Aliteracy : causes and solutions

Nielen, Thijs Martinus Johannes

Chapter 2

Development of reading motivation in primary school

Abstract

Interest in reading is important for the development of reading skill and for academic and professional success. In this cross-sectional, longitudinal study in 85 Dutch primary schools, we examined how stable students' motivation for reading is after the stage of beginning reading instruction. Students were followed from grade 3 to grade 4 (N = 1382) and from grade 5 to grade 6 (N = 1474). Multilevel regression analyses were applied to test whether gender, reading ability, the student's opinion about the school library and adult support influenced reading motivation. Main results were: (1) reading motivation declined in the higher grades of primary school, especially in groups with low and average reading ability, and (2) the quality of the school library is related to the decline of motivation even after controlling for home characteristics.

Based on:

Nielen, T. M. J., & Bus, A. G. (2013). Ontwikkeling van de leesattitude op de basisschool en de rol van sekse, leesniveau, de leescultuur thuis en kenmerken van de schoolbibliotheek. [Development of reading motivation in primary school and the role of gender, reading skill, home literacy environment and school library characteristics]. In D. Schram (Ed.), *De aarzelende lezer over de streep: recente wetenschappelijke inzichten [Winning over reluctant readers: recent scientific insights]* (pp. 207-226). Delft, Nederland: Eburon.

Jeanne Chall (1983) was the first to describe the 'fourth-grade slump', a decline in reading skill development that starts in grade 4. We hypothesize that there is a decline in reading motivation as well. In particular, when students find it hard to read independently and comprehend text, there is a decline in reading motivation (e.g., Becker, McElvany, & Kortenbruck, 2010; Mol & Bus, 2011; Morgan & Fuchs, 2007). We therefore expect to find a decline in reading motivation as well as correlations between reading skills and reading motivation (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Pressley, 2006). The literature provides evidence showing that girls in primary school (grades 3 to 6; McGeown, Goodwin, Henderson, & Wright, 2012; Wigfield & Guthrie, 1997), adolescence (OECD, 2010) and adulthood (Miesen, 2006) are more motivated to read than boys. We expected that girls show more interest in reading than boys and may therefore show less decline in motivation in the higher grades of primary education. There is indeed evidence that grade 4 and 5 girls are more confident about their reading skills than boys (Eccles et al., 1993) and read more than boys (Anderson, Wilson, & Fielding, 1988). Girls in secondary school also read more often than boys (Stokmans, 2006).

We were especially interested in the quality of books in the child's environment as a relevant environmental factor that may influence students' reading motivation. According to Krashen (2011), access to a large collection of interesting books is paramount for the reading development of students. If students can easily find interesting reading materials, they will become more enthusiastic readers, read more and their reading performance will increase. In line with this theory, many studies have shown the positive effects of well-equipped school libraries on reading achievement (e.g., Francis, Lance, & Lietzau, 2010; Scholastic, 2008). This study was carried out in schools with a more or less improved library. Some schools had started to improve their library while other schools had the intention to improve the school library in the short term but had not yet begun. It was expected that an attractive book collection in the school library may affect students' interest in reading. Testing was therefore conducted to determine if reading motivation is influenced by whether students consider the book collection in the school library as attractive.

Testing the role of the school library, we controlled for characteristics of the home environment that seem to explain students' interest in reading. When parents model reading behavior in their leisure time, children seem to be more enthusiastic and better readers (Bråten, Lie, Andreassen, & Olaussen, 1999; Mol & Bus, 2011). There is also evidence that parents can stimulate the child's enthusiasm for reading by discussing the books that their child reads (Baker, 2003). Experimental evidence for

the importance of adult support at home comes from studies that address the summer reading gap (Kim & White, 2008, 2011). We assessed whether parents discuss books with their child as an indicator of stimulating homes.

Method

Design

Questionnaires were administered in 87 schools in grades 3 and 5 in November and December 2010 and a year later in grades 4 and 6 to the same students. A cross-sectional and longitudinal design were combined. In the first phase, students in grades 3 and 5 participated and a year later the same students participated in grades 4 and 6.

