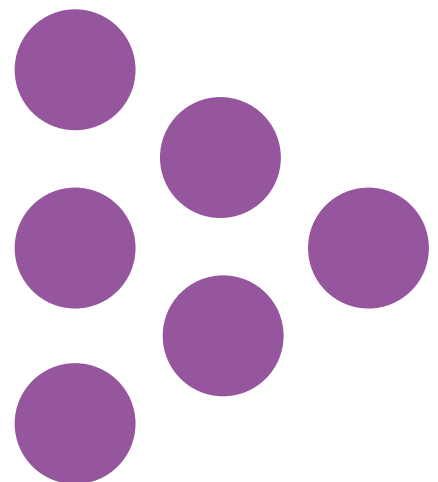# NFER
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PIRLS 2016 further analysis

Parents' engagement in their children's learning in Northern Ireland

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Parents' engagement in their children's learning in Northern Ireland

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Contents

Executive Summary

Children of more engaged parents tend to have greater success at school, but the evidence on whether children's attainment can be improved by increasing parental engagement is mixed and much less conclusive, particularly for disadvantaged families. In this report, we analysed evidence gathered from a sample of parents, pupils aged nine and ten years and principals in Northern Ireland to understand the impact of aspects of the home learning environment and parental engagement on children's outcomes, using data from PIRLS 2016 and the NI School Census.

The PIRLS data enabled us to look at three key aspects of parental engagement:

- parental engagement in literacy activities before children begin school
- aspects of children's home-life which may relate to literacy skills and readiness to learn
- parental engagement with their children's primary school.

Sample

The pupils who participate in PIRLS are a nationally representative sample of pupils in primary 6. The findings in this report drawn on parents' responses to the PIRLS home questionnaire, for which there was a 39% response rate. The pupils whose parents responded were more socioeconomically advantaged and had higher literacy attainment. Therefore, although the findings from the parent questionnaire are not necessarily representative of all parents in Northern Ireland, the analysis does allow us to draw relevant conclusions to inform policy and brings together information we do not have from other sources.

What are the levels of engagement among parents in Northern Ireland?

Parental engagement in Northern Ireland compared favourably with the international average.

Parental engagement in Northern Ireland compared well when looking at different types of engagement: pre-primary literacy activities; aspects of children's home-life which may relate to literacy skills and readiness to learn; and engagement with their child's school. For instance, 65 per cent of parents often did early literacy activities in the years before their children started primary school, higher than on average internationally (39 per cent). Parents had high aspirations for their children, with 64 per cent of parents expecting their children to complete a degree-level qualification or higher, and pupil attendance at school was also better than the international average.

Parents of free school meal eligible pupils engaged less often in early literacy activities with their children, particularly activities which relate to books, but were more likely to engage in home learning support activities whilst their child was at primary school.

Parents of free school meal eligible (FSME) pupils were less likely to read to their children, less likely to talk about what they have read, less likely to go to the library, and they tended to have far fewer children's books in the home. In addition, these parents were less likely to enjoy reading. In

contrast, parents of FSME pupils were more likely to engage in home learning support activities whilst their child was at primary school.

FSME pupils were more likely to have some (rather than many) home resources for learning. They were less likely to have breakfast every day. Parents of FSME pupils tended to have lower expectations of the highest level qualification their child will attain.

Is parental engagement associated with pupil attitudes and reading performance?

The responses from parents to the questionnaire indicate that early and often engagement is important.

Children who engaged **more often** in early literacy activities were more likely to be more confident readers and enjoy reading in primary 6.

Children of parents who took them to the library often scored the highest in PIRLS. The biggest gain in PIRLS scores was between parents who **often** read books with their child and those who **sometimes** read books.

Amongst FSME children, those who were read to often scored the highest in PIRLS. The biggest differences between scores for FSME and non-FSME children were for playing word games and visiting a library. But the differences for all the early literacy activities were large, and therefore policies which encourage greater engagement in any or all of these areas are likely to be beneficial.

Early literacy activities were significantly correlated with later reading outcomes.

When other factors are taken into account (age, gender and socioeconomic status), early literacy activities have a significant correlation with later reading outcomes.

The types of early literacy activities which were most strongly related to later reading outcomes were those relating to talking, reading together and discussing, rather than those which replicate later academic activities, such as word games and alphabet games.

Parents of pupils who had lower achievement in PIRLS were engaged in their learning at primary school, and the challenge is therefore to find the most effective ways to channel this engagement to encourage their children to enjoy reading and become better readers.

Parents of children who performed the least well in PIRLS supported their children more at home with homework than those with the highest PIRLS scores. They were also more likely to listen to their child read and read aloud to their child.

What does the evidence suggest are the areas for intervention?

The literature identifies pre-primary parental engagement as key to later success and that the most successful interventions provide direct support or skills training to parents and are clear in their desired outcomes. The analyses in this report show that Northern Ireland is in a good position: parents engage much more often in early literacy activities than their counterparts in other

countries, and parents continue to support their children throughout primary school, particularly parents whose children are falling behind. In addition, parents were more engaged than in 2011.

The findings from this report suggest three focuses for policy:

Read to your child every day before they start school

The analyses in this report support the previous findings in the literature that early intervention is crucial. We found that the activities with the largest impact and strength are those related to books: parents reading to children often and talking to children about the books they have read.

Talk about what you have read

The review of the literature highlighted the importance of guidance for parents to ensure that engagement is most effective. Parents were much less likely to talk about the book they had read than to read to their child, and therefore it would be helpful to model questions which parents could ask.

Increase the reach of libraries

Children from more deprived backgrounds had far fewer books at home. This means less variety of reading material, potentially making reading less exciting for the child and the parent, and more difficult to have different discussions about books. Libraries need to continue to find ways to reach more deprived families and encourage engagement in literacy activities with their children.

1 Introduction

1.1 Context

Children of more engaged parents tend to have greater success at school, but the evidence on whether children's attainment can be improved by increasing parental engagement is mixed and much less conclusive, particularly for disadvantaged families. Parental engagement is a key policy interest in Northern Ireland. The Department of Education has funded a nationwide advertising campaign to encourage parents, carers and extended family members to become involved in and support their children's learning.

In order to provide evidence to inform policy, including the ongoing media campaign, this study considers evidence gathered from parents, pupils and principals in Northern Ireland to understand better the impact of aspects of the home learning environment on children's outcomes. More specifically, it uses the Progress in International Reading Literacy Study (PIRLS) 2016 dataset, along with data from the Northern Ireland School Census to answer the following research questions:

- What are the levels of engagement among parents in Northern Ireland?
- Is parental engagement associated with pupil attitudes and reading performance?
- How does parental engagement, and its association with other parental and pupil variables, vary over time and between countries?

1.2 Background

It is widely agreed that parental engagement[1] has a positive impact on children's educational outcomes (Goodall et al., 2011) and there is a large body of research on how parental engagement can affect children's attainment and ways in which schools can engage parents more effectively. Parental engagement has been a concern of governments worldwide, with many investing heavily in promoting engagement and setting it as a key part of their strategic plans (DfE, 2018a; Estyn 2018; Scotland, 2018).

Parental engagement can take many forms. These include good parenting in the home, such as the provision of a secure and stable environment; intellectual stimulation and parent-child discussion; contact with the school to share information about things such as the school's rules and procedures, the curriculum and homework; participation in school events and participation in school management and governance (Desforges and Abouchaar, 2003). In their review, Desforges and Abouchaar (2003) identified two distinct bodies of research on the relationship between parental engagement and pupil achievement. The first focusses on describing and understanding

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[1] The literature on the topic refers to both parental involvement and parental engagement. In general, parental involvement describes the ways in which parents get involved in school-based or school related activities, whereas parental engagement is about parents' interaction with their child's learning (Scotland, 2018). For the purpose of our analyses, parental engagement refers to both parental involvement and parental engagement.

the different forms and impact of naturally occurring parental engagement on children's educational outcomes, whilst the second is concerned with describing and evaluating intervention programmes aimed at improving educational outcomes through increased parental engagement. These two types of activity differ in that the first is voluntary, whereas the latter is not, at least to start with. Although research evidence on the former is mainly of high quality, thereby providing insight into the different types of parental engagement and the impact they have on those involved, a lot of the data is quite outdated and studies are mainly located in the American educational context. Conversely, research on intervention programmes is somewhat weaker, leading to a lack of evidence regarding effective parental engagement interventions.

Policy-makers, practitioners and researchers largely agree that identifying children's problems early in life and intervening when they are young is more effective than when they are older. A considerable amount of research has been published on interventions of pre-school and primary-school-aged children aimed at improving their attainment through increased parental engagement. These interventions are mainly concerned with parental training and home-school collaboration programmes (Gorard and Huat See, 2013). However, evidence on their overall impact and effectiveness is very mixed and inconclusive. In addition, the majority of these studies suffer from methodological flaws (such as small samples, lack of randomisation, inappropriate comparators, unequal dropout after randomisation and inappropriate use of significance testing for non-random samples, no pre- and post-test comparators), and there are very few robust evaluations of these interventions (Gorard and Huat See, 2013). This makes the findings hard to synthesise and means it is not possible to draw safe conclusions about either the scale of the impact the intervention has had or the relationship between the intervention activities and the intended outcome.

Whilst evidence from interventions is mixed, there is a general consensus that the most effective interventions involve providing parents with institutional support. Programmes that just encourage parents to work with their children at home, without direct support or skills training, or that seek to improve parent-child relationships, appear to be ineffective (DfE, 2018a; Estyn, 2018; Gorad and Huat See, 2013). In addition, activities to engage parents must be part of an integrated strategic approach in schools, not merely a bolt-on extra to other activities (Estyn, 2018; Harris and Goodall, 2007). The aims of all communication with parents should be clear and all staff should be on board and feel confident in their ability to engage parents. Training should be provided where necessary.

There is evidence that the extent and form of parental engagement is strongly influenced by family social status, income and parents' level of education. In addition, parental engagement is positively influenced by the child's level of attainment – the higher the level of attainment, the more parents get involved and the level of parental engagement falls as the child grows older (Desforges and Abouchaar, 2003). Schools face certain barriers in successfully engaging parents. It is important to identify and address any of these that may prevent parents from being successfully engaged (Scotland, 2018; Grayson, 2013). Barriers include lack of time, child care issues, language barriers, transport, work patterns and practical skills, such as literacy issues. When designing parental engagement activities, these must be taken into account in order for their successful implementation (Grayson and Aston, 2013). This can be done by providing clear and specific targeted information for parents, consulting with parents regularly, using a variety of approaches to engage parents, e.g. home visits and meetings in other neutral locations, and providing universal

services to reduce stigmatisation. Schools need to be prepared to be flexible when dealing with parents, e.g. in terms of meeting times and location in order to reduce these barriers.

Surveys such as Parentkind, which is run annually in the UK, provide a snapshot of parents' views about their children's schools and education. In 2018, this revealed that the vast majority of parents surveyed in Northern Ireland are keen to influence education decisions within schools, local government and the Education Authority (Parentkind, 2018). However, there is currently a mismatch between what parents want and the opportunities they feel they have to do this. When asked what they would like to be consulted on by the school, the curriculum was most popular, followed by homework and school budgets. These findings are consistent with England, where similar information is collected as part of Ofsted's Parentview survey (DfE, 2018b). This provides evidence that parents do want be involved in their children's school life but schools and local governments do not have strategies in place to effectively engage them or overcome some of the barriers to engagement that exist. Schools need to use the best available research evidence to choose suitable strategies that will work best in their setting, considering local needs and circumstances, particularly for those parents who are 'hard to reach' (Grayson and Aston, 2013).

In conclusion, while there is a general consensus that parental engagement plays a vital role in the achievement of students, there is less agreement about how to identify the specific practices that have the biggest influence, and evidence on how to improve attainment by increasing parental engagement is even less conclusive. There is no solid evidence base for intervention yet, but there is more evidence on classroom interventions effectively raising attainment (Gorard and Huat See, 2013). Nevertheless, there are some recurring themes of effective interventions. Notably, the most promising phase for effective parental engagement is pre-school and primary school, while the most successful interventions provide direct support or skills training to parents and are clear in their desired outcomes.

2 Approach

2.1 Data and method

To answer our research questions, we conducted secondary analysis of International Association for the Evaluation of Educational Achievement (IEA) PIRLS 2016 data. The IEA has administered PIRLS every five years since 2001. Each cycle assesses 9-10 year olds in reading and provides a unique opportunity to link attainment data to a range of other characteristics that can be compared internationally.

Northern Ireland first took part in 2011 and the most recent publicly available dataset available is PIRLS 2016. In addition to pupil attainment data, this dataset provides a plethora of information on school climate and resources; classroom instruction; pupils' home environments for learning; and the characteristics, attitudes and experiences of principals, teachers, parents and pupils. About 319,000 students across 61 countries participated in total. The sample of schools and students for each country is nationally representative.

The Northern Ireland sample was matched to other relevant school- and pupil-level factors from the Northern Ireland School Census which included Free School Meal Eligibility (FSME).

