

Gender and school differences in pupils' reading performance in the first and second grades of Icelandic primary schools using Beginning Literacy

Running Head: **Gender and school differences in reading performance in Icelandic primary schools**

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Abstract

The recent years have seen a growing discussion on gender differences in literacy and literacy comprehension of pupils in Icelandic elementary schools. The aim of the paper is to examine literacy tests conducted in the first two years of primary schools in relation to the implementation of a literacy teaching method to see what the test results reveal about the average reading performance of pupils, gender differences, differences between schools and the consistency of results between years. The tests have been used to identify children with reading difficulties and are conducted six times during the first two years of primary school. The analysis will use the results of around 34 thousand tests which have been conducted in schools which have used the Beginning literacy method. The results indicate that gender differences observed among pupils at the end of primary school are not visible to the same extent at the start of primary school with gender accounting for only around 1-3 per cent of the variability in reading performance. Some differences can be found between schools but at the same time there is limited consistency in the performance of individual schools between years.

Keywords: literacy, gender differences, school differences, Iceland

Introduction

The state of literacy education has been the issue of considerable public debate in Iceland for some years. This debate has to some extent been fuelled by surveys that have been seen to indicate that Iceland is not making the desired progress towards its goal of literacy attainment. The most notable amongst these have been surveys by the Programme for International Student Assessment (PISA) on reading comprehension of 15-year-olds, and Progress in International Reading Literacy Study (PIRLS) on literacy of nine-year-olds (Thorsteinsson & Björnsson, 2007). As an example, the PISA results for 2003 and 2006 showed a statistically significant drop in reading comprehension of Icelandic 15-year-olds, and in this period the number of countries that significantly outperformed Icelandic students nearly doubled from seven countries in 2003 to fifteen countries in 2006. An improvement was seen in 2009 when scores recovered to their previous 2000 levels, but in 2012 they dropped again to the equivalent of the 2006 score which is significantly below the OECD average (Halldórsson, Ólafsson & Björnsson, n.d.). These results have also revealed a constant gender difference in favour of girls. This gender difference is high in comparison to the other OECD countries and the proportion of boys in the two lowest levels of performance has increased (Halldórsson, Ólafsson & Björnsson, n.d.). Regular surveys carried out from 1968 to 2009 have furthermore shown that the proportion of 10-16 year old students who do not voluntarily read a single book in a 30 day period has increased from 11% to 28% (Broddason, Ólafsson and Karlsdóttir, 2009)

This paper uses data collected in two types of screening tests conducted in years 1 and 2 in Icelandic primary schools using the literacy program Beginning Literacy. The first test “Læsi – lestrarskimun” comprises five sub-tests, three in year 1 and two in year 2. The second test

“Lesmál” is conducted at the end of year 2. The tests are explained further in a later section of the paper. The aim of the paper is to examine what the test results reveal about the average reading performance of pupils, gender differences, differences between schools and the consistency of results between years.

The importance of literacy

The general idea of the importance of literacy has been reflected in various policies, both at the national and international level. UNESCO (n.d.) describes literacy not only as a key outcome of education but also as a key to human empowerment and political, cultural, social and economic development. In the declaration for the UN literacy decade 2003–2012 literacy is defined in terms of social communication, knowledge, language and culture, and as an integral factor in the life of every individual (UNESCO, 2003). Literacy is also prominent in the OECD definition of the key competences necessary for every individual on which the aims of education should be built (OECD, 2002). Two out of three categories of key competences – “Using tools interactively” and “Functioning in socially heterogeneous groups” (pp. 11–13) – include the ability to communicate and use language and technology in cooperation and constructive relationships with others.

