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Kleijnen, E.; Huysmans, F.; Ligtvoet, R.; Elbers, E.

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**Effect of a school library on the reading attitude and reading behaviour in
non-Western migrant students**

Ellen Kleijnen

Frank Huysmans

Rudy Ligtoet

Ed Elbers

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Correspondence: e.kleijnen@outlook.com

Abstract

There is a lack of clarity as to the effects of school libraries on children with a non-Western background in the Netherlands, an educationally disadvantaged group. Using a longitudinal design involving an experimental and a control school, the present study examined whether an integrated library facility in a Dutch primary school has an effect on the reading attitude and reading behaviour of non-Western migrant students ($n = 140$). The results showed no statistically significant effect on the degree in which students think reading is fun. On the other hand, over time, students attending the experimental school considered reading more useful than students visiting the control school. With regard to reading behaviour no statistically significant effect of the school library was found. However, the school library program was not implemented in the most optimal form, which may have affected the findings. Reading climate at home was found to be an important predictor of both reading attitude and reading behaviour, stressing the importance of parents as partners for school libraries when it comes to reading promotion.

Keywords

School library, migrant students, reading behaviour, reading attitude, primary education, The Netherlands

Introduction

Reading for pleasure can play an important role in a child's development. A considerable amount of research has demonstrated a strong association between reading behaviour and good reading and language skills (Broekhof, 2011; Krashen, 2004). These skills are crucial for an individuals' educational success and post-school opportunities (McGeown et al., 2014) as well as for a country's economic growth (Coulombe et al., 2004; Organisation for Economic Co-operation and Development, 2010). By reading for fun, children can also experience pleasure and gain general, cultural and practical knowledge (Cunningham and Stanovich 1998; Kortlever and Lemmens, 2012; Stichting Lezen, 2012). Stories can help children gain knowledge about their own and other's feelings, thoughts and motives (Hakemulder, 2011), and, as books can cover a wide variety of topics, children are presented with other perspectives and solutions than they would have encountered in their daily lives (Kortlever and Lemmens, 2012).

Internationally, the Netherlands stands out in a negative sense when it comes to reading for pleasure. In the most recent international comparative study of reading achievement at the fourth grade, the Progress in International Reading Literacy Study (PIRLS), conducted in 2011, 20% of the Dutch primary school students (aged 10.2 years on average) showed a positive attitude towards reading and reported reading for fun on a daily

basis compared to 28% of the students internationally; and 27% of Dutch students had the least favorable attitude towards reading and read only once or twice a month in their leisure time compared to 15% internationally (Meelissen et al., 2012; Mullis et al., 2012). Moreover, 65% of Dutch fourth-graders considered reading for pleasure a useful activity compared to 74% internationally, bringing the Netherlands in a position close to the bottom of the international ranking list. Although primary school students in the Netherlands perform pretty well when it comes to reading proficiency, their reading achievement declined between 2001 and 2011. In the international ranking list of PIRLS, the Netherlands has dropped over the decade from the 2nd position in 2001 to the 9th position in 2006, and the 13th position in 2011 (Meelissen et al., 2012; Mullis et al., 2012). This is out of line with the top-5 ranking ambition of the Dutch government (Ministry of Education, 2013). Moreover, national statistics indicate that one-third of third graders achieve the standard 'sufficient' for comprehending texts (Van Berkel et al., 2007). A quarter of the students finish primary school with insufficient technical reading proficiency (Vernooy, 2009) and almost 14% of the 15-year-olds can be considered low-literate (Kordes et al., 2013).

Because of these concerns about reading in the Netherlands, the Dutch government has paid extra attention to structural reading promotion at school over the last years

(Sectorinstituut Openbare Bibliotheken, 2008). Part of this is the program *The Library at School*.¹ This comprises a structural cooperation between public libraries, municipalities and schools. Its main priority is to provide all students with a large, varied and up-to-date collection in a school library (Van Dam et al., 2013). In line with this program, school libraries in primary schools aiming at reading promotion that are supported or even run by public libraries are becoming increasingly common (Oberon, 2009, 2011).

The present study focuses on the effects of a Dutch school library on the reading behaviour and reading attitude of primary school students with a non-Western background in particular, an educationally disadvantaged group in the Netherlands as in other Western countries (Gijsberts and Iedema, 2012; Schnepf, 2007). Since the 1960s, migrants have come to the Netherlands in large numbers. Statistics show that in 2014, the Netherlands counted almost 2.0 million non-Western migrants² (i.e. 12% of the total population), of which migrants with a Turkish, Moroccan, Surinamese and Antillean background constituted the largest groups (Statistics Netherlands, 2015). Together with the arrival of migrants, schools with a considerable percentage of migrant students have become more common in the Netherlands over the past decades, especially in the most highly urbanized areas (Herweijer, 2008). In 2014, nearly 17% of the primary school aged children (4–12 years) were of non-Western origin (Statistics Netherlands, 2015). These children generally

grow up in families with a relatively weak socio-economic position (Herweijer, 2009), and they are often partly or even entirely raised in another language than the Dutch language (Scheele, 2010). Moreover, compared to native Dutch families, migrant children have fewer reading materials at home, are less likely to be read to, and their parents themselves are less inclined to read (De Vries, 2007; Hermans, 2002; Scheele, 2010; Van Steensel, 2006). The situation of many non-Western migrant students places them at a higher risk for poorer school performance (Gijsberts and Herweijer, 2009). Indeed, research has clearly demonstrated that the educational achievement of children with a non-Western background – including those born in the Netherlands – lags behind that of natives, particularly when it comes to language ability and reading proficiency (Gijsberts and Iedema, 2012; Netten, 2014). Their disadvantages in the Dutch language are already manifest at the start of primary school and continue throughout primary school and beyond (Gijsberts and Iedema, 2012; Herweijer, 2009).

Given the crucial role of good reading and language skills, it is important to counter this ethnic inequality in school performance. Possibly school libraries provide an answer, since reading promotion, as provided by school libraries, is typically aimed at increasing children's reading frequency, and improving their reading and language skills as well as their attitude towards reading (Stalpers, 2005), factors that are related in a reciprocal

manner (Broekhof, 2011; Cubiss, 2012; Meelissen et al., 2012; Mol and Bus, 2011). Here, an upward spiral of causality has been suggested, where children who have more positive attitudes towards reading will tend to read more, which – through a process of incidental learning (i.e. learning without the intention of doing so) – translates to a higher reading and language ability. Conversely, in case of a downward spiral, children with weaker reading skills feel less positive toward reading and are therefore less likely to read and practice their reading skills (Broekhof, 2011; Melnick et al., 2009; Huysmans, 2013; McKenna et al., 1995; Meelissen et al., 2012; Mol and Jolles, 2014; Stokmans, 2006). By providing access to a large and varied book collection for all students, thereby equalizing access to reading materials for disadvantaged children (Rodney et al., 2002), school libraries may contribute to setting in motion an upward spiral, also among children who are not accustomed to a reading culture at home. Based on an extensive literature review (Kleijnen et al., 2015), the next paragraphs discuss research on the impact of school libraries on children in general and migrant children in particular.

