

Children’s voluntary summer reading in Norway: Insights gained from the gamified library-initiated reading campaign *Sommerles.no*

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Abstract

Using gamification, the Norwegian library-initiated summer reading program *Sommerles.no* (lit: Summer reading.no) entices one-fifth of Norway’s primary school students to read for pleasure during their summer vacation. The current paper explores the characteristics of the 105,319 participants of the 2018 edition of *Sommerles.no*. This analysis demonstrates that the campaign is a success in terms of overall participation and, especially, in terms of the share of boys who participated (43%). However, the participation of children who speak Sámi and non-Western European languages at home is under-represented. Children who speak Russian or other Western-European languages than Norwegian at home have the highest registered number of pages read, whereas children from non-Western European language backgrounds read fewer pages. As reading for pleasure during the summer most probably represents the most effective strategy for the groups with weak reading capabilities, the reading campaign has the potential to increase participation by these weak groups further.

Keywords: *Reading program; reading for pleasure; gamification; gender differences; differences in home language*

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1. Introduction

A large body of international research, including the international studies of reading competence tests Programme for International Student Assessment (PISA) for 15-year olds, and Progress in International Reading Literacy Study (PIRLS) – for 4th and 5th graders demonstrates that girls read far better than boys (Borgonovi, Ferrara & Maghnouj, 2018) and that multilingual children score lower than monolingual children in reading tests (Kjærnsli & Jensen, 2016; Kjærnsli & Olsen, 2013;

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Martin, Kennedy & Foy, 2007; Mullis, Martin, Foy & Drucker, 2012; Mullis, Martin, Gonzalez & Kennedy, 2003; Strand, Wagner & Foldnes, 2017). These trends were also observed in the previous Norwegian PIRLS studies from 2001, 2006 and 2011, and in the international electronic survey ePIRLS for 5th graders. Both PIRLS and ePIRLS document a significant correlation between how much students read in their free time and how well they perform on reading tests¹ and identify reading for pleasure as one of the most important factors for reading performance regardless of gender (Støle & Schwippert, 2017) and of home language (Strand et al., 2017).

The current study examines the free reading for pleasure practices of the 105,319 primary school children who participated in the 2018 version of the voluntary Norwegian summer reading campaign *Sommerles.no* (lit.: Summer reading.no). The study poses the following research questions: Who participated in the 2018 version of *Sommerles.no*? How much did the participants read? Does gender and language background correlate with number of pages read?

What is *Sommerles.no*?

Sommerles was initially created by Vestfold County Library in 2012 as a regional reading campaign for the public libraries in said county. The goal was to stimulate children between the ages 6 and 12 to enjoy free reading for their own pleasure during the summer vacation, as, according to Krashen (1993, 2004), although any kind of reading will improve reading skills, free reading for pleasure is considered the most powerful tool in language education.

The campaign started out as a traditional paper-based reading campaign, where the participating children recorded book titles and pages read on a sheet of paper and picked up prizes for reading at the libraries. Having been introduced to the concept of gamification; “the process of applying game mechanics and game thinking to the real world to solve problems and engage users” (Felker, 2014), at the Next Library conference in Denmark, the *Sommerles* team, led by Pernilla Slotte Hjermann, teamed up with the game development company Snuti to gamify the campaign in response to the growing number of children gamers.² In 2014 the *Sommerles.no* online campaign was launched.

Sommerles.no combines elements from storytelling, gamification and digital and physical reward systems with physical events, such as kickoffs and end-of-season parties. The project uses approaches from gamification, such as requiring the children to create an anonymous profile using a nickname, letting them earn “experience points” for every page they read and reach higher “levels” based on these experience points. The participants receive both virtual trophies as well as physical rewards to be collected from their local libraries, thereby creating opportunities for them to receive guidance from librarians and discover more reading materials. Although Krashen

¹ <http://timssandpirls.bc.edu/pirls2016/international-results/epirls/about-epirls-2016/>

² <https://www.medietilsynet.no/barn-og-medier/dataspill/>

(2004), in principle, does not encourage rewarding children for free reading, this strategy has proved fruitful for *Sommerles.no*, as the number of participating children has increased sharply every year since its digitalization, as has the number of participating libraries. The libraries in turn report a sharp increase in the books loaned by children during the *Sommerles.no* period from June 1st to September 1st.³

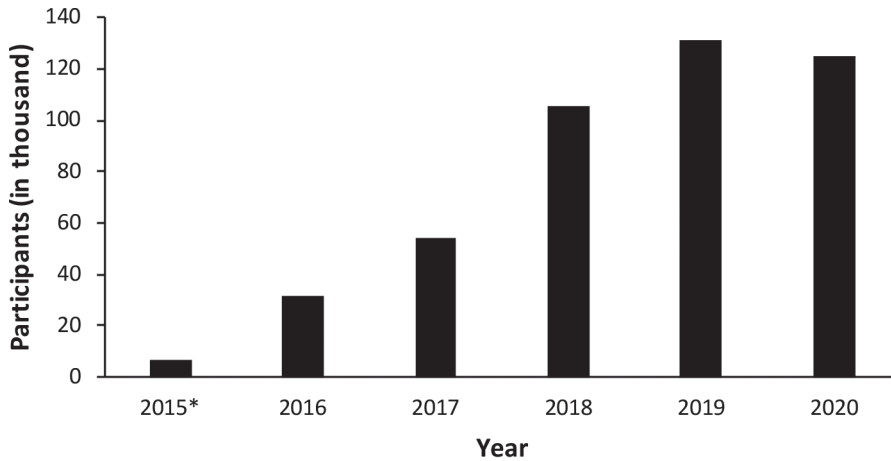


Figure 1. Yearly increase in the number of participants in *Sommerles.no* since 2015. A small decline can be observed for 2020 due to the closure of all Norwegian libraries caused by the Covid-19 pandemic.

Note: *Only the counties Vestfold, Østfold and Hedmark + a few municipalities in Buskerud and Akershus.

Sommerles.no rapidly spread to other counties, and, from 2018, covered the entire country; however, all communities did not participate. The 105,319 children enrolled in the program in 2018 represent one in five children in this age group nationwide and one in four in the participating communities.⁴ The actual participation is, however, lower, as nearly 21% (21,940) of the registered users did not register any pages read at all.