Literacy and communication is strongly featured in the agreements of the EU programme on Education and Training in Europe (European Commission, n.d). In a Eurydice report published to provide an input into this emphasis, literacy is regarded as a fundamental skill, increasingly needed in almost every aspect of life. The report describes literacy as essential for individual's personal and social fulfilment, and as a prerequisite for informed and active participation in society, for exercising full rights of citizenship and for successful participation in the labour market. Proficiency in reading is also a principal means of learning and therefore

among the most important aims of schooling and indispensable for academic success of individuals.

Gender differences in literacy

Gender differences in children's education have for many years attracted the interest of scholars around the world. However, there are considerable differences in how studies in this field frame the subject and results are in many ways inconclusive, even conflicting. The neuroscientist Janet S. Hyde (2005) has put forward the hypothesis of gender similarities, a theory contrary to theories of gender differences mode. Her results are based on extensive meta-analyses of research, including amongst other things mathematics, verbal and non-verbal communication and reading comprehension. Her conclusion is that in general the genders are largely similar on most psychological variables and that there is limited evidence to support the various stereotypes of the genders, such as boys being better at mathematics and science and girls better at communication.

Matthews, Cameron Ponitz and Morrison (2009) compared the behavioural self-regulation of kindergarten children with results of five areas of achievement: mathematics, general knowledge, letter and word identification, phonological awareness and expressive vocabulary. The results showed significant differences in self-regulation in favour of the girls but no significant gender difference in achievement of the five mathematics and literacy areas. These results are similar to an Icelandic study that assessed the relations between behavioural self-regulation of children and certain aspects of their literacy. The results indicated that girls showed more skills than boys in self-regulation at the age of six and seven (Gestsdóttir and Birgisdóttir, 2010), however no gender difference was found in any of the literacy components measured: letter knowledge, decoding, and reading comprehension in 1st–3rd grade (Birgisdóttir, 2011).

National testing in Icelandic has shown considerable gender differences in the favour of girls in 4th grade, increasing in 7th grade and still again in 10th grade (Thorsteinsson and Björnsson, 2007; Ólafsson, Halldórsson, Skúlason and Björnsson, 2007). The above results suggest that there is no or very little gender difference in literacy among Icelandic primary school pupils at the beginning of the primary school and up to the age of eight, but a steady increase after that throughout their course of compulsory schooling. Other research in this field, however, has shown different results. For example, a report by the National Literacy Trust in the UK (Clark and Burke, 2012) suggests that girls outperform boys in reading from the age of five.

Results on gender differences in literacy are however more explicit among older children. The PIRLS (Progress in International Reading Literacy Study) investigated a range of reading comprehension processes within literary and informational text of nine year old children. PIRLS also collected a broad array of background information for instance about reading habits and attitudes toward reading. The findings of the study in 2006 showed that girls had significantly higher reading achievement than boys in almost all the participating countries. In Iceland, this difference was greater than the average in the other countries. Most of the participants had a positive attitude to reading but the percentage among Icelandic students was even lower than the international average. In Iceland there was generally consistency between attitudes and performance and as well performance showed to be linked to self-esteem in reading. The girls generally seemed to have a more realistic view of their own reading abilities than boys did (Thorsteinsson and Björnsson, 2007).

Reading comprehension is one of the core elements of the PISA assessments (Program for International Student Assessment) of fifteen years old. The results in 2000, 2003, 2006 and 2009 all showed that girls were well ahead boys in reading comprehension in Iceland as well as

in the other participating countries (Halldórsson et al, 2010). In Iceland gender differences increased considerably between 2000 and 2003 but then decreased again in 2006 and 2009.