Participants

In this study participated students from 87 primary schools from all over the country, including schools for special education, schools with a religious foundation, Montessori schools and public schools. The number of participants per classroom varied probably due to the teachers' willingness to invest in the study. Students were only included in the data analyses (N = 2,856) if they had completed the questionnaires at both time points (grade 3 and 4 or grade 5 and 6). Participants were excluded if they had filled in the questionnaire at a single time point (N = 1248) or did not finish the questionnaire at one of the time points (N = 195).

Measurement instruments

Reading motivation. The reading attitude scale of Aarnoutse (1990) was used to measure reading motivation. The questionnaire contains 27 dichotomous (yes/no) items such as: 'Do you like reading?' and 'Do you only read at school because you have to?' Reliability of the scale was satisfactory (α = .92). A higher score indicates more interest in reading.

Time and cohort. Based on the group characteristics we have created two variables: a variable time that indicates the time of measurement (grades 3/5 versus grades 4/6), and cohort that indicates which age group (grades 3/4 versus grades 5/6).

Reading skill. Reading skill was measured through a single question: 'How good is your reading skill?' (not very good/average/very good). This is a reasonable indicator for reading skill because students in this age group are quite capable of distinguishing their reading skill from their motivation to read and can report their skill level reasonably accurately (Eccles et al., 1993).

School library. Students were asked to evaluate the library at school choosing from three options: 'We do not have a school library' / 'I do not like to go there' / 'I like to go there'. We recoded the data by combining the first two options as an indication of the lack of an attractive library in the student's opinion.

Parental reading behavior. Students were asked how often their father or mother reads a book (never/sometimes/often). This question provides an indication for the extent to which parents model reading to the child.

Discuss books with parents. To gain insight in the interest that parents show in their child's reading students were asked: 'How often do you talk with your mother or father about books?' (never/sometimes/often).

Procedure

The data was collected by a commercial institute under the authority of the Ministry of Education. The goal of the data collection was to pilot instruments that were developed to evaluate the effects of the program "the Library *at school*". At the first measurement (grades 3 and 5), students completed the reading attitude scale and a number of questions not included in this report. At the second measurement, students completed a questionnaire addressing reading motivation, reading skill, opinion about the school library, parental reading behavior, and frequency of discussing books with parents.

Data analysis

We applied multilevel regression analyses to control for the nesting of the measures: the two time points (level 1) within students (level 2) and the nesting of students within schools (level 3).

Results

Missing data

In total there were 3,599 respondents who filled in the questionnaire at time point 1 and 2,856 of these respondents filled in the questionnaire at time point 2 as well. In addition, there was a group of respondents who filled in the questionnaire at the second, but not at the first time point (n = 625). Based on the number of respondents at the first time point, 20.6% of the respondents dropped out during the study, a percentage comparable to other large scale longitudinal studies in the field of reading

(cf. Allington et al., 2010; Kim & White, 2008). Given that a substantial number of respondents were not included in the final analyses, we tested whether the reading motivation of these respondents differed from the reading motivation of respondents who completed both questionnaires. The reading motivation of students who filled in the questionnaire on the first time point but not on the second time point (M = 16.58, SD = 6.85) was slightly lower than the reading motivation at the first time point of those students who filled in the questionnaire at both time points (M = 17.20, SD = 6.85; t (3597) = 2.17, p = .03, d = .09). There was no difference at the second time point between the students who filled in the questionnaire only at the second time point (M = 16.65, SD = 7.02) and the students who filled in the questionnaire at both points (M = 17.01, SD = 7.16; t (3479) = 1.14, p = .26). In sum, the group of respondents who dropped out of the study seems to be comparable to the group of respondents included in the further analyses.