Since the 1960s, evidence of the impact school libraries have on student achievement has been accumulating outside the Netherlands (Roberson et al., 2003; Williams et al., 2013). Lance, one of the most prominent researchers in this field, began his studies in the early 1990s. He found in his first study, the so-called ‘Colorado Study’, that

between 5 and 15% of the differences in reading test scores of primary and secondary school students were explained by library size (in terms of its collection and staff) while controlling for confounding factors (Lance et al., 1993). Since then, he and other researchers have begun adding to this work, the majority of the impact studies having been carried out in the United States (Williams et al., 2013). Reviews of these studies point to a variety of attributes of school libraries that are positively linked to student achievement, such as the presence of qualified, full-time school librarians and appropriate support staff, large and up-to-date collections and flexible library access (Kachel et al., 2013; Lonsdale, 2003; Scholastic, 2008; Williams and Wavell 2001; Williams et al., 2013). Furthermore, it has been established that increased access to books, as provided by school libraries, is related to more reading (Krashen, 2004; Krashen et al., 2012) as well as to a higher enjoyment of reading (Lindsay, 2010). In line with this, school library users have been found to hold more positive attitudes towards reading than peers who do not use the school library (Clark, 2010).

The – as yet – rather limited available data from the Netherlands also suggest positive outcomes of school libraries. The research and statistics department of the public library in Vlissingen found that a school library was positively related to children's self-reported reading behaviour (Oberon, 2011). In line with this, Geurtsen (2008), who

conducted a study in Hoorn, found that children who visited a school library reported more leisure time reading and a more positive attitude towards books than a control group of students. A pilot study of the Library at School program involving 30 primary schools and seven libraries showed on the basis of library figures that book loans grew with 115% and youth membership with 65% after implementation of the program (Oberon, 2011).

Huysmans et al. (2013) studied the effects of the Library at School in the first year of the nationwide implementation of the program. Multilevel regression analyses on questionnaire data from a sample of 4682 students and 284 teachers from 68 schools showed that effects of the library at school on the students' leisure reading and attitude towards reading books could not yet be discerned in this starting phase, although slightly positive univariate effects were found. Nielen and Bus (2015) also studied the effects of the Library at School among fourth and fifth graders, comparing 31 schools that had implemented this program with 10 schools that lacked this program. They found that students visiting the schools with the Library at School program scored higher on reading comprehension, and that girls attending these schools read more and were also more motivated to read.

Although there are many studies on the impact of school libraries on children in general, little is known about the effects of school libraries on subgroups, particularly on groups of disadvantaged children (Lonsdale, 2003), including ethnic minorities. Several

American studies did find that relations between characteristics of school libraries and better test scores appeared to persist after statistically adjusting for school and student characteristics, including the students' racial or ethnic background (Lance et al., 2005; Michie and Chaney, 2009). This seems to imply that so-called success factors of school libraries apply to youth of various racial/ethnic backgrounds (at least in the context the studies were conducted). This corresponds with the findings of Lance and Schwarz (2012) who examined the impact of characteristics of school library programs in Pennsylvania on reading scores of selected student cohorts that tend to experience achievement gaps. They discovered that African American and Hispanic students benefitted proportionally more from strong school library programs than students in general. This suggests that adequate school libraries can play a role in helping to lower the achievement gap between advantaged and disadvantaged students (Williams et al., 2013).

As indicated by the literature review by Kleijnen et al. (2015, p. 10), literature that indirectly sheds light on the possible effectiveness of school libraries for migrant children is not consistent. 'On one hand, studies have indicated that the home environment – which is usually not that favorable among migrant families in the Netherlands – is of utmost importance, suggesting only a limited impact of (interventions taking place at) other socializing institutions (...). On the other hand, there are studies suggesting that, besides

parents, public libraries and schools do play an important role, and that these institutions can even compensate for a reading-unfriendly home climate.’

Current study

Although ample studies have addressed the impact of school libraries, there is still much unclear as to the effects on children from migrant groups in the Netherlands. As outlined, many studies on the effectiveness of school libraries have been carried out outside the Netherlands. These studies often focus on gains in student learning in relation to school library characteristics. Research explicitly focusing on ethnic minorities is scarce, and literature on the role of the home environment, schools and libraries which sheds light on the possible effects of school libraries on children with a migrant background in the Netherlands is not unambiguous. The few studies on ethnic minorities – conducted outside the Netherlands – have suggested that success factors of school libraries apply to students of various racial/ethnic backgrounds and that ethnic minority students benefitted proportionally more from strong school library programs. However, findings from studies conducted abroad cannot be considered valid one-on-one to the Dutch context (Veenstra, 1999). Not only because the implementation of school libraries, such as the role of the school librarian, can differ (Brabantse Netwerk Bibliotheek, 2013), but also because the

ethnic minority groups in the Netherlands are not readily comparable with ethnic minorities in countries such as the United States. For example, the primary language of the majority of Moroccan-Dutch families is Berber, a non-scripted language (Scheele, 2010), which is completely different from African Americans and Hispanics in the United States. In order to guide contextual governmental policy (in the Netherlands and other Western countries with the same or similar migrant groups), the gaps in existing research on the effectiveness of school libraries need to be bridged. Therefore, following a longitudinal design involving an experimental and a control school, the present study aimed to investigate whether an integrated library facility in a Dutch primary school can be an effective tool for non-Western migrant students' in terms of increasing their reading behaviour and improving their attitude towards reading, factors related to language and reading skills. The following research questions were addressed:

1. Does a school library have an effect on the *attitude towards reading* of non-Western migrant students?
2. Does a school library have an effect on the *reading behaviour* of non-Western migrant students?

3. Are the effects of a school library on the reading attitude and reading behaviour of non-Western migrant students *differentiated by gender, age, parental educational level and reading climate at home?*

Given that the school library (as school libraries in general) was established in the belief that this facility positively impacts children's reading, we hypothesized that the students who attended the experimental school would show more improvement in both their reading behaviour and reading attitude over time than the control school students. With regard to the third research question, we expected to find that the effects of a school library on migrant students' leisure reading and reading attitude differ for categories of gender, age, parental education level and reading climate. On the one hand, one would expect a larger positive change in boys, older children and children from less advantaged and reader friendly families since they have more to gain, given their generally less positive reading attitude and lower reading frequency (e.g. Clark and Foster, 2005; Cubiss, 2012; Huysmans, 2013; Logan and Johnston, 2009; Meelissen et al., 2012; Sainsbury and Clarkson, 2008; Siebelhoff et al., 2010; Swalander and Taube, 2007; Van Elsäcker-Bok, 2002; Witte and Van Nood, 2012). On the other hand, girls, younger children, children from highly educated families and children with a rich reading climate at home – who on average have a more positive reading attitude and read more in their leisure time – may be

even further enthused and stimulated through a school library, with a maintenance or even widening of the gap as a result. As the school library is aimed at motivating all students and providing access to an appropriate and attractive collection to all of them, we expected that the (possible) differences in reading attitude and reading frequency due to gender, age, parental educational level and reading climate at home would be less evident or disappearing over time in the experimental school, which is not expected to happen in the control school.