There is reason to ask what causes increased gender differences in literacy with age of students. Hyde (2005) concluded that neural activity in the brain is characterized by high flexibility and therefore it is more likely than not that that gender differences are created by different experiences rather than biological causes. Other research seems to confirm this. Studies have shown that boys generally spend less time in reading than girls do, boys are less interested in reading, and see no particular value of reading, they have less confidence in reading and believe they have lower reading abilities than girls (Booth, Elliott - Johns and Bruce, 2009; Clark and Burke 2012; Sokal, Katz, Adkins, Gladu, Jackson Davis and Kuss, 2005). Blair and Sanford (2004) point out five important issues regarding boys' reading: That the reading relates to their personal interests, is action oriented, without difficulties, entertaining and successful. When boys get reading material that interests them they show good literacy skills. This appears for example, when using literacy in computer games, browsing webs, reading interesting magazines or comparing interesting statistics. A study of Clark and Burke (2012) showed that boys read comics, newspapers and manuals to a greater extent than girls did but used, however, libraries much less than girls did.

A possible reason why some boys show less interest in literacy-related activities than girls is considered to be that boys consider reading a feminine act. Several studies have supported this hypothesis, including a Canadian study, that showed that 24% of boys in second grade had this view (Sokal et al, 2005). It is believed that the reason for this can be attributed to the development of gender image in children (i.e. children's Gender Development) and to environmental impact. Adams (1990) for example assumes that a child has listened to reading for

at least 1000 hours before the formal literacy education starts. Studies have also shown it to be mothers rather than fathers who read (Millard, 1997). The idea that reading is a feminine activity is then further reinforced in pre- schools and primary schools where the models are of female teachers and they become the image for reading tasks (Clark and Burke, 2012).

A further issue is the kind of books that are chosen for children to read, but they are not always in line with the interests of boys. Sokal et al. (2005), however, point out that it is an oversimplification to look at the selection of books as the only solution of the problem. They examined the literacy of boys in second grade but at the age the awareness about gender differences is being established in children. The results showed that negative attitudes amongst boys towards reading, was multifaceted and complex. Different factors are interwoven such as the type of text that were available, the reading role models and social status of the family.

School differences in literacy

School differences have received relatively little attention in Iceland neither in scholarly nor public debate. According to PISA results from the period of 2000–2012 (Halldórsson, et. al. n.d.) equity – in the sense of to what extent difference in student performance can be attributed to social and economical status and education of parents, and to schools – is a prominent characteristic of the Icelandic education system. The results of the 2012 survey showed that the social and economical status and education of parents explained a very small proportion of the variability student outcomes and considerably less than in most OECD countries; furthermore that about 10% of student differences could be attributed to schools, which is also low on the OECD scale. Conversely the difference between students within schools are higher in Iceland than in most of the participating countries with about 90% of the variability in performance being attributed to the individual level (Halldórsson, et. al. n.d.). These results refer to students at

the end of compulsory education but similar information is however not available for student performance in the first years of elementary school.

Theories of literacy and literacy teaching in Iceland

Literacy is one of six main pillars of the Icelandic education system (Ministry of Education and Culture, 2011). In the National Curriculum literacy is described as the knowledge and skills that one needs to be able to read, write and understand printed text. However, literacy, deals first and foremost with creation of meaning which never takes place in a vacuum. Thus the National Curriculum approaches literacy as a social phenomenon that depends on agreement made on usage and meaning of words in a language community (Ministry of Education and Culture, 2011). In this respect the National curriculum adopts a broad definition of literacy involving the ability to use language in a diverse way for reading, writing, listening, speaking, viewing, creating meaning, sharing information, and to think critically (see for example Aubut et al, 2004). The definition of literacy has thus shifted from a narrow practical point of view, where emphasis was placed on decoding, to a much broader concept of social activity, understanding and skills in different contexts (Barton and Hamilton, 1998; Harris and Hodges, 1995; Lyn Hamilton and Hillier, 2006).