The analyses focus particularly on the available data from the pupil, home and school questionnaires. We considered a range of scales derived from questionnaire items which reflect the home environment, the exposure of early literacy activities before school, the current level of parental support with academic activities, parents' and principals' perceptions, parental reading habits, and parental aspirations for the child. To examine potential trends across countries we compared relevant variables with the international average and data from the Republic of Ireland, and to examine trends over time we compared variables with Northern Ireland's PIRLS 2011 data.

Due to the nature of the data it is not possible to assume causality from significant associations between factors. The analyses in this report are mainly descriptive, complemented with multilevel models to understand better interactions between parental engagement and pupil performance.

2.2 Sample

The PIRLS dataset is designed to provide nationally representative samples in terms of student and school characteristics. PIRLS uses a two-stage sampling process in which schools are first sampled and then classes are sampled within participating schools. Intact classes of pupils are sampled rather than individuals from across the grade level or of a certain age because PIRLS pays particular attention to pupils' curricular and instructional experiences, and these typically are organised on a classroom basis.

The table below shows the sample sizes of the PIRLS 2016 international dataset for Northern Ireland, the dataset matched with School Census variables, and the dataset with available information from the home questionnaire.

Table 2.1 Sample sizes for Northern Ireland

Dataset	Number of pupils	Number of schools
PIRLS 2016 NI sample	3,693	134
PIRLS 2016 NI school census-matched	3,610	131
PIRLS 2016 NI home questionnaire sample	1,454	123

The PIRLS home questionnaire is completed by parents of participating pupils. The home questionnaire response rate for Northern Ireland in 2016 was 39 per cent, reducing the sample for the analysis to 1,454 pupils in 123 schools. As detailed in Table A1 (Appendix A), these pupils were more socioeconomically advantaged and had higher reading achievement, as compared with the whole PIRLS 2016 sample[2]. This difference in achievement is statistically significant. We cannot, therefore, draw conclusions about parents in Northern Ireland as a whole and this should be kept in mind by the reader when examining the findings in this report. Nevertheless, we can compare pupils from homes with different levels of parental engagement and our analysis allows us to draw relevant conclusions to inform policy and bring together information we do not have from other sources.

2.3   Structure of the report

The remainder of this report describes our analysis and findings:

- In Chapter 3 we examine the level of engagement of parents in Northern Ireland using data collected from the home questionnaire and the school questionnaire. Where relevant, we make comparisons with the international average and look at changes since 2011. Appendix A contains supporting tables.

- In Chapter 4 we analyse parental engagement by eligibility for free school meals to understand differences by socioeconomic background. Appendix A contains supporting tables.

- In Chapter 5 we examine the relationships between parental engagement and children's attitudes towards reading and reading achievement. Appendix C contains supporting tables.

- In Chapter 6 we compare parental engagement in Northern Ireland with parental engagement in the Republic of Ireland. Appendix B contains supporting tables.

- In Chapter 7 we summarise our conclusions and discuss their implications.

- Appendix D contains detailed information about the variables in the scales included in the analyses.

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[2] This appears to be the case for other countries. Number of books in the home is used as a proxy for socioeconomic status in PIRLS. Pupils with parent questionnaire data in other countries also reported having slightly more books at home than the PIRLS national sample.

3 What are the levels of engagement among parents in Northern Ireland?

Key findings

Parental engagement in Northern Ireland compared favourably with the international average, and compared well when looking at different types of engagement: pre-primary literacy activities; aspects of children's home-life which may relate to literacy skills and readiness to learn; and engagement with their child's school.

Early years: 65 per cent of parents often did early literacy activities before their children started primary school, higher than on average internationally (39 per cent).

Home environment: 42 per cent of children come from homes with many home resources for learning compared with 20 per cent internationally.

Parents had high aspirations for their children. 64 per cent of parents expected their children to complete a degree-level qualification or higher.

Engagement with school: Pupil attendance was better than the international average, 75 per cent of pupils were never or almost never absent from school compared with 68 per cent internationally.

Comparison over time: Since PIRLS 2011, pupils have more home resources for learning and engaged in more early literacy activities before primary school. Parents like reading less, are more positive about school and have higher expectations of the highest qualification their child will attain.

The PIRLS data enables us to look at three key aspects of parental engagement:

- parental engagement in literacy activities before children begin school
- aspects of children's home-life which may relate to literacy skills and readiness to learn
- parental engagement with their children's primary school.

Each of these are considered below for children in Northern Ireland and comparisons are made with parents internationally and since the last round of PIRLS in 2011.

To note, some of the background characteristics covered in this chapter go beyond parental engagement, but are included because of their established links to future outcomes and to provide the background for Chapter 5 where we analyse the relationships between responses from parents and children and attitudes towards, and achievement in, literacy.

3.1 Early literacy activities

This section looks at the early literacy activities of parents in Northern Ireland. The Early Literacy Activities Scale results for Northern Ireland are compared with the international average, and then responses by parents in Northern Ireland are examined in more detail.

Parents in Northern Ireland were more engaged than parents internationally in early literacy activities with their child before they started primary school. Sixty-five per cent of parents in Northern Ireland reported doing early literacy activities "often", much higher than the international average of 39 per cent. (See Table A2 in Appendix A for the relationship between parental engagement activities and reading scores.)

Figure 3.1 Early Literacy Activities Scale
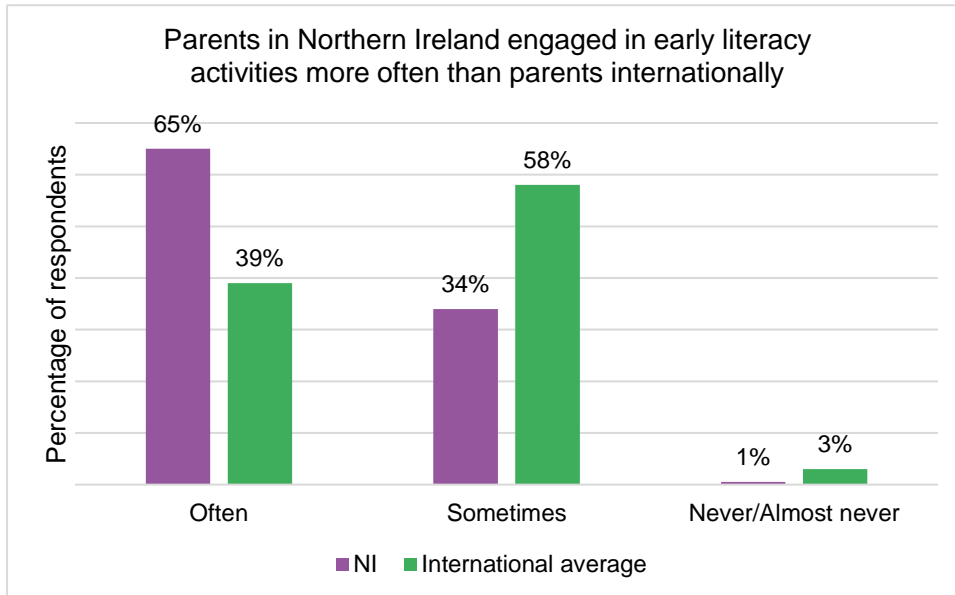
Source: PIRLS (2016) NI home questionnaire sample

When we examine the nine components of the pre-primary Early Literacy Activities Scale in detail (along with responses to the national question about visiting libraries), parents in Northern Ireland were most likely to often do singing or story-telling activities, and less likely to do early reading or writing activities with their child.

Figure 3.2 Early literacy activities

Most parents often read books with their child before they started school

Activity	Often	Sometimes	Never
Visit a library*	39%	44%	17%
Read aloud signs and labels to the child	54%	37%	8%
Write letters or words with the child	51%	41%	8%
Play word games with the child	45%	47%	8%
Talk with the child about what they had read	48%	45%	6%
Talk with the child about what they had done	80%	19%	1%
Play alphabet with the child	67%	30%	3%
Sing songs to the child	76%	21%	3%
Tell stories to the child	71%	26%	2%
Read books with the child	83%	16%	1%

Percentage of respondents

■ Often ■ Sometimes ■ Never

* National item

Source: PIRLS (2016) NI home questionnaire sample

It is interesting what these results tell us about the types of conversations which parents have most often with their children. Although many parents often read books with their child (83 per cent), fewer followed up this activity by talking to their child about what they have read. Whereas just 48 per cent of parents often talked to their child about what they had read, 80 per cent of parents would talk to their child often about what they had done.

3.2 Aspects of the home environment which may relate to literacy skills and attitudes

Parents and children provided some information about the things they have in their house, parental education, parents' aspirations and whether children were hungry or tired at school. Some of these questions are related to, or used as a proxy for, socioeconomic status, for instance the number of books in the home.

3.2.1 Home resources for learning

The Home Resources for Learning Scale is based on pupils' and parents' responses about the number of books in the home, the number of children's books in the home, whether there is an internet connection, whether children have their own room, highest level of parental education and parent occupation. The scale therefore goes wider then parental engagement factors. We find that

42 per cent of children in Northern Ireland come from homes with many home resources for learning compared with 20 per cent internationally.

Figure 3.3 Home Resources for Learning Scale
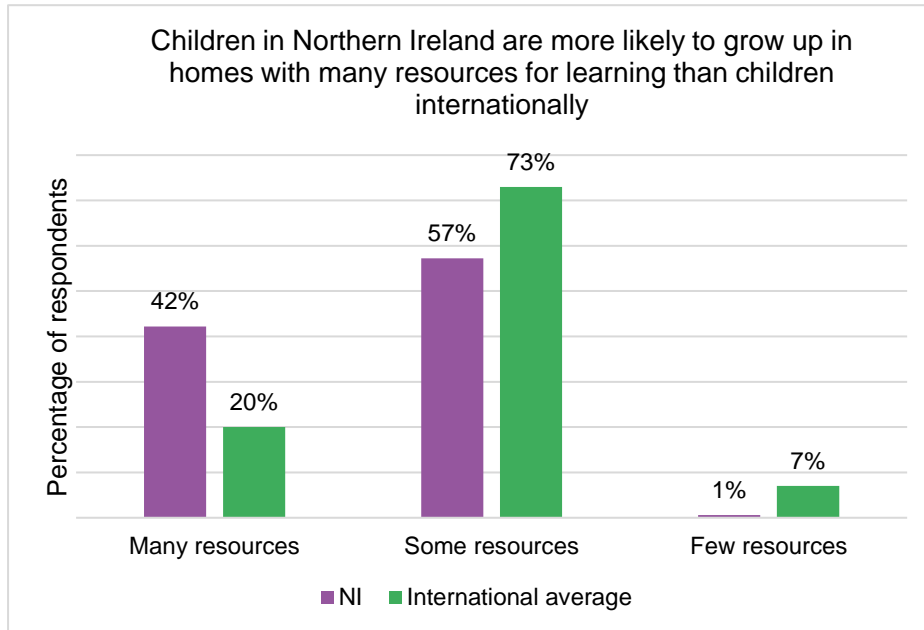
Source: PIRLS (2016) NI home questionnaire sample

Figures 3.4, 3.5 and 3.6 provide additional detail on some of the constituent parts to the Home Resources for Learning scale. Responses from parents tell us that half of households who completed the questionnaire had at least one parent with a degree level qualification (50 per cent), and in most households at least one parent was employed in a professional occupation (63 per cent). Seventy-seven per cent of children had both their own room and access to an internet connection. If children are to read books with their parents often, they need access to a variety of children's books. The vast majority (88 per cent) of children grow up in households with at least 26 children's books.