Due to the focus of *Sommerles.no* on free voluntary reading for pleasure, the campaign has no formal ties to the school system. Nevertheless, some teachers actively stimulate their students' participation by handing out information about the campaign in class, inviting a librarian into the classroom to talk about *Sommerles.no* and by bringing their students to the library to receive information about the campaign or for its formal kick-off. Some teachers even made the campaign an active part of the pre-summer wind down, whereas others did not. The collaboration between schools and libraries will be studied in a future paper.

³ P.c. Ulstein and Hareid libraries

⁴ <https://altom.sommerles.no/>

2. Theory

Støle and Schwippert (2017) and Lundetræ and Solheim (2013) point out that for traditional paper-based reading, the correlation between reading and reading competence is well known: The more children read, the better they score in reading tests. The results from ePIRLS,⁵ however, imply that this correlation is valid also for online reading. According to the 2016 PIRLS⁶ and ePIRLS,⁷ students who state that they read every day or almost every day “for fun” or “for pleasure” receive the highest scores. In comparison, the students who receive the lowest scores say that they “never” or “almost never” read for pleasure.⁸

Støle and Schwippert (2017) further point out that, in order to become an eager reader, motivation for reading is paramount (Guthrie, Wigfield, Metsala & Cox, 1999), and that an interest in reading has in several studies proved to be a strong predictor for reading competence (Ecalte, Magnan & Gibert, 2006; Malloy, Marinak, Gambrell & Mazzone, 2013; Wigfield & Cambria, 2010). In the Norwegian PIRLS 2016,⁹ a significant correlation between the students’ interest in reading and how well they perform in reading tests can be observed for both for monolingual and multilingual students, and the importance of an interest in reading does not differ significantly between these two groups (Strand et al., 2017). Strand et al. (2017) therefore deem it important that schools stimulate all students’ interest in reading and attempt to stimulate them into falling in love with reading. This is in line with the measures proposed in the PISA 2018 survey:¹⁰ in order to combat the general decline in the reading scores of Norwegian elementary school children, one must create more opportunities for reading for pleasure. According to Duncan, McGeown, Griffiths, Stothard & Dobai (2016), programs for inspiring children’s joy of reading should continue also when the students have reached an age where digital activities occupy much of their time, and may potentially displace reading for joy (or reading other types of longer texts).

Reading motivation can be operationalised in different ways: Researchers use concepts such as intrinsic motivation, extrinsic motivation, attitudes toward reading, task value, reading self-concept, self-efficacy and goal orientations, to describe a person’s reasons for reading (Schiefele, Schaffner, Möller & Wigfield, 2012). Intrinsic motivation occurs when the activity is perceived as engaging and interesting and is of use or of enjoyment for the person concerned (Deci & Ryan, 2000; Roe, 2013). Intrinsic motivation may also be called self-interest and rises from the fact that the qualities inherent to the activity itself appeals to the individual. Extrinsic motivation, in

⁵ <http://timssandpirls.bc.edu/pirls2016/international-results/epirls/about-epirls-2016/>

⁶ <http://timssandpirls.bc.edu/pirls2016/international-results/pirls/summary/>

⁷ <http://timssandpirls.bc.edu/pirls2016/international-results/epirls/about-epirls-2016/>

⁸ <https://www.iea.nl/studies/iea/pirls/2016>

⁹ <https://www.udir.no/pirls2016>

¹⁰ <https://www.oecd.org/pisa/>

contrast, is typically seen as different types of reward systems (Deci & Ryan, 2000), and here *Sommerles.no* is a clear example. The active use of reward systems as extrinsic motivation is quite disputed because it is perceived to rarely produce a lasting effect (Krashen, 2004; Wormnes & Manger, 2005). Wormnes and Manger (2005) claim that when the reward system, in this case *Sommerles.no*, is removed, the reading activity will, for the majority, fall back to the level prior to the introduction of the reward system. The Norwegian National Reading Center deems a reading project successful “to the extent that it motivates further reading and creates curious readers who find pleasure in reading” (Hoel & Helgevik, 2005). Several studies also demonstrate a connection between motivation, interests and mastery (Baker & Sher, 2002; Baker & Wigfield, 1999; Bråten, 1997; Deci & Ryan, 2000; Wigfield & Guthrie, 1995). According to Deci and Ryan (2000), intrinsic motivation is linked to an interest in the activity itself, i.e. reading, while the external reward is just an extra bonus, i.e. gamification. This distinction may appear very categorical, but Deci and Ryan (2000) point out that there may be slippery transitions, as extrinsic motivation can lead to intrinsic motivation.

Home language

As may be remembered from the introduction, multilingual children in Norway score lower than monolingual children in the international PIRLS reading tests (Strand et al., 2017) and have done so in all the previous rounds of tests, performed in 2001, 2006 & 2011 (Kjærnsli & Jensen, 2016; Kjærnsli & Olsen, 2013; Gabrielsen, 2013b; Mullis et al., 2003, 2007, 2012; Van Daal, Solheim, Gabrielsen & Begnum, 2007; Wagner, 2004). This trend is also observed in the other Scandinavian countries, as well as in Finland. (Mullis et al., 2003, 2007, 2012). According to Strand et al. (2017), in the Norwegian 5th grade national tests, children from an immigrant background and second-generation immigrants are overrepresented in the lowest score category in reading, maths and English. In the international PIRLS results, however, children who state that they “almost always speak the test language at home” i.e. multilingual children, score higher than children who always speak the test language at home (i.e. monolingual children). Interestingly, the percentage of multilingual children in Norwegian schools does not seem to affect the PIRLS scores, as no differences in scores are reported between schools with a student base of 90% monolingual Norwegian children, schools with more than 50% monolingual Norwegian children and schools with less than 50% monolingual Norwegian (Gabrielsen, 2013a; Strand et al., 2017).

According to Grosjean (2010, 2013), over half the world's population is estimated to be bilingual, meaning that they speak two or more languages. More than 65% of the inhabitants of the European Union and 90% of the inhabitants of Norway of working age speak a second language, whereas 40% of the Norwegian population of working age speaks three or more foreign languages.¹¹ Children in Norway learn

¹¹ <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/EDN-20180926-1>

English from first grade and grow up to be functionally bilingual. Consequently, the fact that children grow up bilingual or multilingual cannot in itself explain the lower reading test scores of multilingual children.