Various theories of the reading process have been developed over the years to inform literacy teaching models. Three distinct models are commonly identified as the bottom-up model, the top-down model and an interactive model (Vacca, Vacca, Gove, Burkey, Lenhart & McKeon, 2009). The interactive model (Lipson & Wixson, 1991) has been used as the basis of a literacy teaching model, Beginning literacy (BL), developed at the Centre for School Development (CSD) at the University of Akureyri (see Eggertsdóttir, 2009). The BL approach also draws on the theories and practice of inclusive education (Ainscow & Miles, 2008) and emphasises that

children's' literacy education takes place within their normal class but their learning is scaffolded by the teacher and through peer support and interdependent cooperation (Eggertsdóttir, 2009)

Schools implement the BL model through two year collaboration with the Centre for School Development (CSD) at the University of Akureyri. During the implementation period teachers attend seminars and workshops where they learn about the BL model in collaboration with colleagues from other participating schools. A consultant from the CSD also works with each school and visits the school twice in each school year and a development leader is appointed in each school to oversee the implementation in close collaboration with the CSD consultant and the head teacher. The development leaders are not only assigned an important role as mentors and advisers to the teachers but also run workshops for teachers and visit their classrooms to observe and give feedback on their teaching. The development leaders receive training and written material to prepare for their role (Eggertsdóttir, 2013).

Eggetsdóttir (2013) in her reflection on the BL professional development model argues that the implementation of BL implies a fundamental change of the kind Hargreaves (2003) terms as a transformation of culture and methods as opposed to incremental innovation to reform existing methods but without deep-rooted cultural changes and knowledge creation. Fullan (2007) describes this difference in similar terms when he distinguishes between change as restructuring of organisation and processes as opposed to reculturing as profound deep-rooted change in assumptions and behaviours. In the end the success of improvement is however mainly dependent on teachers themselves and their conceptions, skills and competences. This has been demonstrated in a study of teaching and assessment in Queensland in Australia (Hayes, Mills, Christie & Lingard, 2006). Kyriakides, Creemers & Antoniou (2008) also reach the same

conclusion in their study of the teaching behaviours of 52 Cyprian primary school teachers and their students' learning outcomes. It is also well established by research that leadership is one of the most important condition for successful improvement (Louis, Leithwood, Wahlstrom & Anderson, 2010).

Despite a considerable public interest in the field of literacy research has been limited, apart from to the PISA and PIRLS surveys referred to above, and little is in fact known about the organisation of literacy education in Icelandic schools. A study conducted for the Ministry of Education and Culture by the University of Iceland Social Science Research Institute (Leiknisdóttir, Guðmundsdóttir, Björnsdóttir, Jónsdóttir & Jónsson, 2009) aimed at giving insight into this. Despite unclear and somewhat confusing definitions of literacy terms and teaching methods in the report it shows that formal teaching of literacy is mostly confined to the first four years of primary school and virtually non-existent from there on. Sigþórsson (2001), in his study on the teaching of Icelandic in years 5–7 of the primary school, came to a similar conclusion. The results of the study by the Social Science Research Institute (Leiknisdóttir, et. al, 2009) also indicated that literacy education in years 1–4 was highly traditional, mainly confined to teaching reading by means of phonics, but to a small extent aimed at literacy as it is defined in this paper.

The extent to which the introduction of the BL method has had an impact on the outcome of literacy teaching in Icelandic elementary schools has not been measured but as the BL method promotes a unified approach to literacy teaching it seems reasonable to expect between school variability to be lower in schools where this method is used than for schools in general. The data available does not allow for this to be tested as it is collected only in schools applying the BL

approach. But the fact that the data comes from schools where such a unified approach has been in use has to be taken into consideration when interpreting the findings.

Data and methods

The data used was collected in 78 Icelandic elementary schools in the years 2005 to 2013 as a part of the Beginning literacy (BL) project. The purpose of the data collection was to evaluate the literacy proficiency of students and their progress in the first two years of elementary school and for that purpose each student was tested six times. As a part of the Beginning literacy project the teachers submitted anonymized test results for individual students to the Centre of School Development at the University of Akureyri which then entered them into a database to provide the participating schools with information on the average performance of their school in comparison to other schools. As the test results for each student had to be anonymized it is not possible to use the database to track the progress of individual students. The only identifying information in the database is the gender of the students and a code for each school. However the information linking these codes to the name and location of each school was not available for the analysis carried out here. The testing was carried out in all schools at approximately the same time. In mid-November for tests I (first test for students in first grade) and IV (first test for students in second grade). In February for tests II (second test for first grade) and V (second test for second grade). And in latter part of April for tests III (last test for first grade) and VI (last test for second grade).