Descriptive statistics

See Table 1 for an overview of the number of respondents in each cohort, age, gender, and the range of participants per school. The answers on the questions about reading skill, the school library, and adult support are displayed in Table 2. Spearman rank correlations between the study variables at the second time point are provided in Table 3. The negative correlation between cohort and reading motivation (r = -.12) indicates that students in the second cohort (grade 6) were less motivated to read than students in the first cohort (grade 4). Girls were more motivated to read than boys (r = .28), better readers were more motivated to read than less proficient readers (r = .33), students who considered the school library attractive were more motivated to read than students who did not (r = .20), and finally, students who received adult support were more motivated to read than students without adult support (r = .20 for modeling and r = .41 for discussing books). Furthermore, it is noteworthy that older students valued the school library less (r = -.15) and discussed books with their parents less often (r = -.17), that parents who read more also discussed more books with their children (r = .20), and that more discussion about books with parents was related to more appreciation for the school library (r = .16).

Table 1 *School and student characteristics.*

	Grade 3	Grade 4	Grade 5	Grade 6
N	1382	[a]	1474	[a]
M_{age} (SD_{age})	8.34 (.55)	9.27 (.53)	10.39 (.55)	11.31 (.52)
Age range	7-10	8-12	9-12	10-13
% girls	51%	[a]	52%	[a]
K	78[b]	[a]	81[b]	[a]
Range n per school	4-83	[a]	2-59	[a]
Average N per school (SD)	17.72 (12.85)	[a]	18.20 (11.15)	[a]

[a] Identical for grades 3-4 and grades 5-6.
[b] The number of schools differs between the two cohorts and from the total number of schools because no participants remained after applying the exclusion criteria for some schools or grade levels.

Table 2 *Descriptive statistics for the categorical variables.*

Variable	Categories	Percentage of respondents
Reading skill	Not very good	5.6
	Average	55.9
	Very good	38.5
Parental reading behavior	Never	15.3
	Sometimes	42.7
	Often	42.0
Discuss books with parents	Never	43.0
	Sometimes	48.8
	Often	8.2
Opinion about school library	Not attractive	38.4
	Attractive	61.6

Table 3 *Spearman correlations between the reading attitude scale and the independent variables at the second time point.*

	1	2	3	4	5	6	7
1. Reading attitude scale	-						
2. Cohort	-.12***	-					
3. Gender	.28***	.02	-				
4 Reading skill	.33***	-.02	.05*	-			
5. School library	.20***	-.15***	.07***	.03	-		
6. Parental reading behavior	.20***	-.04*	.02	.10***	.03		
7. Discuss books with parents	.41***	-.17***	.12***	.11***	.20***	.16***	-

Intraclass correlation

The intraclass correlation (ICC) is a measure for the variance accounted for by the nested structure of the data. The nesting of time points within individuals is required by the longitudinal design and explained 59% of the variance. The nesting of students within schools resulted in a significant improvement of the model fit (see model 1 and model 2 in Table 4; $\chi^2 = 20.10$, $p < .001$) and explained an additional 2% of the variance in reading motivation. We therefore included a random intercept both at the student and school level in the analyses.

Development of reading motivation

We regressed reading motivation on time (first versus second point of measurement), cohort (younger versus older), gender, reading skill, the students' valuation of the school library, parental reading behavior, and finally the discussion about books

Table 4 *Multilevel regression models with reading motivation as outcome measure.*

	Model 1	Model 2	Model 3	Model 4
Number of parameters	3	4	11	17
Fixed effects				
Intercept	17.10 (.12)***	16.97 (.17)***	7.75 (.38)***	9.03 (.43)***
Time			-.19 (.12)	-2.74 (.40)***
Cohort			-.44 (.21)*	-.13 (.24)
Gender			3.02 (.20)***	2.94 (.23)***
Reading skill			2.88 (.17)***	2.50 (.20)***
School library			1.89 (.23)***	1.34 (.26)***
Parental reading behavior			1.02 (.14)***	.97 (.16)***
Discuss books with parents			2.50 (.17)***	1.72 (.19)***
Time*Cohort				-.63 (.23)**
Time*Gender				.15 (.23)
Time*Reading skill				.74 (.20)***
Time*School library				1.10 (.24)***
Time*Par. Reading behavior				.10 (.16)
Time*Discuss books with par.				1.56 (.19)***
Random effects				
Residual	19.17 (.51)***	19.17 (.51)***	19.14 (.51)***	18.13 (.48)***
Student level	29.91 (1.08)***	28.95 (1.07)***	17.12 (.76)***	17.62 (.76)***
School level		.99 (.36)**	1.19 (.34)***	1.19 (.34)***
Model fit statistics				
-2 Log Likelihood	37,122.55	37,102.45	36,072.26	35,917.81
AIC	37,128.55	37,110.45	36,094.26	35,951.81
BIC	37,148.50	37,137.05	36,167.42	36,064.86