Bilingualism and multilingualism are notoriously hard concepts to define. As we will see in the next paragraph, bilingualism is defined in a series of different ways depending on the context it is used in (Appel & Muysken, 2006; Grosjean, 2013), and that different definitions can be observed in different levels of government in the Norwegian context. In addition, the field of biculturalism (where one person partakes in the life of two or more cultures and blends and adapts elements from said cultures) is poorly studied (Grosjean, 2013).

Norway, like many European countries, presents a complex linguistic reality of two official languages, Norwegian and Sámi, where Norwegian has two written varieties and Sámi 10 varieties, of which four are spoken in Norway today.¹² Also, a series of national minority languages are protected by White Paper No. 15 (2000–2001) on Norwegian National Minorities: State Policy regarding Jews, Kvens, Roma, Romani People/Taters and Forest Finns (Ministry of Local Government and Regional Development, 2001). The speakers of these languages, as well as Sámi speakers, have to interact in the Norwegian society in Norwegian and are consequently bilingual. The Norwegian Directorate for Education and Training (Utdanningsdirektoratet) defines student speakers of minority languages as “children with a mother tongue different from Norwegian and Sámi”.¹³ Statistics Norway’s definition of speakers of minority languages is “children speaking a mother tongue at home different from Norwegian, Sámi, Danish, Swedish or English, and where both parents speak a different language at home than these languages” thereby excluding immigrants from Scandinavia and the English-speaking world as well as children from intermarriages (one Norwegian parent). According to Statistics Norway, approximately 30,000 intermarriages were registered during the period of 1990–2016, these being mainly Norwegian men who married women from Thailand, the Philippines and Russia. Many of these women brought children they had birthed previously with them to Norway (Dalgaard, 2018).

In addition, bilingualism is found in other Norwegian communities ranging from children of diplomats, expats, children of returned Norwegian expats who still speak other languages at home, first and successive generations of immigrants, as well as refugees, and many of these groups fall outside the definitions of the speakers of minority languages by Utdanningsdirektoratet and Statistics Norway. This study therefore adopts the definition of bilingualism/multilingualism used in the ePRILS 2016: “a person who has grown up speaking two or more languages and who identifies with these languages and/or a person who identifies with two or more languages and uses more than one language on a daily basis, even if that person does not dominate both/all languages equally well” (Barne-, likestillings- og inkluderingsdepartementet,

¹² <https://www.sprakradet.no/Spraka-vare/Spraka-i-Norden/Samisk/>

¹³ <https://www.udir.no/laring-og-trivsel/tilpasset-opplaring/minoritetspraktige/>

2012, s. 49, translation: the authors). In order to convey this complex content to primary school children, the survey used the following question: “Do you speak languages other than Norwegian at home?” This is in line with the wording in PIRLS 2016 (Strand et al., 2017). In order to account for the confusion created by the different definitions of bilingualism, the children were asked to specify the languages spoken at home.

One possible explanation for the lower scores of multilingual children in Norway is found in the results from the 2018 version of PISA survey,¹⁴ which presented the following explanation for why an increasing number of Norwegian elementary school students are struggling with reading:

At least over the more recent period (2009–18), performance trends in Norway were influenced by the concurrent increase in the proportion of immigrant students who tended to score below non-immigrant students. It could be estimated that, if the student population in 2009 had the same demographic profile as the population in 2018, the average score in reading would have been 497 points. In reality, the average score observed in 2009 was 503 points. The (non-significant) decline in mean performance between 2009 and 2018 could therefore be entirely explained by the changing demographic composition of the student population.¹⁵

Gender differences and gamification

The PISA 2018, the PIRLS and the ePIRLS surveys document the existence of large differences in the reading scores of girls and boys in Norway, and demonstrate that, in general, boys read less and struggle more with reading than girls (OECD, 2019). The lending statistics from libraries support this view, confirming that boys borrow fewer books than girls (Kverndokken, 2013). According to Roe (2013), there are many possible reasons why girls read more than boys, have more positive attitudes towards reading and perform better on reading tests. One reason may be that there is simply not as much reading material targeting and engaging boys, where especially fiction and other longer texts appear to be lacking. Fiction provides a lot of reading training, expands the vocabulary and allows for reflection and personal development, and a series of reading campaigns focused on fiction have therefore been initiated. Roe (2013) believes that reading campaigns can promote reading, however, it is important that the texts provided target the students' field of interest. Students cannot be forced into liking reading; they must figure it out for themselves, but through well-made reading campaigns, they can be lured into the world of books. Reading motivation, often defined as “the individual's personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading” (Guthrie & Wigfield, 2000, p. 405), is therefore seen as both a critical contributor to and highly related to reading achievement (Anmarkrud & Bråten, 2009; Biancarosa & Snow, 2004; Curtis, 2002; Wang & Guthrie, 2004).

¹⁴ <https://www.oecd.org/pisa/>

¹⁵ https://www.oecd.org/pisa/publications/PISA2018_CN_NOR.pdf

Another reason why boys read less than girls may be that boys' view reading as less attractive than other activities, such as playing computer games (Roe, 2013). Støle and Schwippert (2017) point out that the gender differences are significantly lower in the electronic ePIRLS survey than in the paper-based PIRLS 2016 and refer to Martin and Binkley (2009), who claim that boys are presumed to be more interested in and therefore have accumulated more experience with computers and dynamic formats than girls. According to the Norwegian Media Authority (Medietilsynet), however, 91% of all Norwegian girls in the PIRLS age group of 9 to 11 years game, as do 98% of all boys at that age (Medietilsynet, 2020), and familiarity with computers therefore cannot account for the aforementioned difference. Martin and Binkley (2009) do however make an important point about gamification:

[...] computer tests that deliver content in new and more dynamic formats are especially attractive to boys. This explicitly includes the possibility of presenting tasks in the form of games with the added aspect of competition that is also more positively received by boys than by girls. (p. 80)

Although the percentage of male and female gamers is almost equal between the ages 9 and 11, statistics from the Norwegian Media Authority show that where the boys' interest in gaming remains stable at 97–98% of the population until the age of 18, the percentage of girl gamers decline with age, presumably in favor of social media, and for 15–18-year old's is down to 62% (Medietilsynet, 2020, p. 5). It therefore appears that it is not the computer itself, but the gaming aspect that keeps boys interested. Using children's interest in gaming as a starting point is therefore a clever strategy for creating motivation for reading for boys in general, and for girls in this particular age group.