In total the results of 34.130 tests have been collected in the eight years of the project but as most students will take all six tests the total number of individual students is of course lower. Table 1 shows the number of tests taken in each year, the number growing year by year as more schools have chosen to adapt the BL model.

Table 1. Number of students tested in each assessment by year.

Grade	Test	School year								Total
		2005-6	2006-7	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	
Grade 1 (6-7 year olds)	I	74	102	150	547	1,031	1,276	1,547	1,459	6,186
	II	74	98	144	551	1,026	1,272	1,563	1,549	6,277
	III	73	100	145	547	1,002	1,158	1,591	1,569	6,185
Grade 2 (7-8 year olds)	IV	84	113	144	461	889	1,300	1,474	1,593	6,058
	V	87	120	139	272	497	715	834	924	3,588
	VI	85	115	139	469	865	1,180	1,400	1,583	5,836
<i>Total</i>		<i>477</i>	<i>648</i>	<i>861</i>	<i>2,847</i>	<i>5,310</i>	<i>6,901</i>	<i>8,409</i>	<i>8,677</i>	<i>34,130</i>

Measures

The purpose of the screening tests is not to thoroughly examine the various aspects of literacy but rather to give teachers information about potential weaknesses in the proficiency of individual students (Lonigan, 2006) and to identify students that might have difficulties later on (Wilson og Lonigan, 2009, 2010). Screening tests of this kind are always inaccurate in the sense that they can identify children with difficulties which later on will have none and they can also fail to identify students which end up having difficulties with literacy (O'Connor og Jenkins, 1999, Torgesen, 1998). When looking at results for groups of students tests of this kind are also prone to ceiling effects. In other words, the tests will not distinguish between students with good proficiency. For the analysis in this article we make no assumption about the validity of the screening tests as a tool for identifying students with difficulties. The test score for individual students is obtained by simply adding up the number of items that the student answers correctly and this score is then divided by the number of items on the test and then multiplied by 100 to obtain a score ranging from 0 to 100. The screening tests are however not standardized and are not of equal difficulty. Thus we analyse the results of different tests separately. Despite a

tendency for a ceiling effect the measurements do not differ too much from a normal distribution (skewness ranging from -0.20 to -0.87 and kurtosis from 0.22 to 0.85).

Results

Gender differences in literacy

Table 2 shows the difference in average results on the individual tests for each year. For almost all years and all of the tests the girls are the tests the girls have a higher average score than the boys. The gender difference is however never above 10 points on a scale that has a range from 0 to 100. To put the gender differences into context the standard deviation in the tests is never below 18 points and thus the gender differences are always below 0.5 standard deviations.

Table 2. Gender differences in each assessment by year (boys compared with girls)

Grade	Test	2005-6	2006-7	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13
Grade 1 (6-7 year olds)	I	-5.7	-6.0	-5.2	-2.5	-1.7	-3.9	-5.8	-4.2
	II	-9.9	-5.5	-9.2	-4.5	-5.6	-5.2	-6.3	-5.7
	III	-6.7	-5.6	-8.0	-4.6	-9.9	-4.9	-8.8	-7.9
Grade 2 (7-8 year olds)	IV	0.4	-8.8	-6.9	-9.6	-3.2	-6.6	-5.3	-5.5
	V	-5.5	-8.3	0.9	-8.7	-3.5	-5.7	-4.5	-4.1
	VI	-4.7	-6.4	-0.3	-8.9	-6.6	-7.9	-5.7	-5.7

To further examine the gender differences table 3 shows the average difference between boys and girls in each test but across all years. The average difference is from 4.0 points to 7.6 points (again on a scale from 0 to 100). Due to the number of children tested the gender differences are statistically significant for all tests but gender alone can however explain only from 1 to 3 per cent of the variance in the test results. The gender differences observed amongst students at the end of compulsory education are thus not very prominent in the first two years of the primary school.