with parents. In addition, the interactions between time and the other independent variables were included to see which factors influence the development of reading motivation. The multilevel regression models are displayed in Table 4. Model 1 is the basic model without predictors and without a random intercept for school; in model 2 we included a random intercept for school. All predictors were included in model 3, while in model 4, we added the interactions between time and the other predictors. Each model fits significantly better than the previous model ($\chi^2 > 20.10$, $p < .001$).

We found main effects for both gender and parental reading behavior. These main effects show that girls are more motivated to read than boys (a difference of approximately 3 points on the reading attitude scale) and that students whose parents model reading behavior tend to be more interested in reading. The lack of an interaction between these factors and time shows that they have no influence on the development of reading motivation. What this means is that, even though girls and children from parents who read more often are more motivated to read, their motivation develops in a similar way to the motivation of boys or children from parents who read less often.

The motivation of not very proficient readers starts to decline halfway through primary school and this decline continues in later grades (see Figure 1). For average readers, motivation remains stable in grades 3 and 4 but starts to decline from grade 5 to 6. Finally, very good readers become more motivated to read from grade 3 to grade 4 and their motivation remains high in grades 5 and 6.

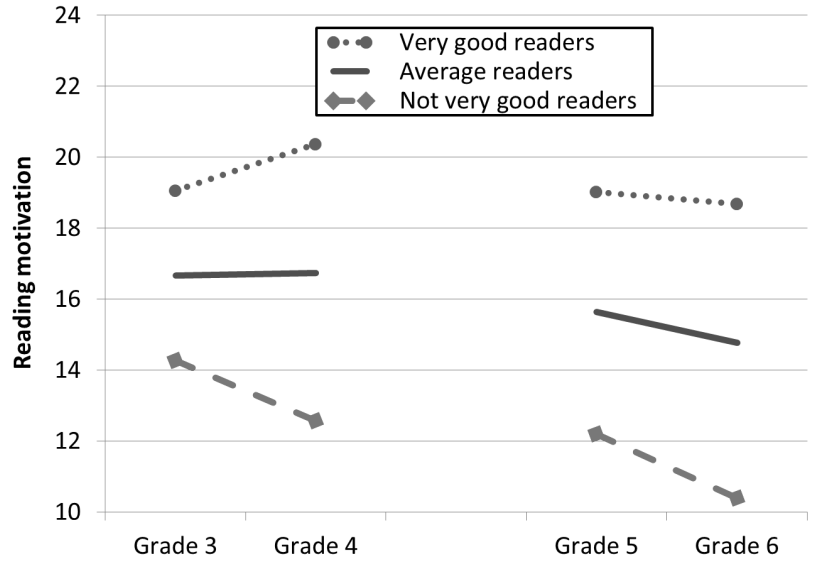

Figure 1. The development of reading motivation for different levels of reading skill.