Gamification, as one may remember, is defined as “the process of applying game mechanics and game thinking to the real world to solve problems and engage users” (Felker, 2014). Game mechanics are known to stimulate engagement and participation (Muntean, 2011), and examples of game mechanics are reward systems such as badges, score-points, levels and leaderboards. Leaderboards are lists of participants in a competition who are ordered according to a variable, such as their scores (from highest to lowest) (Costa, Wehbe, Robb & Nacke, 2013), and are used to motivate participants to strive to reach the top of the list and to keep track of the competition (Kapp, 2013). Levels are used to maintain the player's interest in the game, as they both indicate the player's progress, and helps the player keep track of her position in the game over time (Zichermann & Cunningham, 2011). Points are used in most games, as points are given to players as rewards for following the rules of the game and complying with the desired behaviour patterns (Zichermann & Cunningham, 2011). Badges are also a reward mechanism associated with the gaming world, as players receive badges as a symbol for completing a specific task in the desired manner. Many players experience gratification in receiving badges (Kapp, 2013), and in the words of Zichermann and Cunningham (2011): “In addition to signaling status, people desire badges for all kinds of reasons. For many people, collecting is a powerful drive”.

All of these game mechanics are used as tools to motivate the player to walk the extra mile. As a consequence, both extrinsic and intrinsic motivation plays a part in most of the elements. Reaching the top of a leaderboard may produce internal motivation by inducing a feeling of mastery based on the player's own skills, and thereby satisfying the psychological need for feeling mastery based on one's own competence. The points earned may produce extrinsic motivation, as the players are driven by factors such as recognition and status (Kapp, 2013), or intrinsic motivation, as they experience mastery. The players are also motivated by receiving rewards, which may lead to both intrinsic and extrinsic motivation.

The overall goal of gamification is to achieve higher efficiency and engage the children, and the field of education is one of the areas where gamification is most commonly used (Landers, 2014). The point of using gamification is to create a returning effect by creating a routine that allows the children to do an activity that is subsequently rewarded. The customer, or the player, may feel that she is progressing towards a goal (Felker, 2014).

How is meaningful gamification achieved? First of all, just as in gaming, engaging in the gamified elements must be perceived as voluntary. Every child is not motivated by points and leaderboards, and, for some, these game mechanics may indeed be discouraging or demotivating. Learning from the self-determination theory of motivation, one ought to create student-focused activities that fulfill needs for competence, autonomy and relatedness (connected to something beyond yourself) (Tan & Hew, 2016). When these three motivators are engaged, an activity will be intrinsically worthwhile (Kapp, 2013).

3. Materials and methods

This study combines two data sources: first, the anonymized data from a short questionnaire that, for the purpose of this study, was incorporated into the mandatory registration information required for the child's profile in *Sommerles.no* to be activated, and second, the anonymized data on registered pages read for each participant.¹⁶ As the registration process needs to be quick and simple, the questionnaire was limited to six questions: age, gender, Norwegian written variety preferred (Nynorsk vs. Bokmål), whether the child speaks another language apart from Norwegian at home, which language other than Norwegian is spoken at home and whether the child also reads in the home language.

The wording of "What language do you speak at home" is a conscious choice in order to incorporate Norwegian minority languages (such as Sámi languages, Kven, Romani and Romanes), as well as bilingualism in other Norwegian communities (such as diplomats, expats, first- and successive generations of immigrants,

¹⁶ The anonymized data is provided by the firm Snuti that delivers and maintains the online platform for *Sommerles.no*.

intermarriage as well as returned Norwegian expats who still speak other languages at home, etc.) while simultaneously keeping the wording simple, unambiguous and comparable to the same questions in PIRLS and ePIRLS.

The pages and books read are self-reported by each user of the *Sommerles.no* platform and may therefore not necessarily represent the exact amount of reading that took place during the summer. Children may forget to register pages or may register too many in order to gain prizes. Although we cannot examine how closely the registered reading corresponds to the actual reading, it is likely to be in close correspondence at a group level. There may of course be deviations but with a sample of more than hundred thousand, these errors will likely even out. The practice of self-reporting is however in line with the PIRLS and ePIRLS studies to which our data is compared, as the children also self-report their reading practices in these studies.

The data is first extracted from the *Sommerles.no* database to comma separated text files. Next, the data is imported to the statistical software Stata15, which is used to calculate the statistics used in the analysis. The statistics will be compared to the national data or results from PIRLS and ePIRLS where these are available.

4. Analysis

An overview of the key information from the registration data and a comparison to national data are provided in Table 1. The different characteristics or variables are presented in the first column, national statistics from Statistics Norway in the next column and characteristics of the registered users of *Sommerles.no* in the last column.

Table 1. Overview of the participants of *Sommerles.no* by gender, written Norwegian variety and language spoken at home.

Variable	Participants	Share (<i>Sommerles.no</i>)	Share (Norway)
Girls	59,894	57%	49%
Boys	45,425	43%	51%
Written Norwegian variety			
Bokmål	96,893	92%	88%
Nynorsk	8,425	8%	12%
Spoken language			
Norwegian	98,830	94%	82%
Not Norwegian	6,489	6%	18%
Sámi	23	0,02%	0,14%
Total	105,319	100%	100%

Note: Sámi is the second official language in Norway. No complete register of the number of children speaking Sámi exists however, and the data presented here is of the number of children receiving their education in Sámi (UDIR, 2019). The data for gender for grades 1 to 8 includes the population of children between 6 and 12 years from table 07459, Statistics Norway.

First, we observe that, of the 511,178 elementary school students in grades 1 to 8 in Norway, 105,301 participated in *Sommerles.no* 2018, which is equal to one in five of the total population. However, since not all municipalities participated in *Sommerles.no*, the participants represented one in four from the participating municipalities. Another interesting observation is that, while 57% of the participants are female, the percentage of participating males is very high at 43% compared to similar campaigns. We will return to male participation in the section “Pages read by gender and home language.”