Method

Design

A longitudinal study with a quasi-experimental design was performed, involving an experimental group and a control group, without random assignment of participants. Participants were students of two Dutch primary schools: one school with an integrated library facility (i.e. the experimental school) and one school without such a school library (i.e. the control school). Questionnaires were used to gather data from the students. The data were collected over three successive school years (2011/2012 – 2013/2014), with one wave of data collection each year. In the first school year, data were collected from children attending grades 2 to 6. These students were also followed during the second and third

school year (excluding those who moved to secondary education or left school for other reasons), as well as students who passed to second grade and new students (grades 2 to 6) who entered school.

It should be noted that, as in many Dutch schools, books were also present at the control school and read in class. However, a major difference is that the experimental school had a school library at its disposal, run and facilitated by the public library, with a large, well sorted and varied collection of reading materials. The library covered 130 m² and provided a wide range of reading materials such as storybooks, comic books, picture books, and non-fiction books, with a total collection of approximately 5,400 materials. Books for all age groups and reading levels were present, including books for children experiencing more difficulty reading than their peers. The themes covered by the total collection were very diverse and included topics such as animals, school, history, sports, holidays, humor, love, and friendship. Books were sorted on reading level, type of reading material and topic. Every year, some books were written off and other books are purchased. Compared to the experimental school, the collection of the control school was smaller, far less varied and up-to-date, and in the school's own possession, with teachers being responsible for the book collection.

At the experimental school, a reading-media coach employed by the public library was responsible for the functioning of the school library. This person holds a bachelor's degree in education and had experience as a school teacher. She had also finished a course for reading consultants as well as a reading coordinator course and she had knowledge about children's literature. Her main tasks included guiding students during library visits and helping them with finding appropriate books, developing, preparing and implementing reading promotion programs for the students, and interacting with the school teachers.

Every three weeks, children attending the experimental school visited the library with their classmates and teacher to return and borrow books during school hours. With their personal school library card, which was kept in the library by the reading-media coach, the students could borrow the books they had chosen, making use of the self-service counters. The books were taken to the classrooms where they would be read during free reading time. In the school year 2013/'14, it was also possible for all classes to visit the library on their own – without the guidance and advices of the reading-media coach – to return and borrow books, in addition to the scheduled class library visits. Furthermore, during the regular class library visits, students of the experimental school would also either participate in a reading promotion lesson or fill out a digital so-called 'reading log' in which they gave their opinion about the books they had read. This rotated every three

weeks. The one-hour reading promotion lessons consisted of several components, including reading aloud to the children, creating a word web together and students working individually or in small groups on processing assignments (i.e. students actively performed tasks related to the theme, such as drawing a picture, participating in a quiz, creating a poster, playing with books, playing a word game, searching for information in books and on the internet and writing a short article). The reading-media coach ascertained that the lessons fitted in with the theme covered in the classrooms during that period (e.g. sports, super heroes and the royal family) and were appropriate for the age and level of the students. After school hours, the library at the experimental school served as a public children's library, meaning that during a couple of afternoons a week, books could be borrowed by all (young) citizens with a public library membership card.

Participants

Students of the experimental and control school qualified for participation in the present study if they had a non-Western background (following the definition adopted by Statistics Netherlands, Note 2) and attended grade 2, 3, 4, 5 or 6 during (one or more waves of) the data collection. Four children were excluded due to a lack of parental permission. One other student was excluded from the analyses because she first attended the experimental school

and then the control school during the time span of the study. The final sample consisted of 140 participants across both schools, with one, two or three observations per student. In total, 261 student observations were available.

The present study focused on migrant children with a non-Western background in particular because they can be considered a disadvantaged or vulnerable group, as described earlier in the Introduction. Western migrants were not included in the study, given that the number of Western migrant students attending the schools involved in this study was limited, and given that they are not considered an at-risk group (e.g. the school performance of Western migrant primary school students does not lag behind that of native Dutch students (Onderwijs in Cijfers, 2015). Although it would also have been interesting to compare the Non-Western migrant children with native Dutch children, this was not possible in the present study due to the limited number of students with a native Dutch background attending the experimental school.

The ethnical background of the students in the sample was primarily Moroccan (75%). Students from the other three major migrant groups in the Netherlands (Turkish, Surinamese and Antillean) made up 12% of the sample, and other non-Western minority students accounted for the remaining 13% of the sample. The vast majority (93.1%) of the students were born in the Netherlands (i.e. second generation migrants). Data only available

for a part of our sample showed that most (of these) participants grew up in families where both Dutch and another language (e.g. Berber or Turkish) were used.

Table 1 presents the characteristics of the sample (i.e. observations) by school and school year. At the experimental school a total of 128 observations were available from 72 students (1.8 observations per student on average) and at the control school a total of 133 student observations were available from 68 students (2.0 observations per student on average). The sample included children aged 7 to 13 years, with a mean age of 10.15 at the experimental school and 9.79 at the control school. At both schools, slightly more girls than boys participated in the study. In total, the sample consisted of 124 boys (47.5%) and 137 girls (52.5%). The educational level of the parents varied from ‘no education’ (given a score of 0) to ‘vocational colleges/university’ (given a score of 4; see also the section Measures on parental educational level). The total mean score on parental education level was 1.82, with parents of the experimental school scoring higher than those of the control school (2.19 versus 1.45), indicating that the parents of the students included in the study had a low educational level on average. This is in agreement with national statistics showing non-Western migrants having a relatively low education level compared to the native Dutch population (Gijsberts and Iedema, 2012). The mean scores of the experimental and control school students on reading climate at home were 2.30 and 2.34,

respectively, which is not that favorable, considering that a score of 1 indicates the least reader friendly climate at home and a score of 4 indicates the most reader friendly climate (see also the section Measures on reading climate).

The student observations of the two schools differed in parental educational level, the experimental school having a statistically significant lower level than the control school, $F(1, 259) = 21.57, p < .001$. The groups did not differ with respect to age, $F(1, 259) = 3.13, p = .078$, gender, $X^2(1, n = 261) = .09, p = .768$ and reading climate at home, $F(1, 167) = .16, p = .689$.

Table 1. Sample by school and school year, in number of student observations and means.

	2011/2012		2012/2013		2013/2014		Total	
	Exp. (<i>n</i> = 33)	Control (<i>n</i> = 42)	Exp. (<i>n</i> = 51)	Control (<i>n</i> = 44)	Exp. (<i>n</i> = 44)	Control (<i>n</i> = 47)	Exp. (<i>n</i> = 128)	Control (<i>n</i> = 133)
Age (<i>mean</i>)	10.34	10.12	10.22	9.58	9.91	9.70	10.15	9.79
Gender								
Boys (<i>n</i>)	17	17	24	22	21	23	62	62
Girls (<i>n</i>)	16	25	27	22	23	24	66	71
Parental educational level (<i>mean</i>)	1.06	1.88	1.55	2.11	1.61	2.55	1.45	2.19
Reading climate (<i>mean</i>) ^a			2.09	2.31	2.49	2.36	2.30	2.34

Exp.: Experimental

^aNote that for reading climate only data from wave 2 and 3 are available for the experimental and control school (*n* = 81 and *n* = 88, respectively).