Figure 3.4 Highest household education level

Over half of households had at least one parent with a degree level qualification

- Finished university or higher — 50%
- Finished upper secondary — 28%
- Finished post-secondary — 16%
- Finished lower secondary — 3%
- Finished some primary or lower secondary — 3%
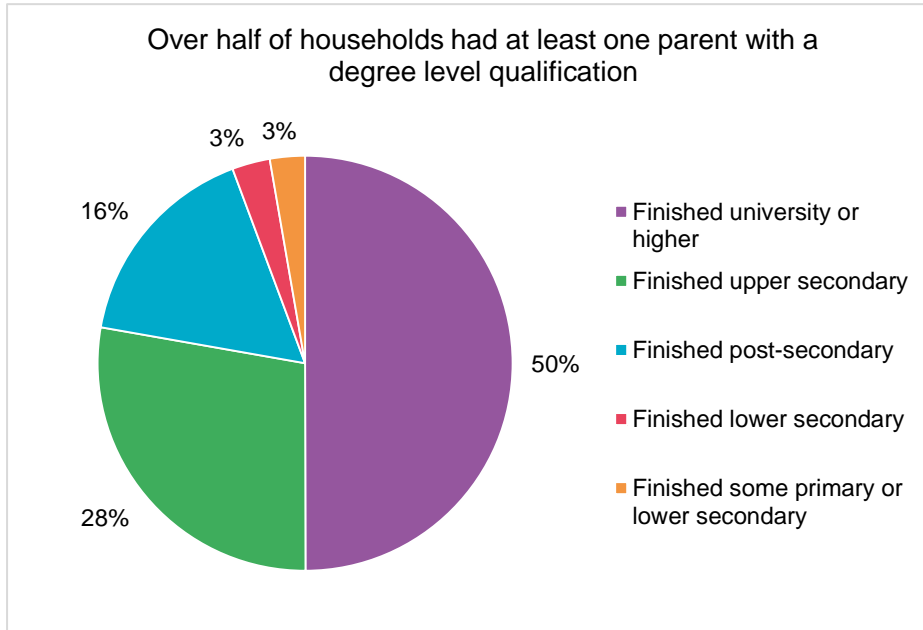
Source: PIRLS (2016) NI home questionnaire sample

Figure 3.5 Highest household occupation level

Almost two-thirds of households had at least one parent who worked in a professional occupation

- Professional — 63%
- Clerical — 17%
- Small business owner — 9%
- Skilled worker — 7%
- General labourer — 2%
- Has never worked for pay — 1%
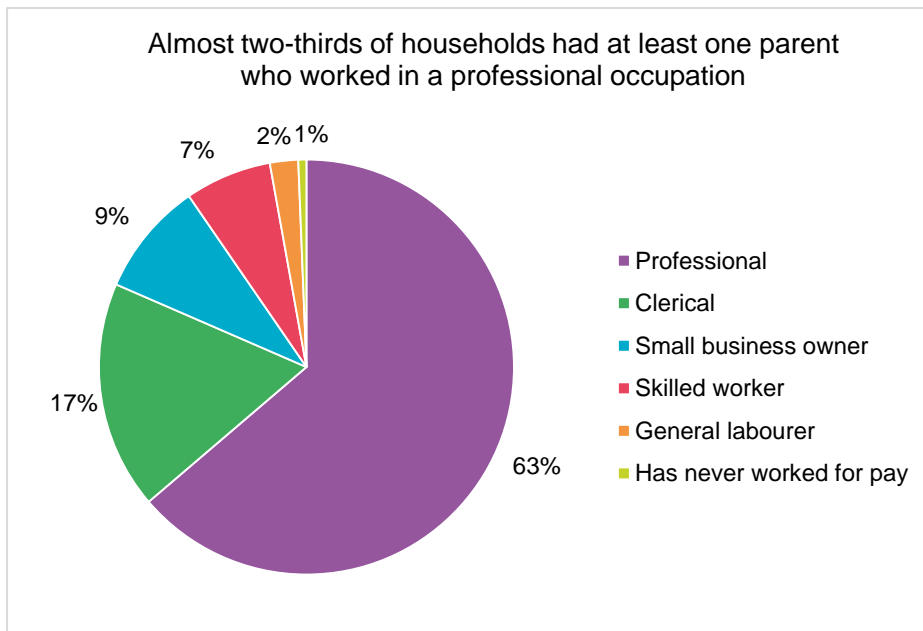
Source: PIRLS (2016) NI home questionnaire sample

Figure 3.6 Number of children's books in the home

The vast majority of children grew up in a household with at least 26 children books

0-10	11-25	26-50	51-100	100+
4%	9%	22%	30%	36%
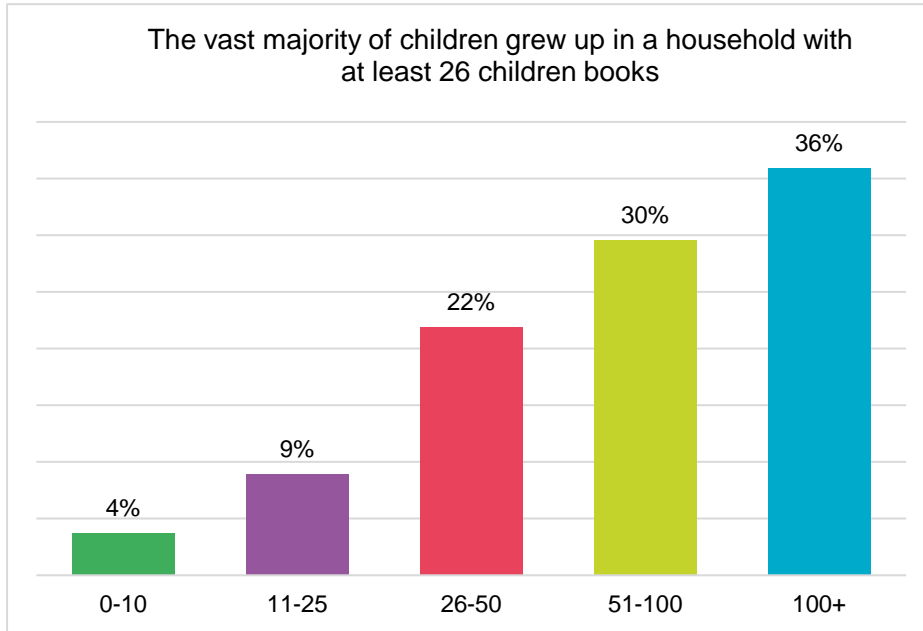
Source: PIRLS (2016) NI home questionnaire sample

We also examined a question on parents' aspirations for their children, and found that 64 per cent of parents expected their children to complete a degree-level qualification or higher.

3.2.2   Hunger and tiredness at school

To understand more about readiness to learn when pupils arrive for the school day, pupils were asked how tired and hungry they feel when they arrive at school. Hunger and tiredness of pupils in Northern Ireland were similar to the international averages. Forty per cent of pupils in Northern Ireland felt tired every day or almost every day, compared with the international average of 32 per cent. Twenty-five per cent of Northern Ireland's pupils felt hungry every day or almost every day, compared with an international average of 26 per cent. This matches the proportion of pupils who did not eat breakfast every day (27 per cent of pupils in Northern Ireland).

Figure 3.7 Hunger and tiredness at the start of the school day

A minority of children arrived at school tired and hungry, which is a barrier to learning

	Every day	Almost every day	Sometimes	Never
Pupil eats breakfast on school days**	73%	14%	8%	5%
Pupil feels tired	20%	20%	51%	9%
Pupil feels hungry	14%	11%	43%	32%

Percentage of respondents

■ Every day   ■ Almost every day   ■ Sometimes   ■ Never
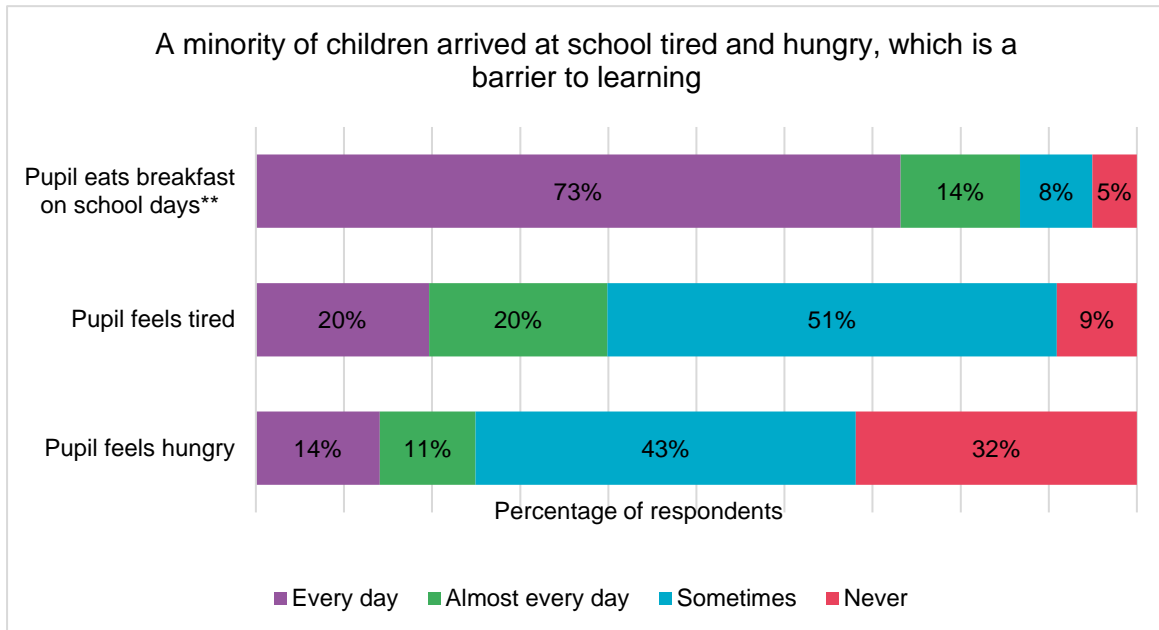
** Response categories are: every day, most days, sometimes, never/ almost never

Source: PIRLS (2016) NI sample

The important minority of children who feel tired every day or almost every day (40 per cent) and who feel hungry every day or almost every day (25 per cent) have greater barriers to overcome in order to concentrate during school than their peers who are less frequently tired or hungry. These are issues which can potentially be overcome, for example, through breakfast clubs in schools. (See Table A3 in Appendix A for the relationship between hunger and tiredness and reading scores.)

3.3 Parental engagement with primary school

3.3.1 Parents' perceptions of their child's school

Parents in Northern Ireland were more satisfied with their children's schools than parents internationally. Parents were asked six questions about their perceptions of their child's school, for instance "My child's school provides a safe environment". Eighty-six per cent of parents were very satisfied with their child's school compared with 65 per cent internationally.

Figure 3.8 Parents' perceptions of their child's school

Parents in Northern Ireland were more likely to be very satisfied with their child's school than parents internationally

86% (Very satisfied, NI)
65% (Very satisfied, International average)
13% (Somewhat satisfied, NI)
30% (Somewhat satisfied, International average)
2% (Less than satisfied, NI)
5% (Less than satisfied, International average)

Percentage of respondents

Very satisfied   Somewhat satisfied   Less than satisfied

■ NI   ■ International average

Source: PIRLS (2016) NI home questionnaire sample

3.3.2   Parent's engagement with literacy at home

Parents were also asked about the support that they gave their children at home, including their engagement with homework. Questions considered three levels of engagement with homework, from asking whether homework was completed, to helping with homework and checking homework. They were also asked about engagement in reading activities.

Parents were most likely to ask whether their child had completed their homework. They were also more likely to check their child's homework than to be involved in the potentially more formative activity of helping complete homework. They were least likely to go to a library or bookshop with their child or to listen to their child read aloud.

Figure 3.9 Literacy activities at home

Parents were more often involved with homework than reading activities

Activity	Every day	3 or 4 times a week	1 or 2 times a week	Less than once a week	Never or almost never
Someone asks if the child did his/her homework	85%	15%	1%		
Someone helps the child with his/her homework	60%	23%	12%	4%	1%
Someone checks the child's homework	67%	24%	5%	2%	2%
Someone listens to the child reading*	41%	24%	19%	10%	6%
Someone reads aloud to the child*	22%	15%	22%	25%	16%
Someone goes to library/ bookshop with the child*	3%	2%	11%	64%	20%

Percentage of respondents

■ Every day   ■ 3 or 4 times a week   ■ 1 or 2 times a week
■ Less than once a week   ■ Never or almost never

Source: PIRLS (2016) NI home questionnaire sample

Pupil absence rates also form part of the picture of the importance placed on school by parents. Pupils in Northern Ireland were absent less than the international average, with 75 per cent of pupils[3] reporting that they were never or almost never absent compared with 68 per cent internationally.

3.4   How has parental engagement changed since PIRLS 2011?

Northern Ireland participated in PIRLS 2011, so some comparisons can be made between responses from parents and children in 2016 with those in 2011. However, since all the same questions are not asked in each cycle it is not possible to make full comparisons.

The figure below shows how the Home Resources for Learning and Early Literacy Activities Scales have changed since 2011. Parents reported doing more early literacy activities with their child before primary school than parents in 2011. Households in 2016 had more resources for learning. At the same time, parents reported less enjoyment of reading.