Both written Norwegian varieties, Nynorsk and Bokmål, are represented. However, the minority variety Nynorsk appears to be slightly under-represented, with 8% of the participants in *Sommerles.no* versus 12% of the population in Norway. The second-last row shows that only 23 participants registered a Sámi language as their home language, which corresponds to only 0.02% of the registered users. This is surprisingly few participants, considering that the Norwegian Directorate of Education and training has registered 702 students from grade 1 to 8 who receive their education in Sámi. (The Norwegian Directorate for Education and Training, 2019). This equals a participation rate of only 3%, which is substantially lower than the overall participation rate of 20%, and Sámi children are therefore either strongly underreported or strongly underrepresented.

The largest difference between the Norwegian national data and the registered users in *Sommerles.no* is found in the share of children who speak languages other than Norwegian at home. No official registry of the languages spoken in Norway exists (Wilhelmsen, Holth, Kleven & Risberg, 2013). We therefore use indirect evidence for children who speak a foreign language at home using the share of the children of immigrant parents. According to Statistics Norway, 18% of Norwegian children fall into this category (Statistics Norway, 2020). It is important to note that this measure excludes children who speak Sámi and national minority languages, third-generation immigrants as well as children born from intermarriages. In comparison, in PIRLS and ePIRLS 2016, 36% of the 4th graders and 32% of the 5th graders reported that they speak a different language from Norwegian at home some or most of the time (Strand et al., 2017). In *Sommerles.no* 2018, only 6 percent of the children participating report speaking a different or additional language apart from Norwegian at home. Independent of whether the correct percentage of the population another who speak another language besides Norwegian at home is 18%, 32–36%, or somewhere in between, multilingual children are strongly under-represented in *Sommerles.no*. To sum up, one in four Norwegian children in the target group participated in *Sommerles.no*. The participation rate for boys is very high at 43%; however, the share of participants in *Sommerles.no* who speak languages other than Norwegian at home is significantly lower than their total population in Norway.

Pages read by gender and home language

According to the literature on summer reading programs, the benefit of participating in a reading campaign is closely connected to the amount of reading done

during the summer (Heyns, 1978; Kim, 2004). The correlation between children’s reading during their free time and scores in PIRLS and ePIRLS can also be clearly observed: The more reading they do during their free time, the higher their scores (Stole & Schwippert, 2017). In principle, the effect of reading campaigns for the users is the additional reading done during the summer because of the campaign. Unfortunately, we cannot observe the additional reading the children did as a result of their participation in the campaign directly, since we do not know what they would have read if they had not participated. However, we can examine in detail how the number of pages read differs among groups and compare this to the relevant official statistics. In this section, our focus is on differences between genders and spoken home languages.

Table 2 presents descriptive statistics for the number of pages read during the *Sommerles.no* 2018 period by gender and spoken home language. The average number of pages read by the participants was 1,169, which entails reading around 13 pages per day in the 92-day *Sommerles.no* period from June 1st to September 1st. The median – which represents the typical reading for a given student – is, however, much lower at 550 (6 pages a day). One of the main reasons for this difference is that nearly 21% (21,940) of the registered users did not register any pages read at all.

We focus on the median when presenting the differences between the groups. The reason for this is that the distribution of pages read is highly skewed (see Figure 2). Half the readers have read less than 500 pages (5 pages per day), and 90% have read less than 3,000 pages. A few have, however, read a lot more: The highest reported number of pages read is 45,229. Since all types of reading material can be registered in *Sommerles.no* ranging from picture books, audiobooks and some cartoons to the Bible,

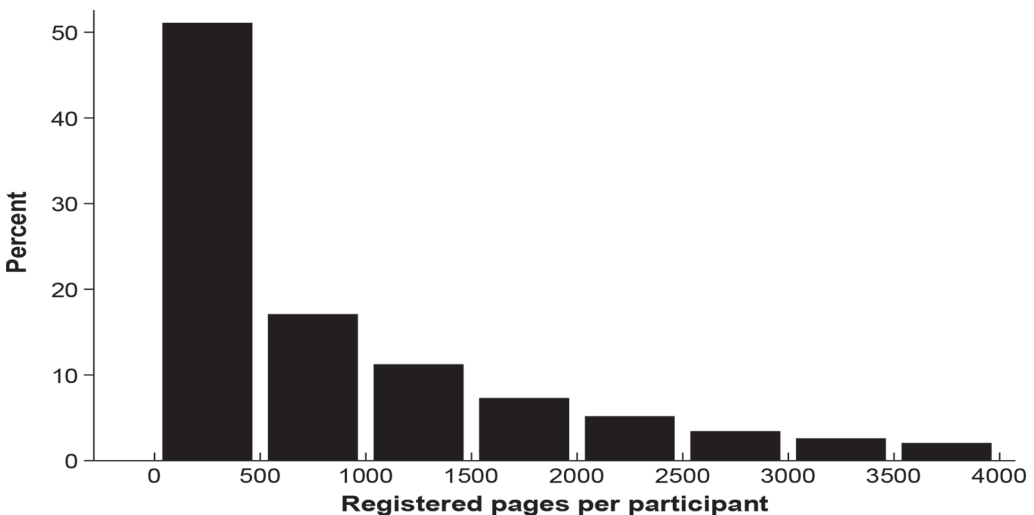


Figure 2. Histogram of pages read by participants in *Sommerles.no*

Note: N = 98,899 (total obs. = 105,319, observations of pages >4000 (95 percentile) is excluded).

a “page” is not a fixed entity, and no word count is reported. It is possible for children who want to quickly ascend in levels to read simple texts with few words on each page if they so desire. These few very high observations will therefore affect the mean values to a large degree, making the mean a poor representation of the “typical” reader.

In Figure 2 the extreme outliers are removed. As can be observed, more than 50% of the children have read less than 500 pages (5 pages per day), and only 10% have read more than 3,000 pages (33 pages per day). The resulting graph roughly mirrors the distribution of the reported reading habits of the participants in PIRLS and ePIRLS, where children are asked how much they read in their free time on a normal school day. In total 58% of the children report reading for less than 30 minutes, 34% read between 30 minutes and one hour, whereas 9% read for more than an hour a day.