Procedure

In April 2012 (during school year 2011/2012) and in November and December 2012 and 2013 (during school years 2012/2013 and 2013/2014, respectively), a student questionnaire was administered at both the experimental and control school to children attending grades 2 to 6. The survey used in this study, a national questionnaire on school libraries called the *Monitor the Library at School* (also referred to as “MQ”),³ was complemented by an additional questionnaire (also referred to as “AQ”) during the last two waves. The MQ has been especially developed for the purpose of monitoring the effectiveness of the Dutch national Library at School program. This instrument includes questions about the students’ reading attitude, reading behaviour and reading climate at home. The MQ was used at the experimental school as part of the Library at School program, and the control school also agreed to participate in the MQ. The AQ contains a more extensive set of questions and has been especially designed for the present study in order to get a fuller understanding of the students’ reading attitude, leisure reading and reading climate at home, taking into account questionnaire items used in previous research and following literature on survey research among children (Borgers and Hox, 2002; Borgers et al., 2004; De Leeuw 2011).

In the introductory part of the survey, the children were told that the questionnaire was not a test and that they could ask the teacher for help in case they would not understand a question. Most of the students of the experimental school filled out an online version of the questionnaire in a computer room. This happened in groups of up to eight students under the guidance of the researcher and/or the reading-media coach (and sometimes a teacher was present as well) who clarified questions whenever necessary. On request of a teacher, a few students filled out the questionnaire in the classroom, as this teacher preferred that these students did not leave the classroom the day the survey was being administered. As the control school did not have a separate room with computers, the school decided to administer the student questionnaires in the classrooms under the guidance of the teacher who clarified the questions whenever needed. However, there was only a limited number of computers in the classrooms and there was only a limited amount of time available to the teachers to help students. On request of these teachers, a paper and pencil version of the survey was made available for the control school for reasons of efficiency. In the school years 2011/2012 and 2012/2013, almost three quarters of the control school students filled out the paper version; during the last wave all the control school students completed the paper version. At the control school, in total 22 student questionnaires were filled in online (16.5%) and 111 on paper (83.5%). At the experimental

school, in total, 122 digital questionnaires (95.3%) and 6 paper surveys were completed (4.7%).

A parental questionnaire was handed out around about the same period the student questionnaires were administered (i.e. in April and May 2012 and in November and December 2012 and 2013). During the second and third wave, parents who wanted to complete the survey but were having trouble with the Dutch language could make use of help offered during planned parent-teacher conferences afternoons and evenings. Help was provided by a researcher and librarians, including someone who could translate the survey for parents with a Moroccan background. For a smaller group of parents no translation was available. However, for many parents needing help it was presumably sufficient someone explaining the survey to them in Dutch, as they could understand spoken language, but were not (fully) able to read and understand the written survey. Some parents were also assisted by others, such as an older sibling or an uncle/aunt of the student who attended one of the schools or a neighbor. During the last wave of data collection, parents who had completed the survey received a gift card to be spent at a large Dutch retail and drugstore chain.

Measures

Reading attitude. With regard to *reading attitude*, students were asked in the MQ to respond to the following question: “How do you feel about reading a book?” on a 4-point scale. The children could choose between ‘annoying’; ‘do not like it so much’; ‘quite like it; and ‘like it very much’. To measure reading attitude in more depth with the AQ, a scale in which both a *hedonic and utilitarian component* (i.e. enjoyable and useful, respectively) were represented has been constructed on the basis of previous research (e.g. Stalpers 2005; Stokmans and Broeder, 2009). The students were asked what they think of reading a book in their leisure time, followed by ten items that each consisted of four answer categories out of which the children had to choose. The response options were semantic differentials: a rating scale with bipolar adjectives. Such a response scale has the advantage that it avoids ‘yeah-saying’ and that both children who think positively about reading and children who think negatively about reading see their opinion explicitly stated in the scale (De Leeuw, 2011; Stalpers, 2005). Following literature on survey research among children (Borgers and Hox, 2002; Borgers et al., 2004; De Leeuw 2011), the response options were fully labeled and the children were deliberately not offered a neutral mid-point category. Five items addressed the hedonic aspect of reading attitude (e.g. ‘very boring’; ‘pretty boring’; ‘pretty exciting’; ‘very exciting’) and the other five items referred to the utilitarian aspect (e.g.

‘very important’; ‘pretty important’; ‘not that important’; ‘not important at all’). Six items started with the answer that represented the most positive attitude towards reading while the other four items started with the most negative reading attitude. The items that started with the most positive or most negative attitude, addressing either the hedonic or utilitarian component, were mixed in the questionnaire. In the analyses, the items starting with the most positive attitudes were reversely coded, making sure that a higher score represented a more positive attitude. The mean score of all items (ranging from 1-4) formed the final reading attitude scale (with satisfactory reliability; Cronbachs $\alpha = .88$) that was used in the analyses.

Reading behaviour. *Reading frequency* was assessed in the MQ through the following question: “How often do you read a book for pleasure at home?”. The five response options were: ‘never’; ‘a couple of times a year’; ‘a couple of times a month’; ‘a couple of times a week’; ‘every day’. In the AQ, the students were asked in separate items how often they read: (a) story books (fiction); (b) non-fiction (informative) books; (c) picture books; (d) magazines; (e) comic books; and (f) poems and verses in their spare time, using the same answer categories as the MQ item. The mean score of the six items was used as a scale in the analyses (reliability just satisfactory; Cronbachs $\alpha = .71$).

Diversity in reading preferences was assessed through the MQ. The students were presented a list of subjects and they had to indicate about which of these subjects they like to read: love, sports, fairy tales, technology, history, school, creepy things, humor, nature, animals, other countries, war, and friendship. For the analyses, a final score was created by taking the sum of the number of topics the students liked (reliability satisfactory; Cronbachs $\alpha = .73$). The higher the final score, the broader the students' preferences in reading.

Reading duration was asked about in the AQ in one question with five answer categories. Students were asked how much time they read a book per day during their leisure time and they were presented pictures of clocks indicating the time to illustrate the response categories: 'I don't read'; '15 minutes'; 'half an hour'; '45 minutes'; 'one hour or longer'.

Time. A time variable was constructed that indicated how many months a student had been visiting the school at the time the measurements took place, counted from September 2011 (i.e. the opening of the school library), excluding the summer holiday months (July and August). For the experimental school, this time variable was used as a proxy for months of availability of the school library, whereas for the control school it was used for comparison,

indicating how many months the students had been visiting the control school. The way of constructing the time variable was guided by the fact that the questionnaires were not administered at the same time points during the different school years and the fact that a considerable group of students entered the experimental school during the second wave of the study. The schools' student administration, which listed since when students were enrolled in school, was used to construct the time variable.

Gender. The schools' student administration indicated whether a child is a boy or a girl.