Table 3. Average gender differences (boys compared with girls) and explained variance (eta squared) in each test.

Grade	Test	Average difference	Eta squared
Grade 1 (6-7 year olds)	I	-4.0	0.01
	II	-6.3	0.03
	III	7.6	0.02
Grade 2 (7-8 year olds)	IV	-5.7	0.01
	V	-4.6	0.01
	VI	-6.5	0.03

School differences in literacy

Table 4 shows for each test the variance between schools across all years. The between school variance ranges from 6% (tests IV and VI) to 10% (tests I and V). In comparison with gender differences the school differences are twice and up to three times greater.

Table 4. School differences measured as the explained variance (eta squared) in each test.

Grade	Test	Eta squared
Grade 1 (6-7 year olds)	I	0.10
	II	0.08
	III	0.07
Grade 2 (7-8 year olds)	IV	0.06
	V	0.10
	VI	0.06

To further investigate the school differences and the stability of results within schools the average outcome for each school was correlated with the average outcome of that school on the other tests. Table 5 shows how test results on each test correlate with test results on the other tests taken in that same year.

Table 5. Correlation (Pearson's r) between results in different tests taken in the same schools and in the same year

Test	I	II	III	IV	V	VI
I	1,00	0,43	0,52	0,03	-0,02	0,05
II		1,00	0,73	0,20	0,10	0,19
III			1,00	0,16	0,07	0,22
IV				1,00	0,66	0,61
V					1,00	0,59
VI						1,00

Figures in bold indicate a coefficient that is statistically significant at the 0.05 level

Not surprisingly, the average outcome on test I has a high correlation with the outcome on tests II and III, partly because these are tests taken by the same group of students. Also the average outcome on test IV is highly correlated with the average outcome of tests V and VI in that same school and in the same year. There is however much lower correlation between average outcomes on tests I-III and the average outcome on tests IV-VI, even though these are for students in the same school.

Table 6 looks at the correlation between average results in the same school but within the same cohort. Here the results for tests IV, V and VI have been moved backwards by one year to get a comparison of average outcome in a particular school with the average outcome on tests I, II and III in the previous year.

Table 6. Correlation (Pearson's r) between results in different tests taken in the same schools and in the same cohort

Test	I	II	III	IV	V	VI
I	1,00	0,43	0,52	0,35	0,43	0,37
II		1,00	0,73	0,50	0,51	0,40
III			1,00	0,58	0,49	0,60
IV				1,00	0,66	0,61
V					1,00	0,59
VI						1,00

Figures in bold indicate a coefficient that is statistically significant at the 0.05 level

Here we see a strong correlation between tests taken by students in grade 1 and tests taken by students in grade 2 in the following year

Discussion

This paper has presented analysis of results from screening tests conducted in years 1 and 2 in Icelandic schools that employ the literacy program Beginning Literacy. The data has been used to estimate gender difference, difference between schools and consistency within schools in the literacy performance of children in the first two years of compulsory education. Although the database contains information from a large number of tests it is limited with regards to linking different tests taken by the same student. It should also be noted that the aim of the study was not to evaluate the quality of the tests as assessment tools or whether or not they sufficiently fulfil their aims to detect children likely to encounter reading difficulties, nor did it aim to assess how useful the test will be for teachers to assess the performance level of individual pupils in order to enable the individualisation of their literacy teaching. The data is of value however in that it is the only measurement available for literacy performance of children in the first two years of elementary school and as such can provide important information for better understanding of results obtained from older students.

