jones, Fawson, & Smith, 2008). In other words, many students do not receive guidance during free reading, neither at home nor in school. Altogether it is usually the students' individual responsibility as to whether they succeed in engaging in recreational reading.

Chapter 4 reported on an experiment that tested whether reading materials make a difference for interest in reading, frequency of reading, and reading proficiency. To that end, students from schools with a typical school library were compared to students from schools with an enriched school library that contained an up-to-date collection of children's books. Enriched libraries also contained more books than the common school libraries; on average two books more per student. The outcomes of this experiment support Krashen's (2011) claim that free voluntary reading as is promoted by an up-to-date collection of children's books is 'the most powerful tool in language education'. Students from schools with an enriched school library were better readers than students from schools without an enriched school library. Their score on a standardized reading test was about half a standard deviation higher. Students from schools with a an enriched collection of books have more interest in reading and know more book titles, which may explain why students from schools with an enriched school library are more proficient readers.

The potential of digital reading

Digital reading is becoming more and more common and programs that offer digital reading materials have several advantages. Firstly, programs with digitized books usually provide access to a large number of books, generally many more than are available in typical school libraries. An example of a program widely used in schools in the United States is Lightsail, which offers access to more than 80,000 books for students aged 4 to 16. Since access to a large collection of books seems to help students to remain interested in reading and develop their reading skill, such programs may be a great asset. Digital programs can keep track of a student's reading performance and make suggestions for further reading based on what seems to interest the student, just like Amazon recommends materials based on previous purchases. Students may thus easily find new interesting reading materials. However we did not find that digital

reading is advantageous compared to reading hardcopy print books or, vice versa that print books are preferable to digital books. Findings in Chapter 5 show that reading self-selected digital books did not affect students' motivation nor did it affect learning new vocabulary from reading, thus suggesting that reading digital books is as effective as reading print books.

In Chapter 5 we examined the potential of digital guidance on students' motivation and their ability to learn from reading. A built-in Pedagogical Agent (PA) praised the students, helped them to comprehend the text, related the book content to the students' own experiences and encouraged them to continue reading - all activities that are known to guide students' reading. The experiment reported in Chapter 5 provides evidence for the hypothesis that guidance by a PA embedded in digital reading materials can be helpful for students. A PA was especially beneficial for students who are susceptible to the environment (carriers of the DRD4 7-repeat allele). Because of their presumed high reactivity to the environment, carriers of the DRD4 7-repeat allele may easily shut themselves off from immersive reading experiences due to numerous distractions present in the direct environment. We found that particularly this susceptible group benefits from external support during reading. When a PA succeeds in focusing these students' attention on the story content, these students show increased learning and even outperform their less susceptible peers.

How to stimulate reading?

Preserving students' initial enthusiasm for reading is important to prevent students experiencing a downward causal spiral of disinterest and decreasing time spent reading. Prevention of aliteracy – the outcome of ending up in a downward spiral - is vital, not only for the students themselves but also for society at large. On the basis of the results of the studies in this dissertation we recommend:

1. Give students access to a large and modern book collection. Students from schools with an enriched school library read more frequently and are better readers than students from schools without an enriched school library. Access to a large collection of attractive books seems vital in the promotion of reading even though the precise mechanisms that explain the effects of an enriched school library are as yet unknown. There may be a direct effect of the larger book collection on student's interest in reading or an indirect effect when teachers from schools with an enriched school library initiate more reading activities. This prospect may come within reach of all Dutch schools when digital programs like the American program Lightsail would be available for the Dutch market.

- 2. Provide students with daily opportunities for free voluntary reading.** Students' reading may be stimulated if they are allowed to read self-selected books in school every day and bring home the books from the school library. It should be noted that in some Dutch primary schools the time scheduled for the reading of self-selected books does not exceed 25 minutes per week.
- 3. Circumvent the 'inoculation fallacy' and continue to provide guidance during reading after students have learned to read independently.** It is a misconception, called the 'inoculation fallacy' by Snow and Moje (2010), that high-quality reading instruction limited to the early grades of primary school is sufficient for students to stay enthusiastic readers. Many students need guidance to continue, even in more advanced stages of reading development at the end of primary school and in secondary school, for example through the regular initiation of discussions about the book that the student is reading. This guidance is required to enable sustained effort and engagement while practicing reading.
- 4. In interventions against illiteracy emotional resistance should be taken into account.** In 2015 the Dutch ministry presented a new language policy in which the prevention and reduction of illiteracy is the core component (Bussemaker, Asscher, Klijsma, & van Rijn, 2015). Several interventions are funded by the ministry to prevent illiteracy in childhood and adolescence and provide interventions for illiterate adults. Many illiterate individuals are likely to have an emotional resistance towards reading due to an accumulation of negative experiences with reading. Future studies should address how negative emotions about reading can be reduced most effectively and whether this approach supports the development of literacy skills in illiterate individuals.
- 5. Build personalized guidance into digital books.** Our findings provide evidence for the efficacy of guidance by a Pedagogical Agent embedded in digital fiction books. We need more research to determine if, and how, a Pedagogical Agent can be effective and for which students in particular. It is important to test how digital materials can support students before digital reading becomes the standard in education. A more adventurous approach of Dutch publishers, in close collaboration with researchers and funding agencies, would be helpful.

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