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[3] Percentage of all pupils in the PIRLS 2016 NI sample

Figure 3.10 Comparison of Home Resources for Learning and Early Literacy Activities Scales with PIRLS 2011
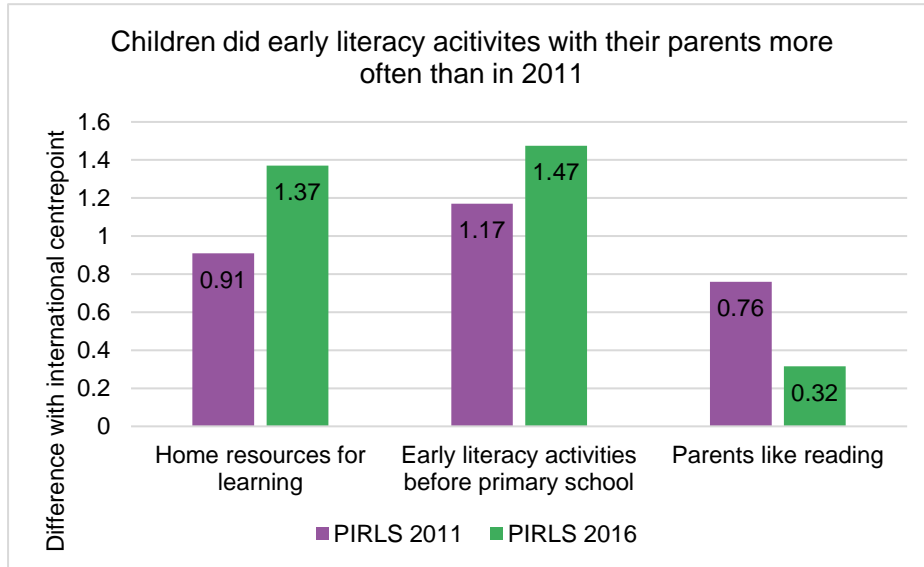
Source: PIRLS (2016) NI home questionnaire sample

Parents' perceptions of their child's school improved since 2011. More parents felt included by the school in their child's education, felt the school cared for their child and did a good job at improving reading. Parents already felt that the school was a safe environment in 2011, and this increased slightly in 2016.

Figure 3.11 Comparison of parents' perceptions of school with PIRLS 2011
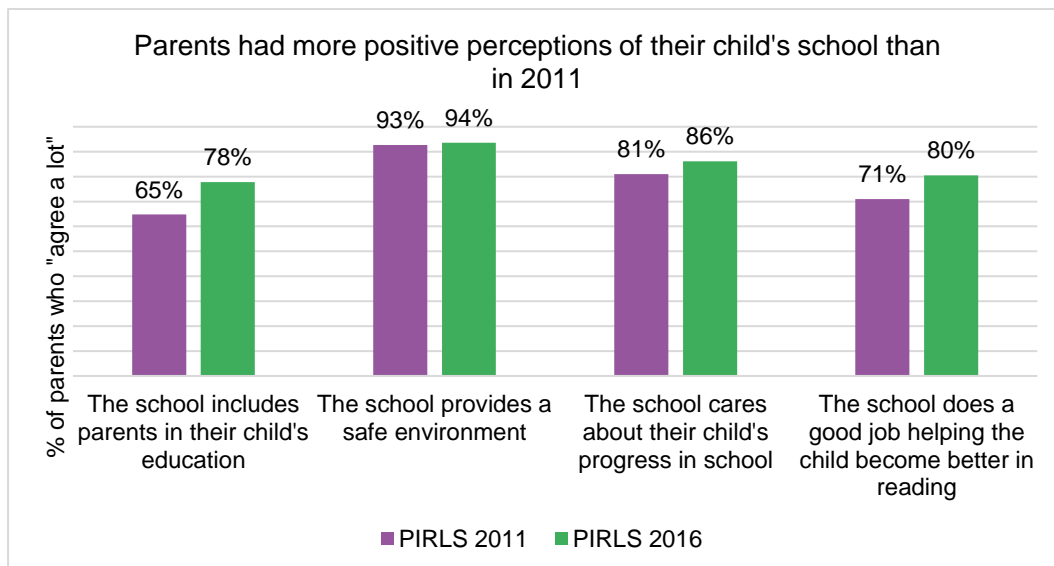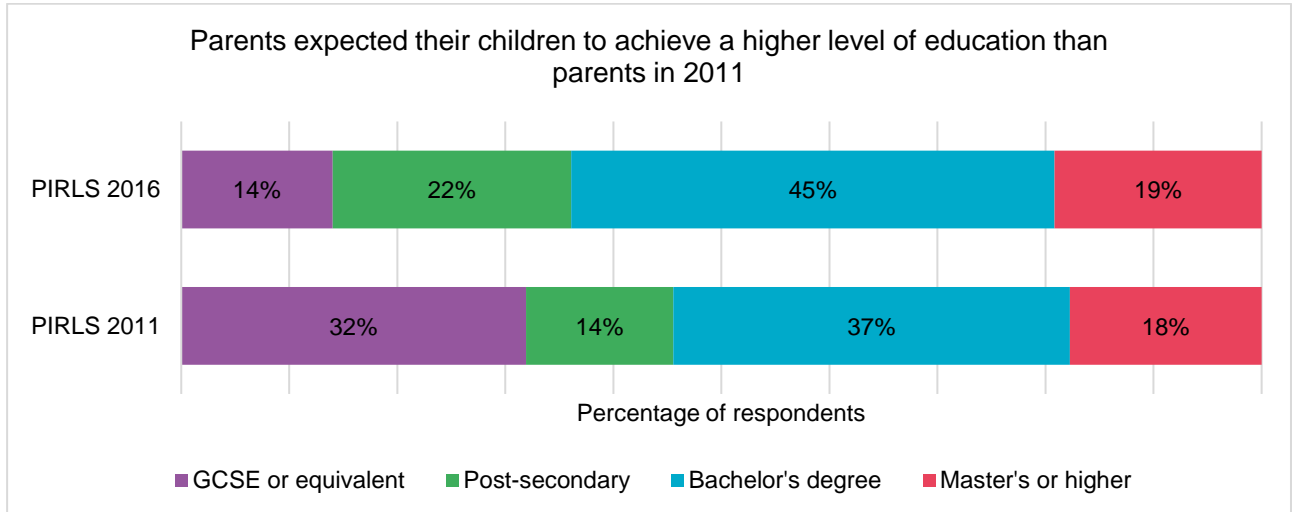

Source: PIRLS (2016) NI home questionnaire sample

In addition, aspirations were higher than in 2011. In 2011, 37 per cent of parents expected their child to complete a Bachelor's degree, while in 2016 this proportion increased to 45 per cent. In

addition, the proportion of parents that expected their child to complete only secondary education (GSCE level or equivalent) halved in the same period.

Figure 3.12 Comparison of parents' educational aspirations for their child with PIRLS 2011

Parents expected their children to achieve a higher level of education than parents in 2011

PIRLS 2016	14%	22%	45%	19%
PIRLS 2011	32%	14%	37%	18%

Percentage of respondents

■ GCSE or equivalent ■ Post-secondary ■ Bachelor's degree ■ Master's or higher

Source: PIRLS (2016) NI home questionnaire sample

This chapter has established that parents in Northern Ireland compare favourably with parents internationally: they were more likely to do early literacy activities with their children and have more home resources for learning. In the next chapter, we build on these findings to examine how engagement differs for children eligible for free school meals compared with those not eligible.

4 How does parental engagement vary across socioeconomic contexts in Northern Ireland?

Key findings

Parents of FSME pupils engaged less often in early literacy activities with their children, particularly activities which relate to books: their parents were less likely to read to them, they were less likely to talk about what they had read, they were less likely to go to the library, and they tended to have far fewer children's books in the home. In addition, their parents were less likely to enjoy reading. In contrast, parents of FSME pupils were more likely to engage in home learning support activities whilst their child attended primary school.

FSME pupils were more likely to have some (rather than many) home resources for learning. They were less likely to have breakfast every day.

Parents of FSME pupils tended to have lower expectations of the highest level qualification their child will attain.

Encouraging all parents to engage in more reading activities with their children would be useful in reducing the difference in early literacy experiences, particularly for children from more deprived backgrounds.

In this section, we look in detail at how parental engagement differs for children eligible for free schools meals (FSME) and those not eligible. As before, we consider three aspects of engagement: parental engagement in literacy activities before children begin school, aspects of children's home-life which may relate to literacy skills and readiness to learn, and parental engagement with their children's primary school. We then consider how school-level economic contexts relate to perceptions of principals.

4.1 Early literacy activities

Non-FSME pupils engage more often in early literacy activities (ELA) in the home than FSME pupils. As shown in the figure below, 67 per cent of pupils not eligible for free school meals often engaged in early literacy activities compared with 58 per cent of pupils eligible for free school meals.

Figure 4.1 Engagement in early literacy activities for FSME and non-FSME pupils
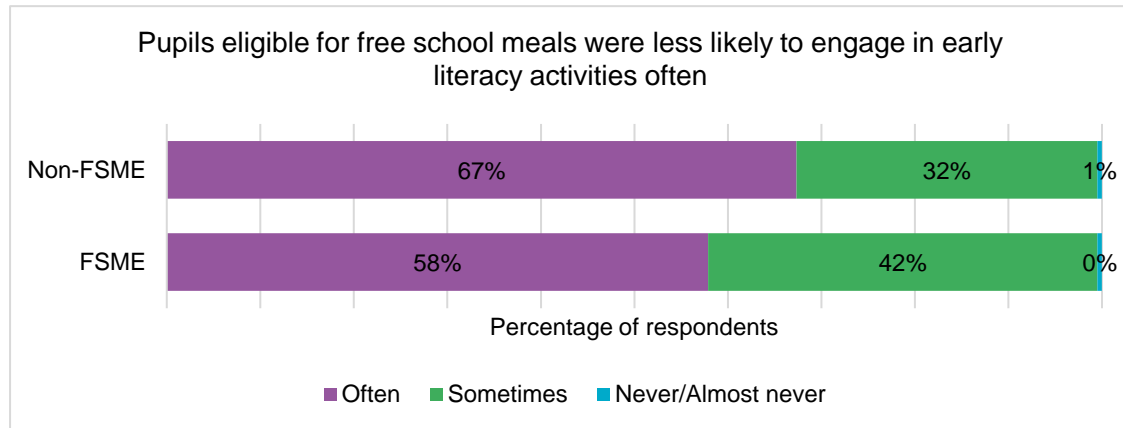
Source: PIRLS (2016) NI home questionnaire sample

To understand what aspects of early literacy activities contribute to this difference, Table 4.1 presents the proportion of parents who reported that they or someone in the home "often" did each of the nine items in the Early Literacy Activities Scale.

Reading books with the child, talking with the child about everyday activities and talking with the child about books are the activities that contribute the most to the socioeconomic gap in the scale. For example, in houses of FSME pupils, 66 per cent of parents "often" read books with the child, compared with 88 per cent of non-FSME pupils' parents.

"Visit a library" is not included in the ELA scale since it was included as a Northern Ireland national option. Before entering primary school, parents of non-FSME pupils take them to the library more often than FSME pupils' parents (43 and 28 per cent respectively), and this activity had the second largest difference.

Table 4.1 Early literacy activities before school: percentage of respondents doing these activities "often" in NI by socioeconomic status

Activity	FSME	Non-FSME	Percentage point difference Non-FSME - FSME
Read books with the child	66%	88%	22%
Visit a library*	28%	43%	15%
Talk with the child about what they had done	71%	83%	12%
Talk with the child about what they had read	39%	51%	11%
Read aloud signs and labels to the child	48%	56%	8%
Sing songs to the child	70%	78%	8%
Tell stories to the child	66%	73%	7%
Play word games with the child	45%	45%	1%
Play alphabet with the child	68%	67%	-1%
Write letters or words with the child	53%	51%	-2%

*National options question
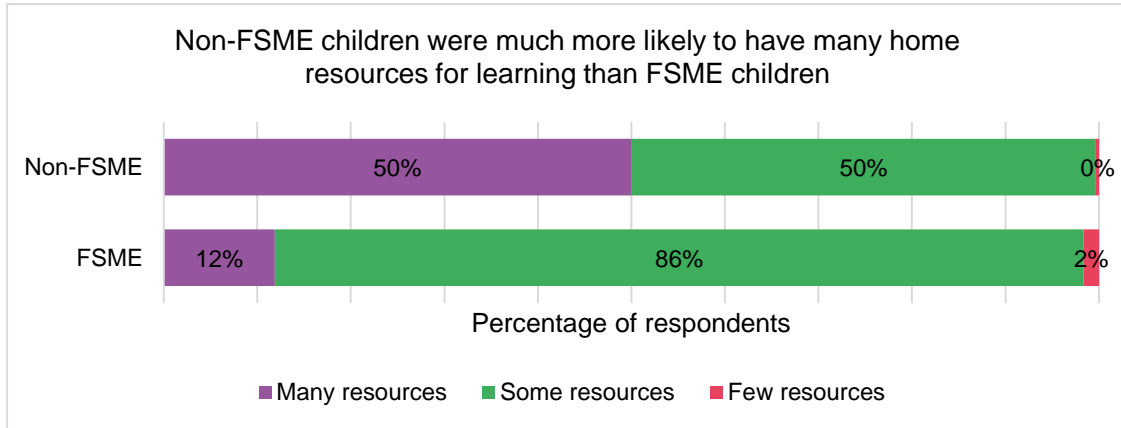
Source: PIRLS (2016) NI home questionnaire sample

These results show that more advantaged children tended to grow up in households with a greater emphasis on books; of the four largest differences between FSME and non-FSME children, three relate to books – reading books, visiting a library and talking with the child about what they have read. Encouraging all parents to engage in more reading activities with their children would, therefore, be useful in reducing the difference in early literacy experiences, particularly for children from more deprived backgrounds.