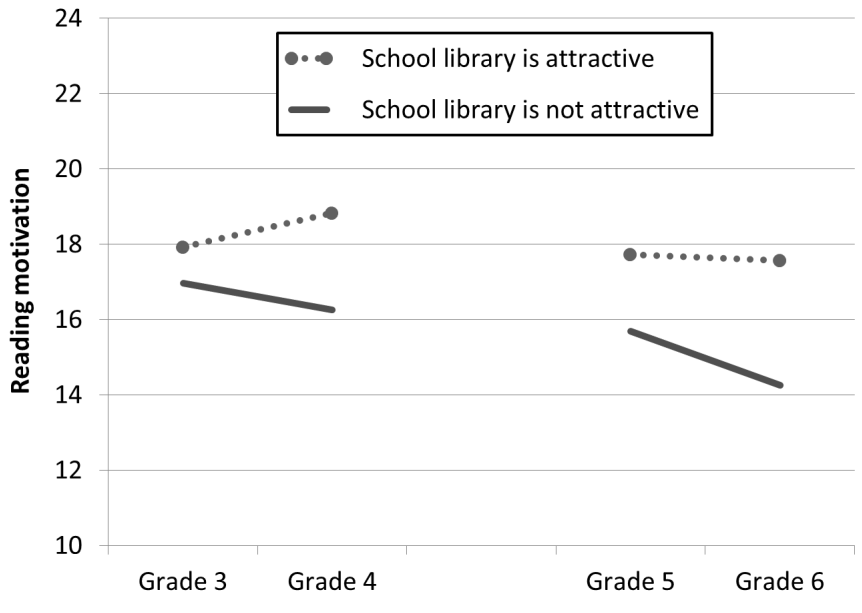

Figure 2. The development of reading motivation for students who think the school library is attractive or not attractive separately.

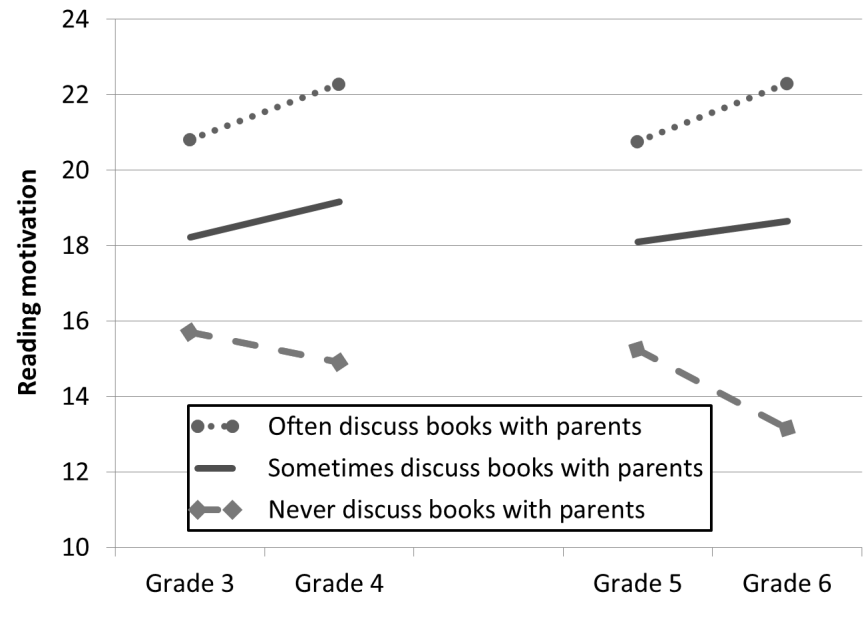

Figure 3. The development of reading motivation for different levels of discussing books with parents.

Figure 2 shows the interaction between the students' evaluation of the school library and the development of reading motivation. The motivation of students who considered the school library to be attractive increased from grade 3 to 4 and remained stable from grade 5 to 6. For students who reported regarding the school library as not attractive, reading motivation declined from grades 3 to grade 4 and from grade 5 to grade 6.

When students reported discussing books with their parents, they were more motivated to read whereas the motivation of children without such experiences declined. Furthermore, the motivation grew stronger when parents often discussed books with their children (see Figure 3).