Age. The students' date of birth listed in the schools' student administration was used to determine the age of the students during the different waves of data collection.

Parental education level. In the parental questionnaire, respondents were asked to report their and their partner's highest completed educational level, both in the Netherlands and in the country of origin, by choosing between 10 and 9 categories, respectively. These options were derived from the Survey Integration Ethnic Minorities, a large-scale survey in the Netherlands that focuses on the integration of the four largest non-Western migrant groups in the Netherlands, and from the Survey Integration New Groups that addresses new

migrant groups (Hilhorst, 2010). For the final parental educational level variable (ranging from 0 to 4), the highest completed educational level of either parent (or single parent) was assigned to the following categories: ‘no education’; ‘primary education’; ‘lbo/mavo’ (i.e. junior vocational training/junior general secondary education); ‘havo/vwo/mbo’ (i.e. senior general secondary education/pre-university education/senior vocational training); ‘hbo/wo’ (i.e. vocational colleges/university). This grouping was based on a classification adopted by Statistics Netherlands and used in previous research (e.g. Gijsberts and Iedema, 2012; Kortlever and Lemmens, 2012), with the exception of the category ‘no education’ added in the present study to distinguish a group of parents with no or little experience with formal education. If not indicated by parents in the parental questionnaire, we used the information available in the schools’ student administration to determine the educational level of the parents.

Reading climate at home. The reading climate at home was assessed through a combination of three items included in the MQ and five items included in the AQ. In the MQ, the students were asked how often the following three situations happen: ‘My mother or father reads to me at home’; ‘My mother or father talks to me about books’; ‘My mother or father accompanies me to visit the library’. The answer options offered in the first and second

waved differed somewhat from the ones offered in the third wave and were (based on content) brought on the same 4-point scale: ‘never’, ‘sometimes’, ‘regularly’ and ‘often’. The following five additional items were adapted from instruments previously used in reading research (Leseman and De Jong, 1998; Notten, 2011; Stalpers, 2005; Stokmans, 2007; Van Elsäcker-Bok; Kraaykamp, 2003; Verboord, 2005): ‘I see my mother or father reading at home’; ‘My mother or father knows in what book I’m reading’; ‘My mother or father gives me a book as a present’; ‘My mother or father tells me which books are fun’; ‘When I was a toddler, my mother or father read to me at home’. The four response categories were similar to those used for the MQ items. The final scale used in the analyses consisted of the mean score of all these items (with satisfactory reliability; Cronbachs $\alpha = .81$), ranging from 1 (never) to 4 (often). As the three items only measured with the MQ during all waves appeared not to build up to a reliable scale on their own, and given that the five items measured with the AQ were only administered during the second and third wave, the reading climate variable is only available for these waves.⁴

Analyses

Given the hierarchical structure of the data, with the repeated measures of reading behaviour and reading attitude (level 1) nested in the students (level 2), multilevel linear

modeling was used to answer our research questions. Unlike more conventional statistical tests, multilevel modeling does not require independence of observations (Hox, 2002; Tabachnick and Fidell, 2007) and it gives more correct estimates than models that neglect the nested data structure (Notten and Kraaykamp, 2010). Moreover, in multilevel modeling there is no need for complete data over occasions. To account for different intervals between the repeated measures, random intercepts and random slopes were considered for modeling the covariance structure (Snijders and Bosker, 1999), and the model was chosen that provided the best fit.

Our research questions were tested using different models. Model 1 addressed the effect of the school library on reading attitude (question 1) and reading behaviour (question 2), while controlling for differences between the schools in parental educational level. In this model, an interaction effect between school and the time variable was fitted, which indicated whether there was a difference in reading attitude and reading behavior between the experimental and control school students over time. A statistically significant interaction effect, with scores of students attending the experimental school increasing more, means there was a positive effect of the school library. Models 2, 3, 4 and 5 assessed whether the effects of the school library differed for categories of parental education level, gender, age,⁵ and reading climate at home, respectively (question 3). The effect of each

factor was assessed in a sequential manner, whereby each effect is adjusted for all other effects added earlier to the model. In each of these models, we first examined whether there was a statistically significant main effect of the factor, indicating that this factor was a predictor of the outcome variable. In addition, for each factor, a three-way interaction effect was fitted (e.g. school*time*gender), with a statistically significant interaction effect meaning that the effect of the school library depended on this factor.

Results

Descriptives

Table 2 presents the means and standard deviations on reading attitude and reading behaviour as assessed with the MQ and the AQ, broken down by school, with a higher score indicating a more positive reading attitude, more frequent and diverse reading, and more minutes of reading a day. On average both the experimental and control school scored fairly high and they did not differ statistically significantly on most outcomes, also when taking into account differences in parental educational level. Thus, on average, the students of both schools had a quite positive reading attitude and read fairly often. The scores on the *reading attitude* scale of the AQ were close to the reading attitude scores on the MQ, although, within the AQ, the scores on the utilitarian subscale were somewhat higher than

Table 2. Means and SDs for reading attitude and reading behaviour by school ($n = 261$).^a

	Experimental school			Control school		
	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>n</i>	<i>Mean</i>	<i>SD</i>
Monitor (MQ)						
Reading attitude	128	3.26	.69	133	3.17	.68
Reading frequency	128	3.95	1.14	133	4.12	.90
Diversity in reading preferences	128	4.31	2.98	133	4.79	2.89
Additional questionnaire (AQ)						
Reading attitude	93	3.20	.55	86	3.19	.54
Hedonic	93	3.09	.58	86	3.09	.63
Utilitarian	93	3.30	.57	86	3.29	.52
Reading frequency	93	3.12	.91	90	2.96	.85
Story books	93	3.80	1.23	90	3.87	1.03
Non-fiction books*	93	3.13	1.26	90	2.74	1.36
Picture books	93	2.57	1.58	90	2.30	1.47
Magazines	93	2.94	1.50	90	3.17	1.49
Comic books	93	3.63	1.22	90	3.48	1.42
Poems and verses* ^b	93	2.67	1.47	89	2.20	1.46
Reading duration	93	2.91	1.16	88	3.05	1.20

^a The number of student observations for the separate dependent variables are presented in the table.

^b After controlling for differences in parental educational level, the difference between the schools was no longer statistically significant.

* $p < .05$.

those on the hedonic subscale. The latter meaning that, on average, the students considered reading somewhat more useful than enjoyable. *Reading frequency* scores, however, were higher on the MQ than on the AQ. According to the MQ, students read about a couple of times a week on average, whereas according to the AQ measure, students read about a couple of times a month on average. This seems to be a consequence of the fact that in the AQ, the students were explicitly asked about reading materials that are generally read less

often. As can be seen, for both schools, picture books and poems and verses were the least popular reading materials, whereas story books and comic books were the most popular.