4.2   Aspects of the home environment which may relate to literacy skills and attitudes

4.2.1   Home resources for learning

Figure 4.2 below shows that children not eligible for free school meals were much more likely to have many resources for learning than children who were eligible for free school meals. Whilst non-FSME pupils were evenly split between having either "many" or "some resources", FSME pupils were more likely categorised as having "some resources". "Some resources" might include 26-100 books in the home or a parent whose highest education level was post-secondary.

Figure 4.2 Home resources for learning for FSME and non-FSME pupils

Source: PIRLS (2016) NI home questionnaire sample

When each item in the Home Resources for Learning Scale is considered for FSME and non-FSME pupils, we find that non-FSME pupils consistently scored more favourably. Additional figures showing the differences between FSME and non-FSME pupils for each of the items in the home resources are included in Figures A1 to A5 in Appendix A. To summarise:

- Thirty-nine per cent of FSME pupils lived in households where there were fewer than 26 books in the home compared with 17 per cent of non-FSME pupils.

- FSME pupils were most likely to have a parent with an upper secondary level highest qualification, compared with degree level for non-FSME pupils.

- FSME pupils were most likely to have a parent in a clerical occupation, compared with a professional occupation for non-FSME pupils.

The figure below shows the difference in the number of children's books in the home for FSME and non-FSME pupils.

Figure 4.3 Number of children's books in the home for FSME and non-FSME pupils
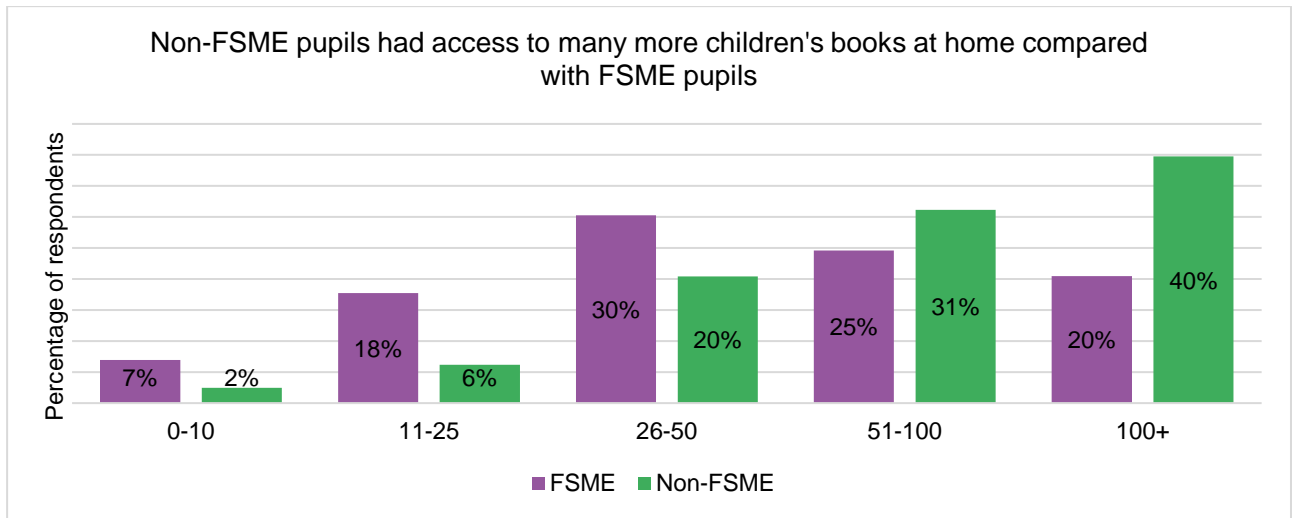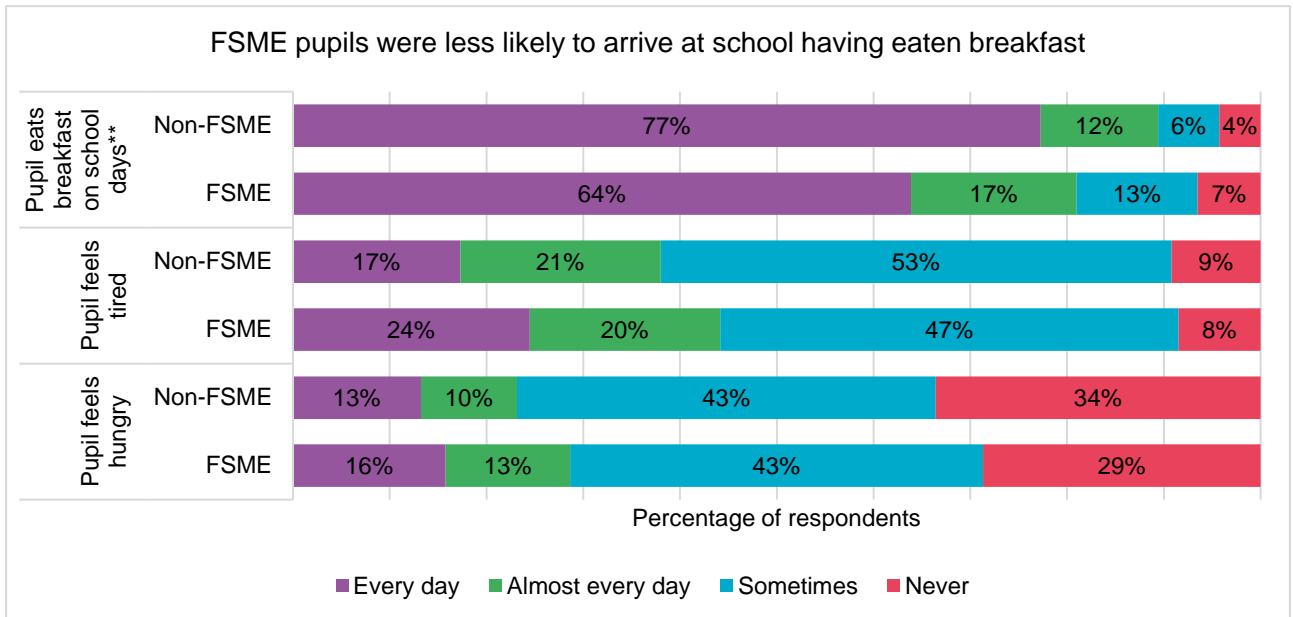

Source: PIRLS (2016) NI home questionnaire sample

The difference in accessibility of children's books for FSME pupils is interesting, because it provides context for the differences found in section 4.1 on the differences in engagement with books for FSME children and those not. Non-FSME pupils had many more books at home, on average. Twenty-five per cent of FSME pupils had fewer than 26 children's books at home, compared with only eight per cent of non-FSME; 71 per cent of non-FSME pupils had over 50 children's books in the home compared with 45 per cent of FSME pupils. A lack of variety of books is likely to contribute to making regular reading and discussion activities less appealing for FSME households.

Related to this, we also compared parents' enjoyment of reading by FSME status, and parents of FSME pupils were less likely to very much like reading (39 per cent) than parents of non-FSME pupils (52 per cent). Lower levels of parental enthusiasm for reading may therefore be another barrier for FSME children.

4.2.2   Hunger and tiredness at school

The figure below shows pupils' reports of tiredness and hunger. FSME pupils were more likely to be tired and hungry than non-FSME pupils. The biggest difference was the proportion of pupils who had eaten breakfast: 64 per cent of FSME pupils reported having breakfast every day compared with 77 per cent of non-FSME pupils.

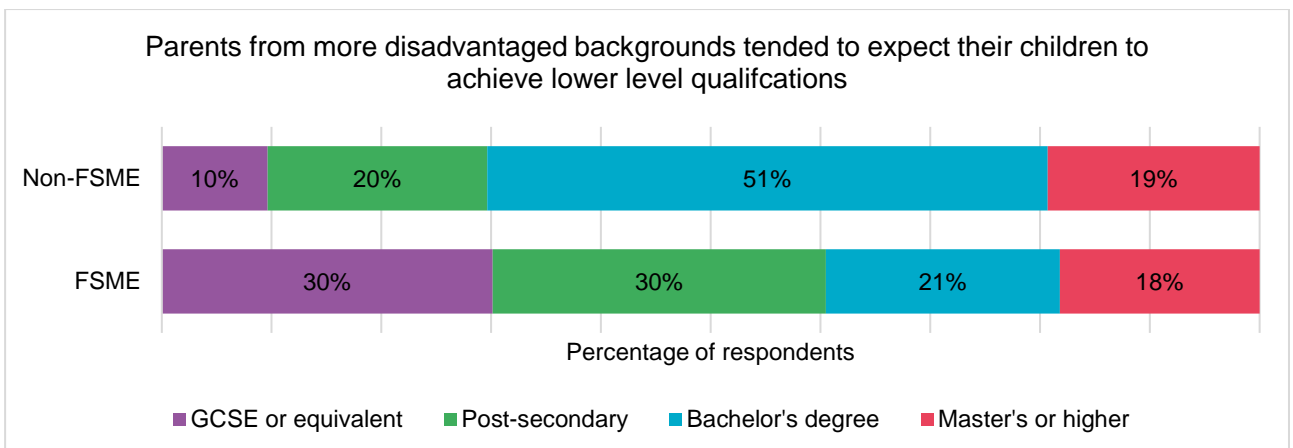**Figure 4.4 Hunger and tiredness at the start of the school day**

FSME pupils were less likely to arrive at school having eaten breakfast

		Every day	Almost every day	Sometimes	Never
Pupil eats breakfast on school days**	Non-FSME	77%	12%	6%	4%
	FSME	64%	17%	13%	7%
Pupil feels tired	Non-FSME	17%	21%	53%	9%
	FSME	24%	20%	47%	8%
Pupil feels hungry	Non-FSME	13%	10%	43%	34%
	FSME	16%	13%	43%	29%

Percentage of respondents

■ Every day ■ Almost every day ■ Sometimes ■ Never

**Response categories: every day, most days, sometimes, never/almost never
Source: PIRLS (2016) NI school census-matched sample

4.2.3   Parental aspirations

In Chapter 3 we found that 64 per cent of parents expected their child to complete a university level qualification. When we compare expectations of parents of FSME pupils and non-FSME pupils, parents of FSME pupils were much less likely to expect their child to achieve the highest levels of qualifications.

Figure 4.5 Parents' expectations of the highest qualification their child will achieve

Parents from more disadvantaged backgrounds tended to expect their children to achieve lower level qualifcations

	GCSE or equivalent	Post-secondary	Bachelor's degree	Master's or higher
Non-FSME	10%	20%	51%	19%
FSME	30%	30%	21%	18%

Percentage of respondents

■ GCSE or equivalent ■ Post-secondary ■ Bachelor's degree ■ Master's or higher

Source: PIRLS (2016) NI home questionnaire sample

The difference in expectations shows that as well as encouraging parents to engage in more early literacy activities, it is also important that parents believe that their child will have the same opportunities as those from more advantaged backgrounds.

4.3 Parental engagement with primary school

This section describes the differences in engagement with literacy at home for FSME and non-FSME households. The table below shows how often parents of FSME and non-FSME eligible pupils carried out each of the home support activities every day with their child. For each of the items in the scale, children in FSME households were *more* likely to do each activity than those who are not FSME. The differences were smaller than for the early literacy activities; the largest difference was listening to the child reading aloud where the proportion of FSME children who did this activity at home was nine per cent larger than those who are not FSME.

Table 4.2 Home support in primary school: percentage of parents reporting someone in the home doing these activities "every day" in NI by socioeconomic status

Activity	FSME	Non-FSME	Percentage point difference Non-FSME - FSME
Someone listens to the child reading*	48%	39%	-9%
Someone reads aloud to the child*	28%	20%	-7%
Someone goes to library/bookshop with the child*[a]	22%	14%	-7%
Someone helps the child with his/her homework	63%	59%	-3%
Someone asks if the child did his/her homework	87%	84%	-3%
Someone checks the child's homework	69%	66%	-3%

*National options question [a] At least once a week i.e. first three categories aggregated

Source: PIRLS (2016) NI home questionnaire sample

Taking the early literacy activities and the home learning support together, it is an interesting finding that more socioeconomically advantaged children did more early literacy activities before entering school compared with their more disadvantaged counterparts, but that once in primary school, more disadvantaged children received more support at home than their more advantaged counterparts. It would be interesting to explore this finding more to understand the reasons for this difference. One hypothesis is that FSME children begin primary school behind their more advantaged counterparts and therefore the school works with parents to encourage greater support at home.

4.4 How do school-level economic contexts relate to perceptions?

In section 3.3, we found that parents were generally very satisfied with their child's school. When we looked at differences by FSME, parents of pupils who were FSME had very similar perceptions of their child's school as parents of non-FSME pupils. In this section, we therefore focus on *principals'* perceptions of schools by the proportion of FSME pupils in their school.