Discussion

Students' reading motivation declines over the course of primary school. Findings fit the model that less proficient readers are less motivated to read and their reading motivation strongly declines from an early age, whereas students who report being proficient readers are more motivated to read and remain enthusiastic readers (e.g., Mol & Bus, 2011; Morgan & Fuchs, 2007; Stanovich, 1986). The finding that motivation and reading skill are related can be interpreted in various ways but it is most plausible that the relationship is reciprocal (Mol & Bus, 2011). As expected, girls were overall more motivated to read than boys but the development of reading motivation is very similar for boys and girls. Reciprocal relations are also plausible for the relations between reading motivation and the school library. If, for instance, the school library is well-equipped and students can easily find books matching their reading level and interests, this will likely result in more motivation to read. Vice versa, if students are very motivated to read, they are likely to put effort into finding reading materials that interest them even if the school library is poorly equipped. The home environment, though, is a relevant factor as well. Students who discuss books with their parents are more motivated to read than students who do not. However, even when controlling for the home conditions, effects of the school library remain.

The decline in reading motivation may finally result in discontinuation of reading. Half of the Dutch 15-year olds report that they never, or hardly ever, read in their leisure time (OECD, 2010). Many students thus face what Boorstin (1984) described as 'aliteracy': These students have the ability to read but do not practice reading. This lack of reading practice in leisure time has negative consequences for academic and

professional development (Gottfried, Schlackman, Gottfried, & Boutin-Martinez, 2015; OECD, 2010; Taylor, 2013). It is therefore vital to provide more support for students so they become enthusiastic readers.

The current findings corroborate the importance of the school library. It seems obvious that students who are more motivated to read tend to consider the school library as more attractive, because students who like to read will probably put more effort into finding interesting reading materials even in a poorly equipped library (e.g., Clark, 2010). A more surprising outcome is that the development of reading motivation is more positive as students perceive the school library as more attractive. This suggests, in line with Krashen (2011), that access to an attractive book collection is vital for reading motivation. It should be noted, however, that in the present study the attractiveness of the school library is not measured by objective characteristics. It may be interesting to further explore which characteristics of the school library (e.g., the number of books per student, the variety in genres) affect students' reading motivation.

Our findings support the importance of the home environment and in particular discussing books with the parents. Such parental support seems to be a protective factor against the decline in reading motivation at the end of primary school but only occurs in 60% of the homes.

Limitations and conclusion

The main limitation of the present study is that most predictors are measured with a single question at the second time point. Despite this limitation, the present study is the first to provide insight in the development of reading motivation in a large sample in Dutch primary schools. Apart from gender and reading proficiency, we found support for the hypothesis that the quality of the school library makes a difference even after controlling for family literacy (McGeown et al., 2012; Mol & Bus, 2011; Morgan & Fuchs, 2007; Stokmans, 2006). Improvement of the school library seems an important inducement for students to become enthusiastic and skilled readers.

References

Aarnoutse, C. A. J. (1990). *Woordenschattest en leesattitudeschaal. [Vocabulary test and reading attitude scale]*. Lisse, The Netherlands: Swets & Zeitlinger.

Allington, R. L., McGill-Franzen, A., Camilli, G., Williams, L., Graff, J., Zeig, J., . . . Nowak, R. (2010). Addressing summer reading setback among economically disadvantaged elementary students. *Reading Psychology, 31*(5), 411-427. doi: 10.1080/02702711.2010.505165

Anderson, R. C., Wilson, P. T., & Fielding, L. G. (1988). Growth in reading and how children spend their time outside of school. *Reading Research Quarterly, 23*, 285-303. doi: 10.1598/RRQ.23.3.2

Baker, L. (2003). The role of parents in motivating struggling readers. *Reading and Writing Quarterly, 19*, 87-107. doi: 10.1080/10573560308207

Becker, M., McElvany, N., & Kortenbruck, M. (2010). Intrinsic and extrinsic reading motivation as predictors of reading literacy: A longitudinal study. *Journal of Educational Psychology, 102*(4), 773-785. doi: 10.1037/a0020084

Boorstin, D. J. (1984). *Books in our future*. Washington: U.S. Government Printing Office.