When interpreting the results of the analysis it is important to bear in mind that the data has been collected in schools that share the experience of implementing the BL approach by employing the same professional development model (Eggertsdóttir, 2013). It would seem reasonable to expect that this would lead to a smaller between school variability than in a sample of schools where no such common education policy has been adopted. With this in mind it is noteworthy that some 6 to 10 per cent of the variability in performance on the literacy tests can be traced to schools. However it is also interesting to note that there seems to be little

consistency between different cohorts attending the same school. In other words, schools that perform well in a particular year don't necessarily do so in the following year. One possible explanation for this is that student groups differ from year to year. Here however we have to bear in mind that schools are recruiting students in more or less the same catchment area from one year to another. In schools however it is a common practice to let teachers follow groups in the first years of compulsory education. Thus a group of students will often have the same teacher for the first 2 to 4 years of their education. This indicates that it might be important to look at not only the teaching practices of individual schools but also of individual teachers.

If there is indeed more stability between individual teachers than there is between individual schools then this has important implications for the BL teaching method and how it is implemented in schools. The aim of the BL method is to achieve a cultural transformation within the participating schools (see Eggertsdóttir's (2013) rather than incremental innovation or restructuring (Fullan, 2007; Hargreaves, 2003). Such transformation is first and foremost dependent on teachers' proficiency where the outcomes stand or fall by their mastery of the methods (Hayes et al., 2006), and that successful professional development takes time and requires meticulously planned effort (Kyriakides et al., 2008), where cooperation, support and effective leadership from head teachers and project leaders is are essential ingredients (Louis et al., 2010).

Summary and conclusion

There are strong arguments to support the notion that proficiency in literacy is among the most important outcomes of education, not only in the first years of primary education, but throughout

the compulsory education and the whole education system. International policies have recognised the importance of literacy (European Commission, n.d; OECD, 2002; UNESCO, 2003) and so does Icelandic national policy where literacy is identified as one of six fundamental pillars of education (The Icelandic national curriculum guide for compulsory schools, 2012). With that, literacy – with its interwoven educational, personal and social competences – has been placed on the top of the educational agenda from pre-primary schools throughout upper secondary schools. At the same time it has to be recognised that the foundations of this critical competence that will impact the whole future schooling of the individual are laid in the first years of compulsory education. Research on all aspects of literacy education is therefore vital to ensure that decisions about its organisation are built on relevant information and knowledge.

Two main findings from this study are of particular importance. The first one challenges the common assumption that girls fare better in their literacy acquisition than boys. The findings of this study indicate that although girls have on average a higher score in the literacy tests the differences are relatively small. Given the gender differences in literacy observed at the end of compulsory education an obvious conclusion is that this gender difference is created on the pupils' route through their compulsory education. This as far as we can get in our conclusions, but obviously questions of how and why remain and they will only be answered with further research and critical analysis of literacy education in compulsory schools.

Our second main finding indicates that there is considerable difference between schools and low consistency of results within schools from one year to the next indicating a difference between groups or year cohorts within schools than between schools. Such difference is not easily explained, particularly given the fact that schools from which our data is drawn share the common experience of implementing the same improvement project within the parameters of the

same professional development model, and their catchment areas remain unchanged from year to year. This has led us to the conclusion that among the participating teachers there is varied level of mastery of the BL method – and perhaps literacy teaching in general – and perhaps that the two years implementation period of BL is too short to ensure the collective competences all relevant teachers and build the infrastructure of schools to uphold BL after the consultants have left. This last point is further implied in Eggertsdóttir's (2013) evaluation of the effectiveness of the BL professional development model. Having said that we emphasise precaution here, and the need for further research to deepen our understanding of this complicated reality.

Finally it is our hope that the increased emphasis on literacy, both internationally and nationally will clear the path for increased attention to the development of literacy education in all school sectors and strengthen the research base for the development in such education.

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