The figures below show how principals' perceptions varied in schools with low and high proportions of FSME pupils. In schools with the lowest proportion of FSME pupils (first quartile), principals had a significantly more positive perception of the school's emphasis on academic success, with 41 per cent of principals reporting a "very high emphasis" compared with 8 per cent of principals in schools with the highest proportion of FSME pupils (fourth quartile).[4]

Figure 4.6 Principals' perceptions of school emphasis on academic success in schools with low and high proportions of FSME pupils
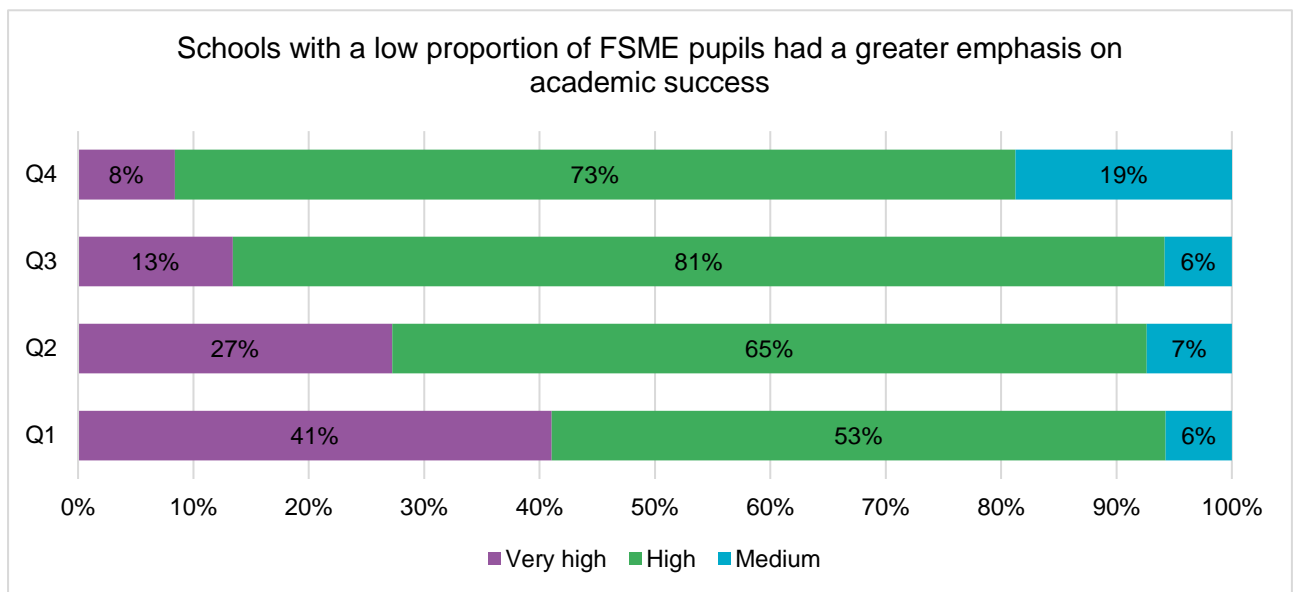
Source: PIRLS (2016) NI sample

In this chapter we have examined some of the differences in engagement and other related factors for FSME and non-FSME pupils. These analyses have not taken account of other background factors which may contribute to the differences. In Chapter 5 we will analyse the PIRLS data to understand which background characteristics are most strongly related to attitudes and achievement, all else being equal.

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[4] These quartiles were computed for the whole school sample of Northern Ireland

5 Is parental engagement associated with pupil attitudes and reading performance?

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Key findings

Children who engaged more often in early literacy activities were more likely to be more confident readers and enjoy reading in primary 6.

Children of parents who took them to the library often scored the highest in PIRLS. The biggest gain in PIRLS scores was between parents who often read books with their child and those who sometimes read books.

Parents of children who performed the least well in PIRLS supported their children more at home with homework than those with the highest PIRLS scores. They were also more likely to listen to their child read and read aloud to their child.

Amongst FSME children, those who were read to often scored the highest in PIRLS. The biggest differences between scores for FSME and non-FSME children were for playing word games and visiting a library. But the differences for all the early literacy activities were large, and therefore policies which encourage greater engagement in any or all of these areas are likely to be beneficial.

When other factors are taken into account (age, gender and socioeconomic status), early literacy activities have a significant correlation with later reading outcomes. Interestingly, the difference between girls and boys almost halves, but remains significant once early literacy activities are accounted for. This suggests that some of the effect attributed to gender to can be explained by the differences in early learning activities carried out by the parents of boys and girls.

The types of early literacy activities which are most strongly related to later reading outcomes are those relating to talking, reading together and discussing, rather than those which replicate later academic activities, such as word games and alphabet games.

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In this Chapter we look at how the differences in engagement explored in Chapters 3 and 4 relate to differences in attitudes towards reading and in reading performance. We first consider the relationship for each set of variables in turn, and we then look at the combined effect using regression models.

It should be noted, that correlations between engagement and attitudes or reading performance do not indicate causality and so should be treated with a high degree of caution. For instance pupils may be confident because they are high attainers, or they may be higher attainers because they are confident. Similarly, differences in level of engagement at home could be a combined effect of a *response* to low literacy levels and a *cause* of them. Unpicking these effects more rigorously would require additional research.

5.1 Association between early literacy activities and pupil attitudes towards reading

The figures below show the percentage of pupils with different self-reported attitudes towards reading[5] and the associated average Early Literacy Activities (ELA) score. The PIRLS context questionnaire scales are constructed with an international centrepoint and standard deviation of 2[6]. Pupils who read for fun more often were more likely to have engaged in early literacy activities in the home before primary school. Reading to learn did not have a similar relationship: there was no pattern between the frequency that pupils read to learn and their early literacy activities.

Parents of pupils that were more confident and found reading more enjoyable engaged more often in early literacy activities before primary school compared with parents of pupils with lower levels of confidence and enjoyment of reading. There was no relationship between how engaged pupils were in reading and early literacy activities.

Figure 5.1 Early literacy activities and how often pupils read for fun or to learn
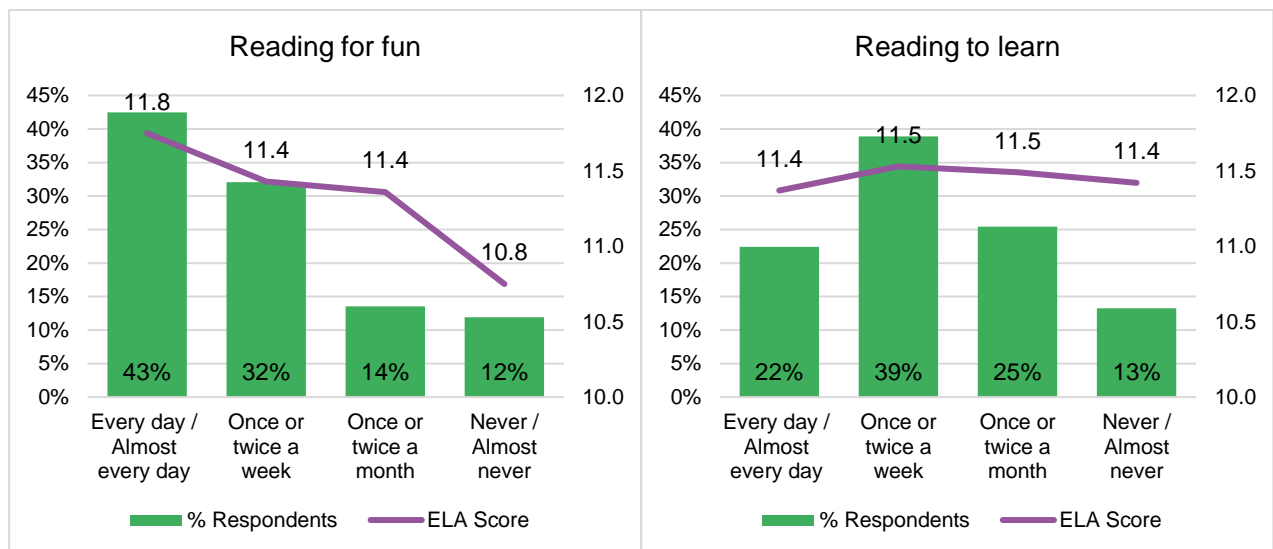
Source: PIRLS (2016) NI home questionnaire sample

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[5] Pupils were asked about their attitudes towards 'reading' without specifying the medium, for instance books or digital.

[6] From each context questionnaire scale, an index is derived that divides the range of scores on that scale into usually three categories: the most desirable scores (high values), the least desirable scores (low values), and the remaining scores in between. For more information see *Chapter 14 of Methods and Procedures in PIRLS 2016.*

Figure 5.2 Early literacy activities and enjoyment, confidence and engagement in reading

Enjoyment of reading

Very much like	Somewhat like	Do not like
41%	44%	15%
11.7	11.4	11.2

Confidence in reading

Very confident	Somewhat confident	Not confident
56%	31%	13%
11.6	11.6	10.8

Engagement in reading

Very engaged	Somewhat engaged	Less than engaged
63%	33%	4%
11.5	11.5	11.4

■ % Respondents   —— ELA Score
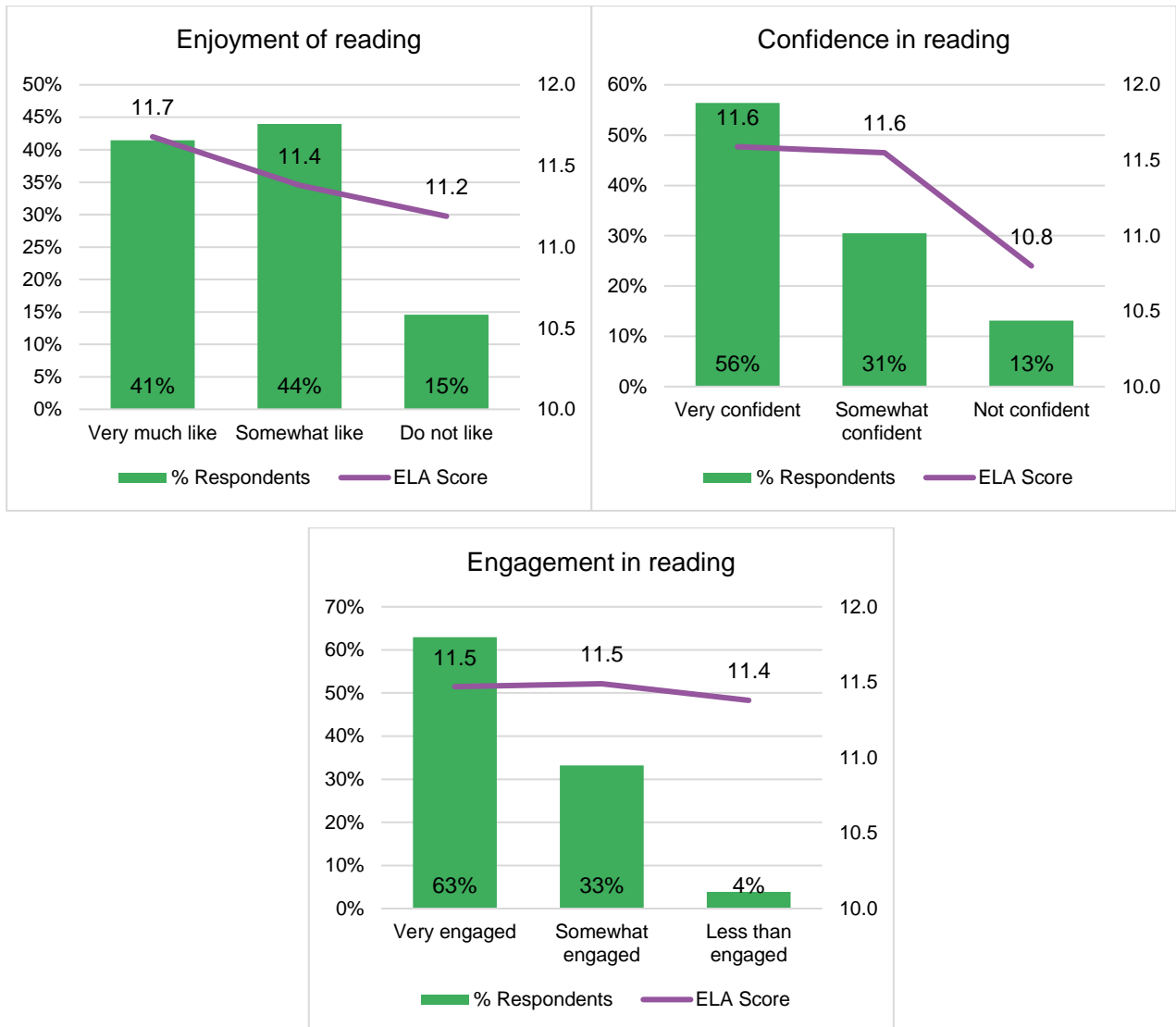
Source: PIRLS (2016) NI home questionnaire sample

5.2 Association between early literacy activities and reading performance

In this section we look at the literacy skills of pupils when they first enter school, as reported by principals, in order then to examine how these vary depending on levels of early literacy activities. Principals were far more positive about the literacy skills of children at the start of primary school than principals internationally: 94 per cent of principals in Northern Ireland think that the majority of pupils enter primary school with literacy skills, compared with an international average of 22 per cent. This suggests that early literacy activities, either in the home or in early childhood education and care settings, are proving successful. We first show results for the overall 'literacy skills' measure, followed by a breakdown by individual skills. Most principals worked in schools where the

majority of children begin primary school able to recognise and write letters and read and write some words. Children were less likely to be able to read a story.