Gender differences

Table 2 shows that girls read slightly more than the boys: the median for girls is 567 pages, while that for boys is 527. The mean of the pages read shows the same pattern as the median. The mean pages read is higher than the median because of the skewed distribution. The difference between the means for boys and girls is also statistically significant (t-value of -4.08). As noted in a previous section, 43% of the participants in *Sommerles.no* are boys. The percentage of participating boys is significant given that 60% of the male respondents in ePIRLS report reading less than 30 minutes a day (Støle & Schwippert, 2017).

Both in the PIRLS and the ePIRLS¹⁷ reading tests, the students who read the most during their free time, achieve the best results (Støle & Schwippert, 2017). Of all Norwegian elementary school students (girls and boys are equally represented), 9% read more than one hour a day, and this group achieves 606 points in ePIRLS. Students who read less than 30 minutes a day, however, receive an average of 555 points in ePIRLS, and the lowest score of all Norwegian students. The reading is divided into two categories: Reading for pleasure and reading for learning (Lundetræ & Solheim, 2013).

Both the PISA and PIRLS surveys also report significant variation in reading literacy among Norwegian girls and boys. The recent OECD report *The gender gap in educational outcomes in Norway* (Borgonovi et al., 2018) states that “Gender gaps in reading are very wide in Norway at the primary school level” explaining this statement in the following manner:

[...] in 2016, 4th grade girls outperformed 4th grade boys by 18 points in the PIRLS reading assessment in Norway, a difference of about one fifth of a standard deviation. The gender gap is similar to the one estimated in the first two rounds of PIRLS in 2001 and 2006, while in 2011 it was reduced to 14 points. [...] the scores of 4th grade boys and girls have been improving in Norway, but the distance between them has remained somewhat constant except in 2011. (Borgonovi et al., 2018, p. 19)

¹⁷ <http://pirls2016.org/epirls/about-epirls-2016/>

Pages read by home language

Of the 105,319 children participating in *Sommerles.no* in 2018, a total of 6,753 report that they are multilingual and speak among them a total 52 different languages at home. In addition, 3,989 also report that they read languages other than Norwegian.

Table 2. Pages registered by gender and spoken home language, sorted per the number of participants per language.¹⁸

Characteristic	Number of participants (N)	Mean	Median	Standard deviation	Min	Max
Gender						
Boy	45,425	1,143	527	1,769	0	35,463
Girl	59,894	1,188	567	1,780	0	45,229
Spoken language						
Norwegian	98,830	1,156	549	1,752	0	45,229
Non-Norwegian	6,489	1,356	559	2,094	0	22,371
French	121	1,739	1,070	2,026	0	12,081
Danish	126	1,967	1,055	2,668	0	15,233
German	276	2,009	1,039	2,679	0	20,100
Swedish	286	1,343	736	1,901	0	12,577
Russian	199	1,532	676	2,160	0	12,645
English	1603	1,471	664	2,271	0	22,371
Spanish	236	1,377	588	2,154	0	14,082
Lithuanian	223	1,175	543	1,806	0	14,607
Polish	390	1,020	503	1,329	0	7,541
Kurdish	198	1,178	479	1,853	0	10,298
Urdu	136	1,252	430	2,145	0	13,219
Somalian	266	1,144	351	1,945	0	13,542
Tigrinya	163	1,278	280	2,233	0	13,488
Arabian	381	943	250	1,543	0	10,013
Albanian	101	832	149	1,832	0	12,040
⋮	⋮	⋮	⋮	⋮	⋮	⋮
38 Sami	23	2148	754	2882	0	10,634
Total	105,319	1169	550	1,775	0	45,229

Source: Registration data of participants in *Sommerles.no* in 2018.

Note: Only language groups with more than 100 participants are shown, except for the Sámi language.

¹⁸ In this paper we have chosen to use the term “spoken home language” to reflect the Norwegian multilingual reality where several official minority languages, immigrant populations, expats, returned Norwegian expat families and families with one immigrant parent coexist.

The most frequently registered languages (apart from Norwegian) in *Sommerles.no* (see column 1) are English, Polish, Arabian, Swedish, German, Somali, Spanish, Lithuanian, Russian, Kurdish, Tigrinya and Urdu, which roughly mirrors the Norwegian directorate of integration and diversity (IMDi) overview of the origin of Norwegian immigrants: 54% are originally from Europe, whereas 31% are from Asia and 13% are from Africa. Poland, Lithuania, Sweden, Syria, Somalia, Germany, Iraq, Eritrea, the Philippines, Pakistan, Thailand, Denmark and Iran were the largest contributors of immigrants, closely followed by Russia and Afghanistan.¹⁹ As reporting their home language was not obligatory, the number of students with home languages other than Norwegian may be under-reported.

One explanation for the presumed under-representation of children who speak languages other than Norwegian at home is related to the fact that, due to GDPR regulations, only parents or guardians can sign their children up for *Sommerles.no*. In 2018, information on *Sommerles.no* was only provided in the two written Norwegian standards, thereby requiring that parents must master reading a rather long and technical text on GDPR regulations in Norwegian. This represents a major hindrance for children of first-generation immigrants, as well as for children of weak readers.

The table also includes the Sámi language, although it is only the 38th most frequently registered language, as the language is one of the two official languages of Norway. Looking at the median at 754, we see that those who do participate read substantially more pages than the participants whose spoken home language is Norwegian (549).

Interestingly enough, on November 26th 2019, the Office of the Auditor General of Norway published a report on Sámi students' right to education both on and in Sámi (Riksrevisjonens undersøkelse av samiske elevers rett til opplæring i og på samisk Dokument 3:5 (2019–2020)), which states that there is a general lack of resources in the education in Sámi; both a lack of qualified teachers in the various Sámi language varieties and a lack of educational resources, such as books and electronic learning resources, is described. In addition, the Office of the Auditor General of Norway states that the education in Sámi is poorly organized and not advertised well enough. Sámi students living outside the main Sámi areas are entitled to a web-based education in Sámi; however, the quality of this education is not found to be equivalent to neither the Norwegian standard nor to the *in situ* Sámi education. In addition, the report states that very little literature exists in the Sámi languages (Office of the Auditor General, 2019). Here, more research on the factors that hinder or stimulate the participation of children who speak Sámi and national minority languages is needed in order to target these groups specifically.