With regard to *reading duration* (AQ) and *diversity in reading preferences* (MQ), children of both schools reported reading on average approximately half an hour a day and they liked four to five different topics on average (Table 2). In order to get more insight into the reading preferences of the students, the topics children liked to read about were sorted by popularity, as shown in Table 3. In general, the children preferred to read about

Table 3. Reading preferences by school.^a

	Total (<i>n</i> = 261)		Experimental school (<i>n</i> = 128)		Control school (<i>n</i> = 133)	
	Order	% yes	Order	% yes	Order	% yes
Sports	1	52.1	1	52.3	2	51.9
Creepy things**	2	52.1	3	43.8	1	60.2
Friendship	3	47.9	2	51.6	5	44.4
Animals	4	44.4	4	43.0	3	45.9
Humor	5	42.1	5	38.3	4	45.9
School	6	32.2	6	35.2	8	29.3
War	7	31.0	10	25.8	6	36.1
Other countries	8	29.9	8	30.5	9	29.3
Nature	9	29.1	9	27.3	7	30.8
Fairy tales*	10	27.6	7	33.6	13	21.8
History	11	24.1	11	21.1	12	27.1
Technology*	12	21.8	12	15.6	11	27.8
Love**	13	21.1	13	13.3	10	28.6

^aThe topics are ordered by popularity, with ‘% yes’ indicating the percentage of students who liked to read about the topic.

p* < .05 *p* < .01.

sports, creepy things, friendship, animals and humor, which are in the top five of both schools. At the bottom of the list were fairy tales, history, technology and love. Students attending the experimental school more often preferred fairy tales, whereas the control school students more often preferred reading about creepy things, technology and love. Subjects typically reported by boys were sports, technology and war, whereas girls more often preferred reading about love, fairy tales, school, animals and friendship (not in Table).

Note that the descriptive statistics discussed in this section represent the mean results for the whole period of the study, which does not say anything about the development over time. As we are interested in whether or not scores on reading attitude and reading behaviour increase due to (more months of) school library usage, multilevel analyses were conducted taking this time factor into account. The results will be discussed in the next sections.

Effect on reading attitude

In order to test for an effect of the school library on reading attitude, as measured with the MQ, a model was fitted with an interaction effect between school and the time variable (model 1, Table 4). This effect parameter indicates the difference between the control and

Table 4. Multilevel regression of reading attitude (Monitor).

	Model 1 (effect library)		Model 2 (effect education)		Model 3 (effect gender)		Model 4 (effect age)		Model 5 (effect reading climate)	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Intercept	.02	.88	.03	.86	.01	.92	.00	.99	.06	.81
Time	.26	.61	.30	.58	.19	.66	.02	.89	.13	.72
School	1.61	.21	1.69	.20	1.79	.18	1.83	.18	1.91	.17
School*Time	1.20	.28	1.22	.27	1.32	.25	1.15	.29	2.13	.15
Education	1.40	.24	1.68	.20	1.49	.22	1.07	.30	2.90+	.09
School*Time*Education			.39	.68						
Gender					3.90+	.05				
School*Time*Gender					1.22	.30				
Age							21.96***	.00		
School*Time*Age							1.36	.56		
Reading climate									19.46***	.00
School*Time*Reading climate									.55	.58
<i>n</i>	261		261		261		261		169	
Parameters	7		9		10		10		10	
-2LogL	750.21		764.90		759.14		744.80		486.14	

Note: Because of iterative estimation procedures, combined with a relatively small N, (little) variations in *p*-values are possible in the different models (1-4) for the variables held constant: Time, School, School*Time and Education.

****p* < .001 +*p* < .1.

experimental school over time. Although the estimate was positive for the experimental school – indicating an increase in reading attitude over time compared to the control school

–, the difference was not statistically significant $F(1, 235) = 1.20, p = .275$. In models 2 to 5 main effects of gender, age, educational level and reading climate at home were added as well as their interaction with time and school, to examine whether the effect of the school library depends on these factors. The results showed that girls ($Mean = 3.31, SE = .07$) had a more positive reading attitude on average than boys ($Mean = 3.12, SE = .06$), although the main effect of gender was not statistically significant, $F(1, 127) = 3.90, p = .050$. A negative main effect was found for age, $F(1, 214) = 21.96, p = <.001$, and a positive main effect was found for reading climate at home, $F(1, 151) = 19.46, p = <.001$, indicating that younger children and children from families with a higher score on the reading climate scale had a more positive reading attitude. No statistically significant three-way interaction effects were found, suggesting that the effect of the school library did not depend on the factors included in the models.

We conducted the same analyses for the *reading attitude* scale as assessed with the AQ administered in the second and third wave (not in Table⁶). Here, we did find a statistically significant interaction effect between school and time, $F(1, 91) = 4.47, p = .037$, with attitude scores of the children from the experimental school increasing more than those of the students attending the control school. This means there was a positive effect of the school library. We also found a positive main effect of reading climate at home, $F(1,$

130) = 107, $p < .001$. Analyses on the subscales of reading attitude revealed that the interaction effect between school and the time variable was statistically significant for the utilitarian aspect, $F(1, 94) = 5.36, p = .023$, but not for the hedonic aspect, $F(1, 89) = 2.64, p = .108$, indicating that over time, students attending the experimental school considered reading more useful than students visiting the control school. Both subscales showed a positive main effect of reading climate: $F(1, 134) = 33.19, p < .001$, and $F(1, 131) = 36.28, p < .001$, respectively. The main effect of gender was also statistically significant for the hedonic subscale, $F(1, 99) = 4.08, p = .046$, with girls ($Mean = 3.20, SE = .07$) reporting a more positive reading attitude than boys ($Mean = 3.01, SE = .07$).

All in all, with respect to our first research question, we were not able to demonstrate an effect of the school library on reading attitude as measured with the MQ, but we did find a positive effect of the school library on reading attitude – more specifically, on the utilitarian dimension – as measured more extensively with the AQ. With respect to our third research question, we did not find that the effect of the school library on reading attitude differed for categories of gender, age, educational level and reading climate at home, although we did find that children from families with a more reader friendly climate, younger children and girls had a more positive reading attitude.

Effect on reading behaviour

The effect of the school library on *reading frequency* (MQ) was estimated similarly to reading attitude (model 1, Table 5). The interaction effect between school and time was not statistically significant, $F(1, 135) = .54, p = .463$, meaning that the school library did not have an effect on the students' reading frequency. Furthermore, in models 2, 3 and 4 no main effects of educational level, gender and age were found, nor interaction effects of these factors with school and time. The only statistically significant effect found for reading frequency as measured with the MQ was a main effect of reading climate at home, $F(1, 161) = 15.19, p = <.001$ (model 5), with children from families with a more reader friendly climate reporting more reading.

The main effect of reading climate at home was also positive and statistically significant for *reading frequency* as assessed through the AQ in the second and third wave, $F(1, 148) = 63.06, p = <.001$ (not in Table, see Note 6). For this dependent variable, we also found that children of both schools) from lower educated families scored higher over time (i.e. three-way interaction effect of school, time and educational level; $F(2, 130) = 3.43, p = .035$). In addition, a statistically significant interaction effect was found between school, time and age, $F(2, 134) = 3.74, p = .026$: At the experimental school, the reading

Table 5. Multilevel regression of reading frequency (Monitor).