Bråten, I., Lie, A., Andreassen, R., & Olaussen, B. S. (1999). Leisure time reading and orthographic processes in word recognition among Norwegian third- and fourth-grade students. *Reading and Writing, 11*(1), 65-88. doi: 10.1023/a:1007976521114

Chall, J. S. (1983). *Stages of reading development*. NY: McGraw-Hill.

Clark, C. (2010). *Linking school libraries and literacy. Young people's reading habits and attitudes to their school library, and an exploration of the relationship between school library use and school attainment*. London: National Literacy Trust.

Eccles, J. S., Wigfield, A., Harold, R., & Blumenfeld, P. B. (1993). Age and gender differences in children's self- and task perceptions during elementary school. *Child Development, 64*(3), 830-847. doi: 10.1111/1467-8624.ep9308115032

Francis, B. H., Lance, K. C., & Lietzau, Z. (2010). *School librarians continue to help students achieve standards: The third Colorado study (2010)*. Denver, Colorado: Colorado State Library, Library Research Service.

Gottfried, A. W., Schlackman, J., Gottfried, A. E., & Boutin-Martinez, A. S. (2015). Parental provision of early literacy environment as related to reading and educational outcomes across the academic lifespan. *Parenting: Science and Practice, 15*(1), 24-38. doi: 10.1080/15295192.2015.992736

Kim, J. S., & White, T. G. (2008). Scaffolding voluntary summer reading for children in grades 3 to 5: an experimental study. *Scientific Studies of Reading, 12*(1), 1-23. doi: 10.1080/10888430701746849

Kim, J. S., & White, T. G. (2011). Solving the problem of summer reading loss. *Phi Delta Kappan, 92*, 64-67.

Krashen, S. D. (2011). *Free voluntary reading*. Santa Barbara, California: ABC-CLIO, LLC.

McGeown, S., Goodwin, H., Henderson, N., & Wright, P. (2012). Gender differences in reading motivation: does sex or gender identity provide a better account? *Journal of Research in Reading, 35*(3), 328-336. doi: 10.1111/j.1467-9817.2010.01481.x

Miesen, H. (2006). Vrijetijdslezen en leesbevordering: Sociaal-psychologische drijfveren achter het literaire leesgedrag onderzocht naar geslacht en leeftijd [Reading in leisure time and promoting reading: Social-psychological motives behind the literary reading behavior studies by gender and age]. In D. Schram & A. Raukema (Eds.), *Lezen in de lengte en lezen in de breedte [Reading in the length and reading in the width]* (pp. 243-266). Delft, Nederland: Eburon.

Mol, S. E., & Bus, A. G. (2011). To read or not to read: A meta-analysis of print exposure from infancy to early adulthood. *Psychological Bulletin, 137*(2), 267-296. doi: 10.1037/a0021890

Morgan, P. L., & Fuchs, D. (2007). Is there a bidirectional relationship between children's reading skills and reading motivation? *Exceptional Children, 73*(2), 165-183. doi: 10.1177/001440290707300203

OECD. (2010). *PISA 2009 Results: Learning to learn - Student engagement, strategies and practices (Volume III).* Retrieved from http://www.oecd.org/pisa/pisaproducts/48852630.pdf. doi:10.1787/9789264083943-en

Pressley, M. (2006). *Reading instruction that works: The case for balanced teaching.* NY: The Guilford Press.

Scholastic. (2008). "School libraries Work!". Retrieved from http://www.scholastic.com/content/collateral_resources/pdf/s/slw3_2008.pdf.

Stanovich, K. E. (1986). Matthew effects in reading: some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*, 360-407.

Stokmans, M. (2006). Leesattitude: de motor achter leesgedrag?! [Reading attitude: The driving force behind reading behavior?!] In D. Schram & A. Raukema (Eds.), *Lezen in de lengte en lezen in de breedte [Reading in the length and reading in the width]* (pp. 267-289). Delft, Nederland: Eburon.

Taylor, M. (2013). *Reading for pleasure in Britain: trends, patterns, and associations.* University of Oxford.

Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89*, 420-432. doi: 10.1037/0022-0663.89.3.420.