Figure 5.3 Proportion of pupils entering primary school with literacy skills

94 per cent of principals in Northern Ireland reported that at least 75 per cent of their primary intake had literacy skills compared with 22 per cent internationally
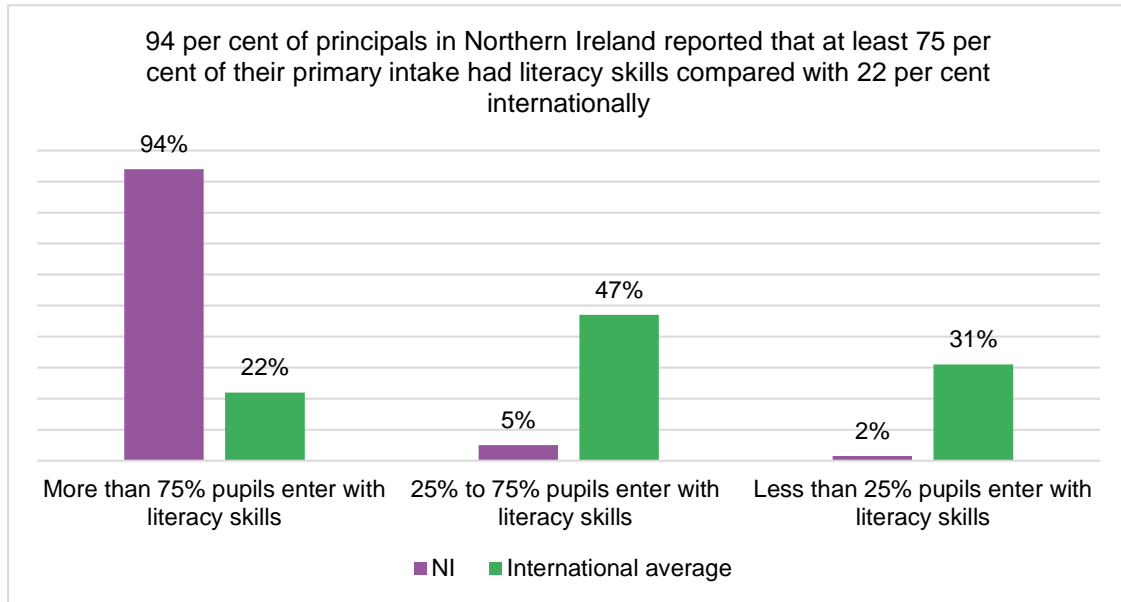
Source: PIRLS (2016) NI sample

Figure 5.4 Proportion of pupils entering primary school with each literacy skill

Most principals work in schools where the majority of children begin primary school able to recognise and write letters and read and write some words

Skill	More than 75%
Write some words	95% / 3%
Write letters of the alphabet	95% / 3%
Read a story	74% / 22%
Read sentences	92% / 7%
Read some words	94% / 5%
Recognise most of the letters of the alphabet	90% / 8%

Percentage of respondents

■ More than 75%   ■ 51%-75%   ■ 25%-50%   ■ Less than 25%

Source: PIRLS (2016) NI sample

In order to compare pupils who had engaged in different levels of early literacy activities, the figure below shows the difference in average reading score in PIRLS of pupils whose parents did each early literacy activity "often" or "sometimes" with them. Pupils whose parents often took them to a library had the highest achievement in PIRLS. By far the largest difference in reading achievement was between pupils who were read to often compared with those who were read to sometimes. (See Table A4 in Appendix A for details of mean scores by activity.)

Figure 5.5 Pupils' average reading score who engaged in each early literacy activity often or sometimes

The largest difference in reading achievement was between pupils who were read to often and those that were read to sometimes

Average reading score
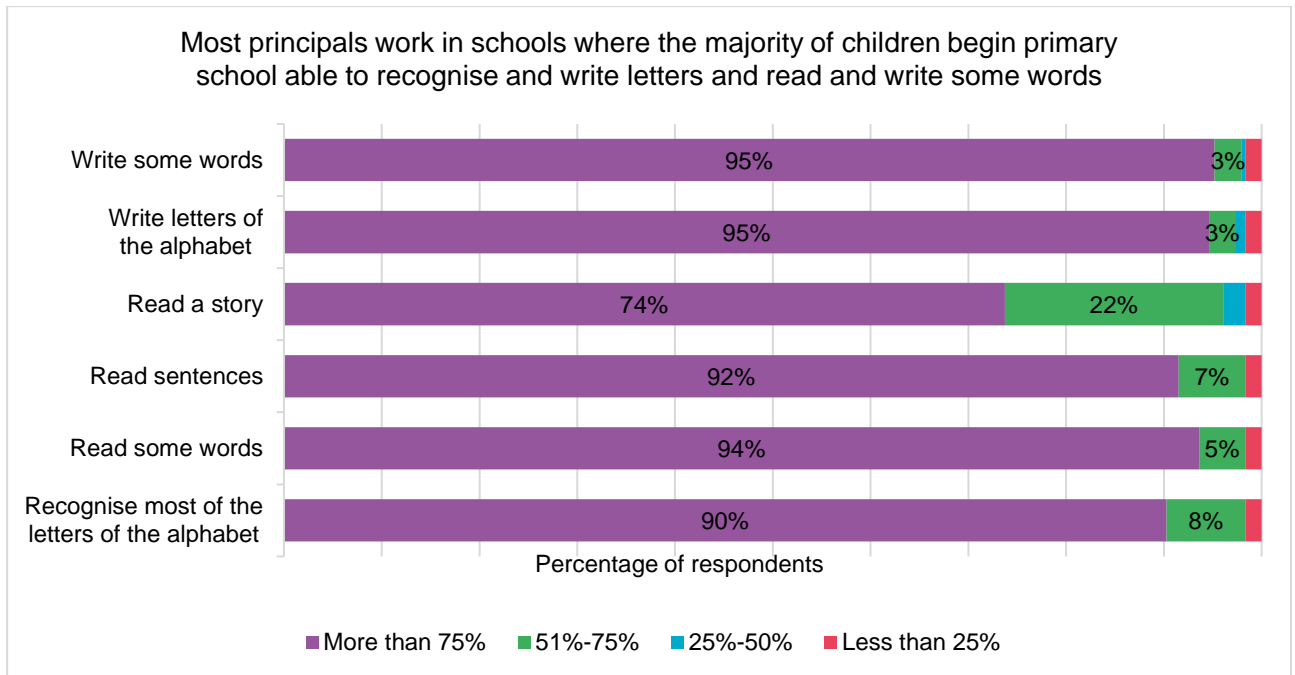
■ Sometimes   ■ Often
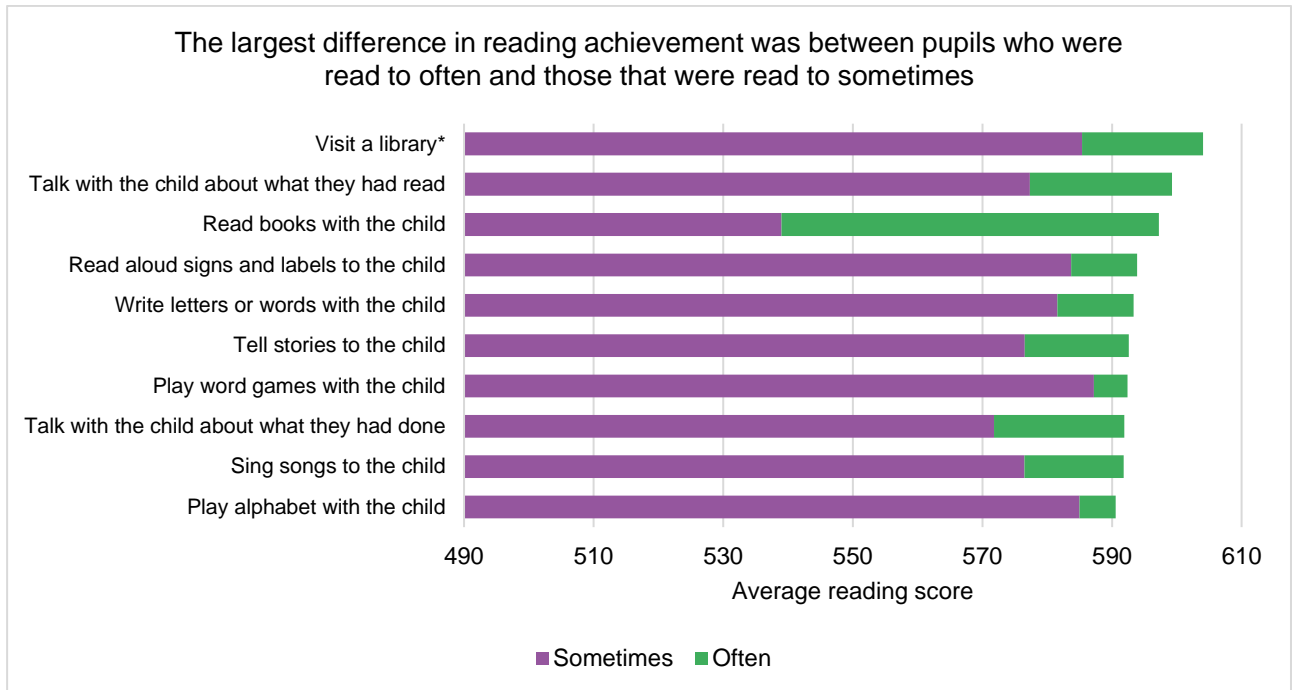
*National options question

Source: PIRLS (2016) NI home questionnaire sample

5.3 Association between home learning support and reading performance

The figures below show the levels of home learning support given to the lowest achievers (first quartile of the reading performance) and the highest achievers (fourth quartile of the reading performance) in PIRLS. Parents (or someone else in the home) of lower achievers were more likely to review their child's homework, help their child with their homework and ask if their child has homework than parents of higher achievers. This suggests that parents are aware of difficulties their child is having with school work and are, therefore, supporting them; the challenge, as discussed in the literature review, is to help parents to most effectively support their children, and to support them before they fall behind in school with effective early literacy activities.

Figure 5.6 Home learning support for pupils with lower (Q1) and higher (Q4) literacy achievement – international questions
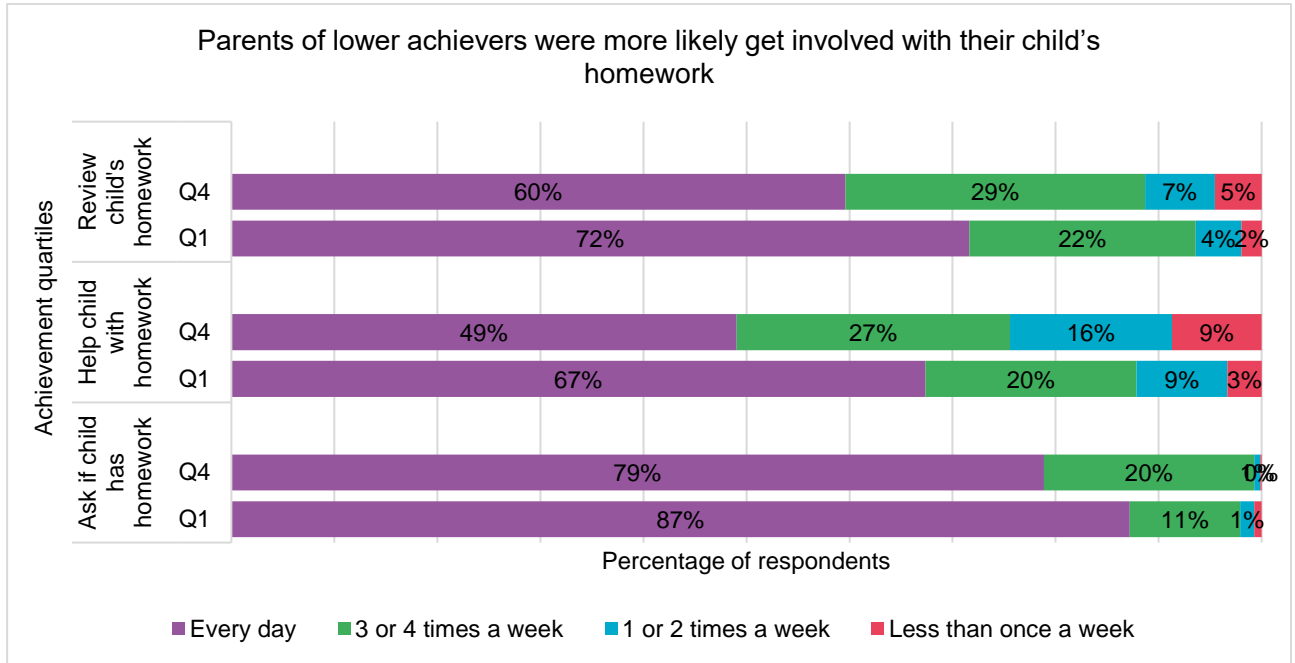
Source: PIRLS (2016) NI home questionnaire sample