	Model 1 (effect library)		Model 2 (effect education)		Model 3 (effect gender)		Model 4 (effect age)		Model 5 (effect reading climate)	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Intercept	.05	.82	.06	.81	.04	.84	.14	.71	.02	.88
Time	.00	.98	.00	.95	.00	.95	.04	.85	.06	.80
School	1.79	.18	1.67	.20	1.69	.20	1.54	.22	1.39	.24
School*Time	.54	.46	.53	.47	.51	.48	.80	.37	.66	.42
Education	.94	.33	1.04	.31	.88	.35	1.06	.31	2.45	.12
School*Time*Education			.61	.55						
Gender					.19	.66				
School*Time*Gender					.46	.63				
Age							.51	.48		
School*Time*Age							1.43	.24		
Reading climate									15.19***	.00
School*Time*Reading climate									.30	.74
<i>n</i>	261		261		261		261		169	
Parameters	7		9		10		10		10	
-2LogL	739.57		754.23		752.45		757.32		487.37	

Note: Because of iterative estimation procedures, combined with a relatively small *n*, (little) variations in *p*-values are possible in the different models (1-4) for the variables held constant: Time, School, School*Time and Education.

****p* < .001 +*p* < .1.

frequency of older children increased more over time as compared to younger children, whereas at the control school, the reading frequency of younger children increased more

over time as compared to older children. There was no interaction effect between school and the time variable, $F(1, 169) = .92$, $p = .339$, indicating there was no effect of the school library on reading frequency (AQ).

When analyzing the students' reading frequency separately for the *six different types of reading materials* (AQ), no effect of the school library was found (in model 1) for story books $F(1, 171) = .16$, $p = .688$; non-fiction books, $F(1, 171) = 3.01$, $p = .084$; picture books, $F(1, 170) = 1.50$, $p = .222$; magazines, $F(1, 170) = .03$, $p = .854$; and comics, $F(1, 170) = 3.38$, $p = .068$. The interaction effect between school and the time variable was only statistically significant for poems and verses, $F(1, 168) = 4.05$, $p = .046$, with only students of the control school showing a decline over time in reading this type of book. Although boys and girls did not differ on the total reading frequency scale, we did find main effects of gender when examining the different reading materials: Girls ($Mean = 2.87$, $SE = .16$) read verses and poems more often than boys ($Mean = 2.16$, $SE = .16$), $F(1, 109) = 9.13$, $p = .003$, whereas boys ($Mean = 3.67$, $SE = .14$) read comic books more often than girls ($Mean = 3.28$, $SE = .14$), $F(1, 126) = 7.33$, $p = .008$. Furthermore, for magazines there was a positive main effect of age $F(1, 153) = 8.86$, $p = .003$. Older children read this type of reading material more often than younger students. The main effect of reading climate was

statistically significant for all types of reading materials, with students from a more reader friendly climate having a higher reading frequency.

With respect to *diversity of reading preferences* (MQ), no interaction effect between school and time was discovered, $F(1, 113) = 1.68, p = .198$, meaning that no effect of the school library was discerned. There was a positive main effect of reading climate, $F(1, 150) = 4.03, p = .047$. Similar results were found for *reading duration* (AQ) regarding the effect of the school library, $F(1, 168) = 1.89, p = .172$, and the effect of reading climate, $F(1, 151) = 20.86, p < .001$.

Thus, with respect to our second research question about the effectiveness of the school library on reading behaviour, our results revealed no effect on reading frequency and diversity in reading preferences as measured with the MQ, nor was there an effect on reading behaviour as assessed through the reading frequency scale and the reading duration item of the AQ. With regard to our third research question, we found that at the experimental school the reading frequency (AQ) of older children increased more over time as compared to younger children, whereas the opposite was true for control school students. In general, magazines were more frequently read by older students than younger students, and girls read verses and poems more often than boys, whereas boys read comics more

often. Moreover, reading climate at home was an important predictor of all measures of reading behaviour.

Discussion

Using a longitudinal quasi-experimental design involving an experimental school and a control school, the present study examined whether an integrated library facility in a Dutch primary school has an effect on the reading attitude and reading behaviour of non-Western migrant students (grades 2 to 6). Firstly, we investigated whether the school library has an effect on the *attitude towards reading* of non-Western migrant students. Secondly, we analyzed whether the school library has an effect on the *reading behaviour* in non-Western migrant students. Thirdly, we examined whether the effects of a school library on the reading attitude and reading behaviour of non-Western migrant students *differ for categories of gender, age, parental educational level and reading climate at home*.

The results showed that students in the two schools did not differ in their *reading attitude* over time, as measured with a national Monitor during three school years. This indicates that no statistically significant effect of the school library could be discovered on the degree in which students think reading is fun. On the other hand, a positive effect of the school library was revealed on reading attitude as measured during two school years in

greater depth with an additional questionnaire designed for this study, with two subscales, a *hedonic* and *utilitarian* one (i.e. enjoyable and useful, respectively). It appeared that the utilitarian subscale was for the most part responsible for this result: Students attending the experimental school considered reading increasingly more useful than children visiting the control school. Literature (Stalpers, 2005; Stokmans, 2007) has indicated that both the hedonic and utilitarian aspect of reading attitude are related to reading behaviour, although the hedonic component is a stronger predictor.

With regard to *reading frequency*, measured with the Monitor and the additional questionnaire, no positive effect of the school library was found, nor with respect to *diversity in reading preferences* (Monitor) and *reading duration* (additional questionnaire). This seems to be a cause of concern given the importance of reducing learning disadvantages among non-Western migrant children, which is suggested to be possible through more reading. A possible explanation for our findings may follow from the fact that the students of the experimental school were not allowed to take home the school library books they borrowed during school hours. Moreover, it should be noted that – in line with national statistics (Broekhof and Broek, 2013; Witte and Van Nood, 2012) – the students' scores on both reading frequency and reading attitude were quite high, leaving little room for improvement (*ceiling effect*).

The third focus was on gender, age, parental educational level and reading climate at home and whether the effects of the school library were differentiated by these factors. For the Monitor, no interaction effects were found, indicating that the effect of the school library on reading attitude and reading behaviour did not depend on these factors. For reading frequency assessed in more depth with the additional questionnaire, we found that at the experimental school, the reading frequency of older children – who generally read less often than younger children (e.g. Huysmans, 2013) – increased more over time as compared to younger children, whereas the opposite was true for the control school.

Furthermore, in line with the literature (e.g. Clark and Foster, 2005; Meelissen et al., 2012; Witte and Van Nood, 2012), younger children and girls had a more positive reading attitude as assessed with the Monitor (although the latter effect was just not statistically significant). Girls also scored higher on the hedonic subscale of the additional questionnaire than boys. In general, girls more often preferred reading about love, fairy tales, school, animals and friendship, whereas topics typically preferred by boys were sports, technology and war. Girls read verses and poems more often than boys, whereas the opposite was true for comic books. Magazines were more frequently read by older students than younger students. School libraries seem to need to provide a wide range of reading

materials covering a wide variety of topics in order to meet the preferences of all age groups and both boys and girls.