Looking in detail at the pages read for the other multilingual groups (Figure 3), it seems apparent that students with a European language background generally

¹⁹ <https://www.imdi.no/om-integrering-i-norge/innvandrerer-og-integrering/innvandrebevolkingen-i-norge/>

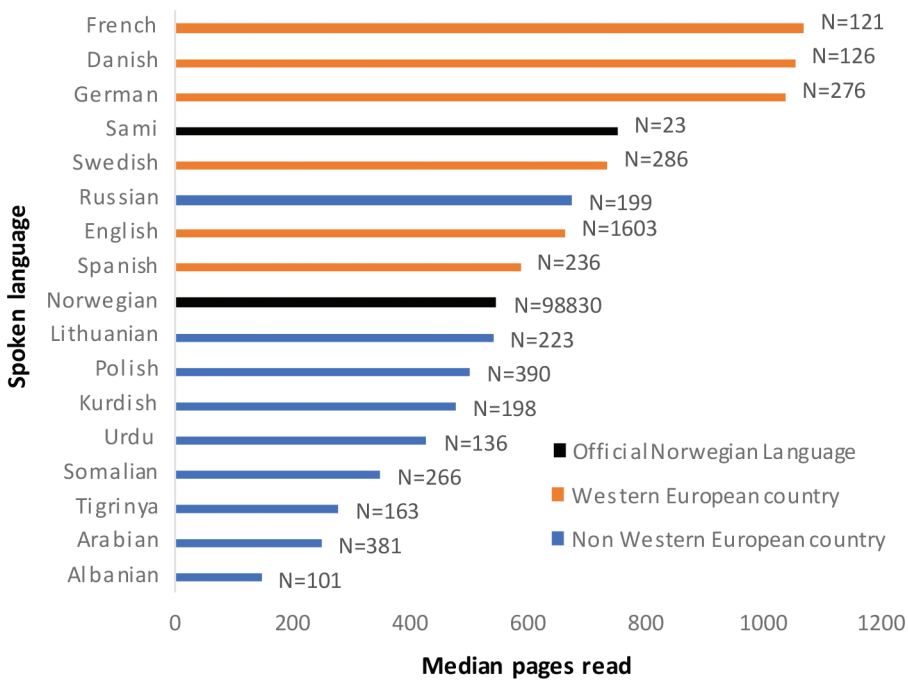


Figure 3. Median pages registered in *Sommerles.no* by language. Black bars the two official languages in Norway. The text and the number to the right of the bars show the number of participants for each spoken language.

register a higher number of pages read than their non-European counterparts. Students from European countries read on average more than 500 pages during the *Sommerles.no* period, and students who speak Western European languages such as French (1,070 pages), Danish (1,055 pages), German (1,039 pages), at home have the highest median of pages read. This finding is consistent with that of Steinkellner (2017), who found that since registration began in 2007, Norwegian-born children of Western European immigrants score higher on all tests in grades 8 and 9 than any other groups. The only non-Western-European language background students who score higher than the Norwegians in *Sommerles.no*, are Russians, whereas children who register Lithuanian and Polish as their home language, score slightly lower than the Norwegians. The exception to this pattern of higher European scores is Albanian, with a median of only 149, which is far below the children with non-Western European language backgrounds. There may be many reasons for this result, however, Albania is one of the poorest countries in Europe, and invests only 3% of its GDP in schooling, whereas most OECD countries invest 5%. In comparison, the highest median registered for pages by speakers of non-European languages are by students who speak Kurdish (479), Urdu (430), Somali (351), Tigrinya (280) and Arabic (250) at home. Possible explanations for the difference between Western European and non-Western European scores could be linked to

the relative similarity or difference between these students' home languages and Norwegian as well as to socio-economic factors, such as work immigrant versus refugee status.

According to IMDi, the majority of immigrants that moved to Norway from the year 2007 to 2015 were work immigrants from Poland, the Baltic states^{20,21} and other Scandinavian countries, and these groups still constitute the largest population of immigrants in Norway. According to Statistics Norway, work immigrants have a higher level of education than the Norwegian population, as 45% have higher education, and 40% have finished their secondary education (Steinkellner, 2017). Refugees constitute 4% of the Norwegian population and 30% of the immigrant population. Somalia is the largest contributor, followed by Syria and Iraq.²² According to Statistics Norway, more than half of the students receiving their education in their mother tongue or receiving their education in both Norwegian and their home-language, speak Arabic, Somali, Polish, Kurdish or Urdu²³ at home, where Arabic (2,600 children) and Somali (1,900) represent the two largest groups (Steinkellner, 2017). Norway currently has 170,000 Norwegian born children of immigrant parents, where 10% have Pakistani parents, 8% Somali parents and 7% Polish parents.²⁴

In the case of Somali students, official UN information states that, after more than two decades of conflict, Somalia has one of the lowest enrollment rates for primary school children in the world. Only 30% of children are in school, and only 40% of the children in school are girls (UNICEF, 2019). The situation is slightly better in Eritrea, where Tigrinya is one of the main languages, with a child enrollment rate of 55% in 2016. Arabic speakers constitute the largest group of refugees world wide today, with Syria and Palestine as the largest contributors of Arabic-speaking refugees (United Nation High Commissioner for Refugees, 2019).

Currently, the number of children and adolescents born outside Europe (including recently arrived refugee and migrant children) who leave school early is nearly twice as high as that for native-born children. Migrant children also have lower learning outcomes when they are not given adequate support. For example, around three in four native-born students attain proficiency in science, reading and math, but only 3 in 5 students with a migrant background do (United Nation High Commissioner for Refugees, 2019). The UN is now calling on European countries to "increase resources and practical support for their school systems to ensure all refugee, asylum-seeking

²⁰ www.imdi.no/syssesetting-og-arbeidsliv/arbeidsinnvandring/

²¹ <https://www.imdi.no/om-integrering-i-norge/innvandrere-og-integrering/innvandrerebefolkningen-i-norge/>

²² https://www.imdi.no/om-integrering-i-norge/innvandrere-og-integrering/innvandrerebefolkningen-i-norge/#ssb_flyktning

²³ https://www.imdi.no/om-integrering-i-norge/innvandrere-og-integrering/innvandrerebefolkningen-i-norge/#ssb_flyktning

²⁴ https://www.imdi.no/om-integrering-i-norge/innvandrere-og-integrering/innvandrerebefolkningen-i-norge/#ssb_flyktning

and migrant children can access and stay in quality education (United Nation High Commissioner for Refugees, 2019). Other possible contributing explanations may be related to the access to reading material in the language spoken at home. Libraries may order books in 70 languages from *Det flerspråklige bibliotek*²⁵ (lit: The multilingual library); however, this information must be available to book-readers in a language that they are able to understand for them to be able to communicate their need to the local library. In addition, very few books exist for instance in Somali, and *Verdensbiblioteket.no*²⁶ (lit: The world library), a library of international texts from which library users can order books and to pick up in their local library, only lists a total of 41.

Motivation and gamification

Sommerles.no is designed as a pure reward system, using extrinsic motivation to stimulate reading for pleasure in the hope that children will discover the joys of reading and becoming self-motivated readers.²⁷ The main target group for *Sommerles.no* is 3rd to 5th grade students (9 to 11-year-olds), and currently 93% of all nine-year-olds – both boys and girls – game. However, from the age of ten, the number of girl gamers starts to decline, whereas the percentage for boys increases. At ages 11 to 12, 98–99% of all Norwegian boys game, and the percentage of gamers in total is above 90.²⁸ The gaming approach therefore appears to be perfect for the campaign's targeted age group, and in fact, participation in the campaign has risen sharply every year since its gamification (see Figure 1).

Sommerles.no employs common gaming mechanics, such as earning “experience points” for every page read (including some comic books) and even for reading aloud for siblings or younger friends.²⁹ The experience points allow the readers to reach higher “levels,” where they are awarded both virtual trophies as well as physical prizes that are to be collected at the local libraries. The latter was implemented in order to create opportunities for drawing children into the libraries to explore, meet the librarians and discover more reading materials, in accordance with Fiore and Roman (2012). According to Felker (2014), the gaming concept may be especially important for students who are weaker readers or read less than the average, as it helps them stay entertained and entices them to come back to read more (Felker, 2014). Leaderboards are used in a modified manner in *Sommerles.no*. As a general focus on competition between the participants may be perceived as demotivating for weaker or younger readers, and is therefore unwanted, the game is construed as a way for the individual participant to compete with oneself, where the participants earn badges and physical rewards at age-appropriate intervals. The participants may, however,

²⁵ <https://dfb.nb.no/>

²⁶ <https://www.verdensbiblioteket.no/>

²⁷ P.c. Pernilla Slotte Hjermann, the founder of *Sommerles.no*

²⁸ <https://medietilsynet.no/barn-og-medier/dataspill/>

²⁹ <https://altom.sommerles.no/sommerles-historie/>

invite friends to follow their progress, and may chat and compete with these friends if they so desire.

There is conflicting information in the literature on the impact of gamification on student engagement and motivation and the achievement of learning outcomes. One view presented by Hamari, Koivisto, & Sarsa (2014) is that gamification may prove to have only a transient positive effect on some users, as a novelty effect that can wear off in the long run. *Sommerles.no* being a 92-day campaign designed to motivate children to read – and maintain their reading competence – over the summer plays on this novelty effect by introducing a new theme, a new story and new rewards every year. It is designed to be a happening, but a happening that literally “opens the doors to Narnia” for children and introduces them to the parallel universe of reading for the pure joy of it. By establishing a relation between the child and the library over the summer, the hope is twofold: First that children will continue reading and continue borrowing books even when the summer is over, and secondly to counteract possible negative correlations created by socioeconomic factors, such as the parents’ educational level and the access to books at home (Strand et al., 2017). This takes us back to Støle and Schwippert (2017), Strand et al. (2017) and the measures proposed in the PISA 2018 survey:³⁰ it is important that childrens’ interest in reading is not only stimulated, one must attempt to stimulate them into falling in love with reading due to the correlation between reading for pleasure and higher scores in the PIRLS and ePIRLS studies for both sexes and all language backgrounds. In the words of the PISA 2018 report; more opportunities for reading for pleasure must be created.³¹ Given that the gender differences observed indicate that a larger percentage of girls read for pleasure every day, whereas a larger percentage of boys never read for pleasure, any measure that motivates boys to read more for pleasure must surely be applauded.

5. Conclusion

This paper studied the 2018 version of the Norwegian library-initiated reading campaign *Sommerles.no*. The paper has established the characteristics of the participants: gender, home language, written Norwegian variety, and pages read.

In terms of overall participation, the campaign was highly successful. The campaign has expanded to cover all counties and most of the municipalities in Norway, and one in five children in the target group participated. In the participating municipalities, one in four children participated. The participation of boys was also very high at 43–45%, which is likely to be connected to the gamification and the reward elements in the campaign. However, children who speak other languages at home than Norwegian were under-represented.

³⁰ <https://www.oecd.org/pisa/>

³¹ <https://www.oecd.org/pisa/>

First, the Sámi participants were either strongly under-represented or under-reported. The very few Sámi children who did participate, however, read substantially more than the monolingual Norwegian participants. Participants with a Western-European or Russian language background also read significantly more than children who speak exclusively Norwegian at home.

Second, children who speak Non-European languages at home were also significantly under-represented. Moreover, this group had a lower degree of participation – measured by number of pages registered – compared to children who speak Western-European languages. This fact may be related to socio-economic factors, such as the parents' educational level or work-immigrant versus refugee status; however, it may also be related to whether the parents who must sign their children up are able to read the information given in Norwegian.

The current study has demonstrated that given the correct stimuli, gamification and rewards, boys will sign up for reading campaigns and they will read for pleasure. With a boys' participation of 43–45% every year since its gamification in 2014, it seems safe to say that *Sommerles.no* has cracked the code on how to get boys in the targeted age group to read for pleasure. Now the interesting question is: What will it take for children who speak languages other than Norwegian at home to enroll? Future research is also needed to investigate in more detail why weak readers do not participate and how participation from this group can be increased.

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