The final factor, reading climate at home, was found to be an important predictor of reading attitude and reading behaviour, regardless of the measurement instrument. This result corresponds with existing research (e.g. Kraaykamp, 2002, 2003; Mol and Bus, 2011; Notten, 2011; Van Steensel, 2006; Verboord, 2003) and it stresses the importance of (non-Western migrant) parents as important partners for school libraries when it comes to reading promotion. It has been suggested that parents with a non-Western migrant background often feel less responsible for actively stimulating their child's cognitive development and that there is a barrier between them and the school (Beks and De Natris, 2008). Increased effort may be needed for school libraries to reach and work together with these parents to inform and support them.

Although, given its focus on migrant students in particular, the present study contributes to the literature on the effectiveness of school libraries, several limitations should be noted. For example, the number of participants/observations in the present study was limited, resulting in less power to detect statistically significant differences. This means that there may be effects of the school library that could not be demonstrated in the present study. Effects would be more easily exposed if it had been possible to include a

larger number of students in the study. Furthermore, as in many Dutch schools, books were also present at the control school, although the collection was not as large, varied and up-to-date as in the experimental school. Perhaps more effects of the school library would be found if there had been a larger difference in the presence of reading materials between the two schools.

Moreover, reading attitude and reading frequency were measured via self-reports and it is not certain that the children's answers completely cover their actual reading behaviour or attitude, as bias may occur caused by factors such as social desirability and insufficient understanding. Perhaps students were more inclined to respond positively to the questions with a teacher, researcher and/or reading-media coach around (despite being told the survey was not a test), and some (younger) children may not have completely understand everything (despite help offered to them). However, this holds true for both schools and we have no reason to assume this applies more to one of both schools. The students' scores on reading attitude and behavior were also in line with national statistics, the reliability of the scales was satisfactory, and literature on questionnaire research with children suggest that generally from 7 years onward, children can complete a self-report; children below the age of 7 do not have sufficient cognitive skills to be adequately questioned (De leeuw, 2011). (Borgers and Hox, 2002; Borgers et al., 2004; De Leeuw

2011). Moreover, possibly, ‘reading’ could have included digital reading for some of the children, as the reading source (i.e. paper based or electronic books) was not specified in the phrasing of the items. However, reading digital books is not that common (yet) among primary school students. A study on the reading behaviour of youth in the Netherlands showed that, in 2012, only 3% of children aged 7 to 15 years reported reading book apps (e-books) during leisure time (Huysmans, 2013). Furthermore, at the experimental school most student questionnaires were filled in online, whereas at the control school most surveys were completed on paper. We cannot exclude that this may have slightly affected the results.⁷ With regard to the parental questionnaire, it cannot be said for sure that every parent filled it in with a complete understanding.

It should also be kept in mind that the school library program was not implemented in the most optimal form. Library books borrowed during school hours were not allowed to be taken home, while access to books is suggested to be of importance for more reading and a more positive reading attitude (Krashen, 2004; Krashen et al., 2012; Lindsay, 2010). This relationship is also supported by the data of our own research project: Students who reported having more books at home (see also Note 4) read more frequently, invested more time in reading, and read about a broader variety of subjects than children with less books at home, and they considered reading as more fun as well. Also, the finding that children of

the experimental school had less books at home on average than children attending the control school makes it even more plausible that taking library books home could have resulted in a positive effect of the school library on the reading behaviour and attitude of the experimental school students.

All in all, the present study among non-Western migrant students showed no effect of a school library on the students' reading behaviour and the degree in which they think reading is fun. Over time, students attending the experimental school did consider reading more useful than students visiting the control school. Although little effects were found in the current study, it cannot be said for sure that school libraries barely are effective for students with a non-Western migrant background, as shortcomings of the present study may have affected the findings in a negative sense. Possibly, a higher effectiveness of the school library can be found in a study involving a larger sample, a greater difference between the control and experimental group and an optimal implementation of the school library program. It would also be interesting to compare the effects for non-Western migrant children and native Dutch children in future research. The present study did clearly demonstrate that reading climate at home is an important predictor of both reading attitude and reading behaviour. By providing migrant children access to books that can be taken home and by informing and supporting parents, school libraries may enhance the students'

reading climate at home, and, thereby, contribute to more reading and a more positive reading attitude. Future research is needed to examine this premise.

Notes

1. See www.debibliotheekopschool.nl
2. According to Statistics Netherlands a person is considered migrant if at least one parent was born outside the Netherlands, with a further distinction being made between migrants originating from Western countries (Europe (excluding Turkey), North America, Oceania, Indonesia and Japan) and migrants coming from non-Western countries (Turkey, Africa, Latin America and the rest of Asia; Alders, 2003).
3. More information (in Dutch) about the Monitor can be found at www.debibliotheekopschool.nl
4. In the Monitor, children were also asked to indicate how many books they have themselves, by choosing between five answer categories: '0', '1-20', '21-50', '51-100' and 'more than 100'. In general, children of the control school had more books at home ($Mean = 2.79, SD = .98$) than children attending the experimental school ($Mean = 2.43, SD = .86$), $F(1,259) = 9.96, p = .002$. As this item refers to the availability of reading materials at home, it can also be considered as a measure of reading climate at home. However, given that the response options substantially differed from the other eight

items addressing reading climate at home, we did not consider including this item in the reading climate scale as well. Moreover, we preferred not to include this single item separately in the analyses for the sake of parsimony. Correlation of the item with the reading climate at home scale was $r = .26, p = .001$.

5. Because of the way the study was designed, with an influx of new subjects and outflux after the final grade during the years the study was in the field, there is no artificial (almost) perfect relationship between 'time' and 'age'. For all children, the time variable indicates the number of months between the date of a measurement occasion and September 2011 (or a later date in case a student entered one of the schools after September 2011), regardless of age. This means, for example, that during the third measurement occasion at the beginning of November 2013, both children aged 8 years and children aged 12 years had been visiting the experimental or control school for 22 months.
6. The results of the multilevel analyses conducted on the data from the AQ are discussed in text only in order to avoid presenting two tables with outcomes of multilevel analyses on a similar dependent variable (i.e. reading attitude and reading frequency as measured with (a) the MQ and (b) the AQ). We have chosen to present the results of the

analyses on data from the MQ in tables, since this instrument was administered during all the waves of our study.

7. Research on effects of survey modes (performed among older respondents, in other settings, and using other measures) comparing paper-based administration methods with online administrations methods has reported somewhat mixed findings (Carini et al., 2003). Hardré et al. (2010) found that scores of respondents in a paper-based condition were slightly higher than the scores of those in a web-based condition, whereas the opposite was found in a study by Carini et al. (2003). Carini et al. (2003) has indicated that mode effects were generally small, and other studies (Hardré et al., 2007, 2010) found no effect of the administrative method on the reliability of the measures.

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[meten---een-basis-voor-beleid---versie2.pdf](http://bibliotheek.debibliotheekopschool.nl/content/dam/landelijk/bibliotheekopschool/bestanden/20140828---brochure-lezen-meten---een-basis-voor-beleid---versie2.pdf) (accessed 12 September 2013).

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