There were some questions about home learning support included in the questionnaire for parents which were developed just for parents in Northern Ireland. Responses are shown in figure 5.4 below for parents of the lowest and highest achievers in PIRLS. Parents of lower achievers are more likely to listen to their child reading and to read aloud to their child than parents of higher achievers.
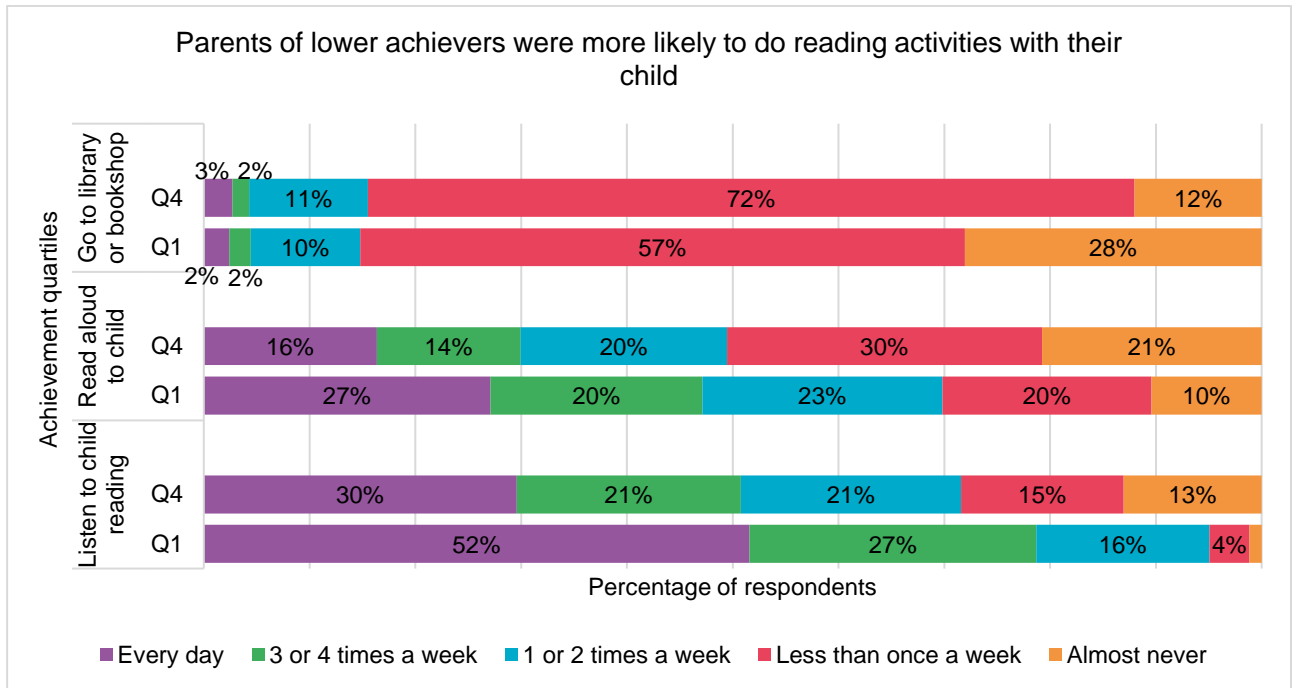
Figure 5.7 Home learning support for pupils with lower (Q1) and higher (Q4) literacy achievement – national questions

Parents of lower achievers were more likely to do reading activities with their child

	Every day	3 or 4 times a week	1 or 2 times a week	Less than once a week	Almost never
Go to library or bookshop Q4	3%	2%	11%	72%	12%
Q1	2%	2%	10%	57%	28%
Read aloud to child Q4	16%	14%	20%	30%	21%
Q1	27%	20%	23%	20%	10%
Listen to child reading Q4	30%	21%	21%	15%	13%
Q1	52%	27%	16%	4%	

Achievement quartiles

Percentage of respondents

■ Every day   ■ 3 or 4 times a week   ■ 1 or 2 times a week   ■ Less than once a week   ■ Almost never

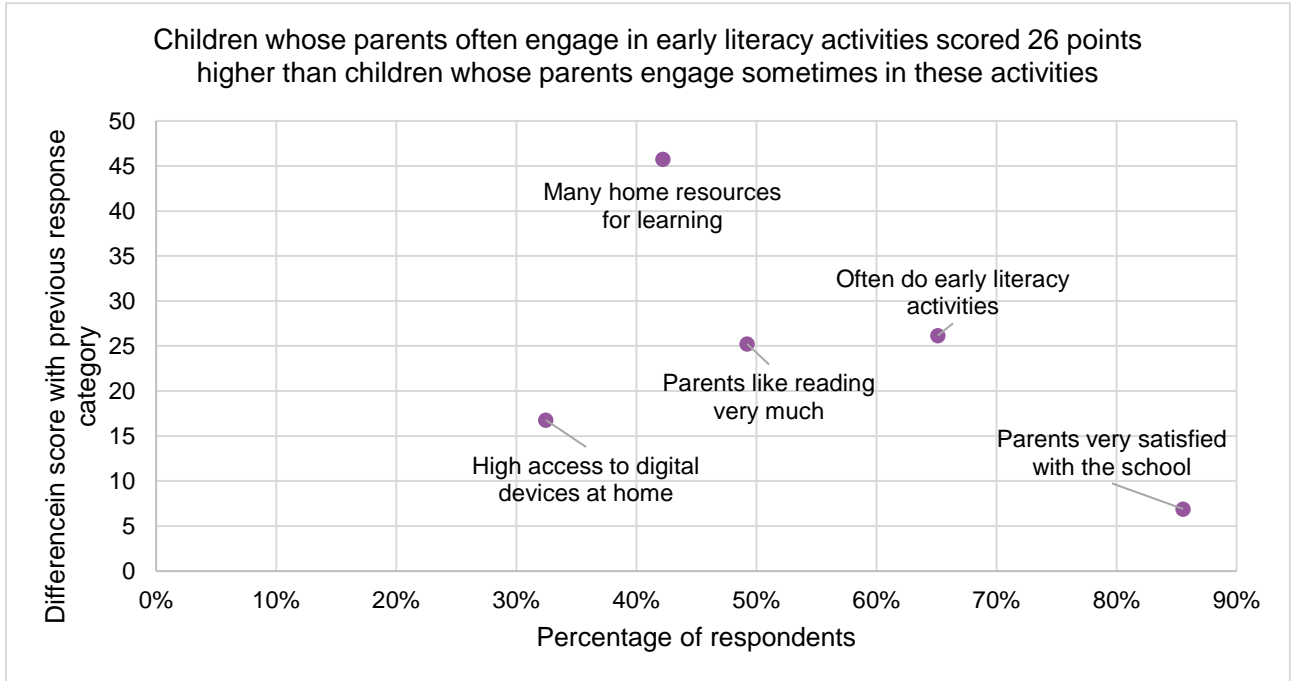Source: PIRLS (2016) NI home questionnaire sample

5.4 Comparison between parental engagement variables and aspects of children's home-life which may relate to literacy skills and performance

In this section we look at the relationships between some of the variables discussed in Chapter 3 with pupil achievement to understand which variables relate to the biggest differences in achievement.

The figure below shows:

- on the horizontal axis, the percentage of parents who answered with the most positive response to each question, for instance have *many* home resources, like *reading very much*, *often* engaged in early literacy activities with the child, have *high* access to digital devices, are *very* satisfied with the child's school.

- on the vertical axis, the score difference between pupils whose parents with the most positive response and their peers with parents who responded in the category below, for instance having *some* home resources, *somewhat* like reading, *sometimes* engaged in early literacy activities, etc.

Figure 5.8 Comparison of reading achievement between pupils whose parents responded the highest category in each variable, and those in the next group

Children whose parents often engage in early literacy activities scored 26 points higher than children whose parents engage sometimes in these activities

Many home resources for learning

Often do early literacy activities

Parents like reading very much

Parents very satisfied with the school

High access to digital devices at home

Differencein score with previous response category

Percentage of respondents

Source: PIRLS (2016) NI home questionnaire sample

On the horizontal axis we can see that most parents were in the highest category of satisfaction with their child's school (86 per cent). This is not the case for early literacy activities (65 per cent of parents do them "often" and 34 per cent do them "sometimes"), parental attitudes towards reading, home resources for learning, digital devices and parental aspirations.

On the vertical axis we see the impact on score between pupils whose parents answered with the most positive response and those whose responses fell in the category below. Pupils in homes with many home resources for learning had a reading score on average 46 points higher than their peers with some resources for learning.

Early literacy activities were associated with more potential gain in reading achievement than parental reading habits, access to digital devices, and parental perceptions of school. Pupils whose parents engaged with them often in early literacy activities before primary school, had a reading score on average 26 points higher than pupils whose parents did these activities sometimes.
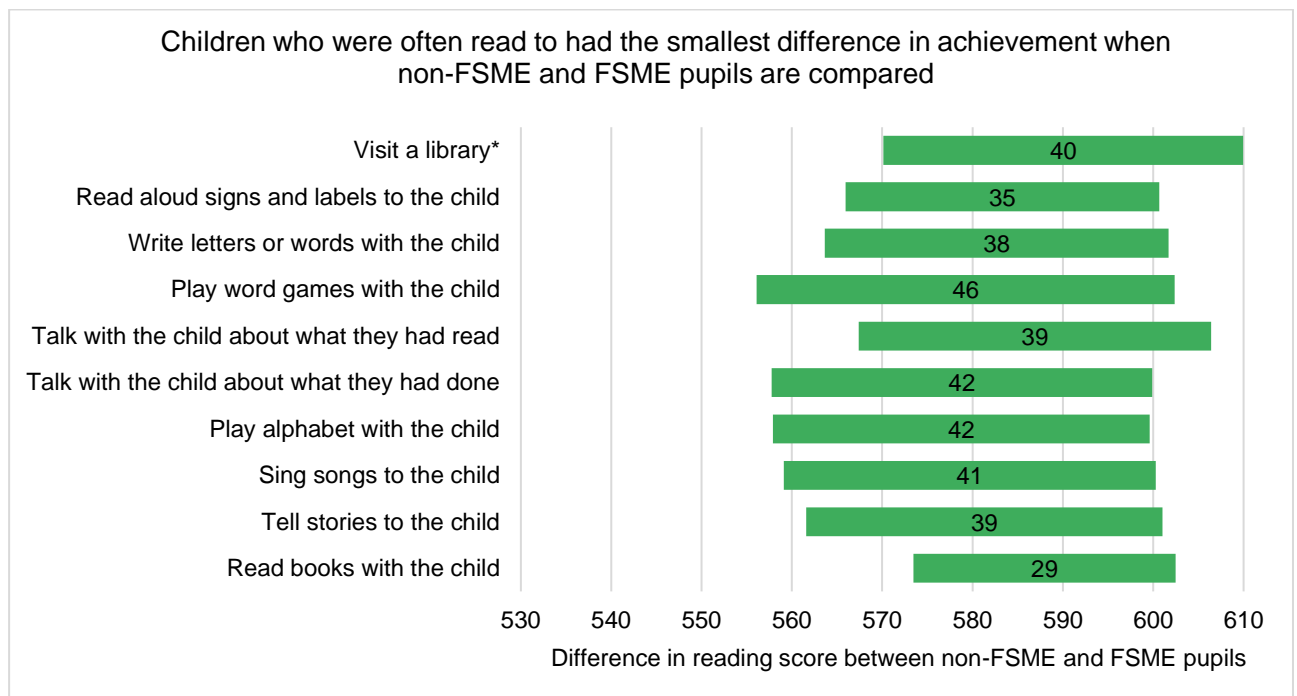
Similarly, higher parental aspirations of their child's education were associated with higher reading scores.

5.5 How does achievement differ between FSME and non-FSME pupils whose parents often engage in parental support?

Figures 5.9 and 5.10 below shows the gap between average reading achievement of non-FSME and FSME pupils from homes with the same level of parental engagement in early literacy activities and home learning support activities, respectively.

First, we compare the achievement of children whose parents reported doing early literacy activities "often" before their child began primary school. FSME children whose parents read books with them often had the highest average achievement and the gap between these children and non-FSME children who were read to often was the smallest gap of all the early literacy activities.

Figure 5.9 Difference in average reading score between non-FSME and FSME pupils whose parents often engage in early literacy activities

Children who were often read to had the smallest difference in achievement when non-FSME and FSME pupils are compared

Activity	Score
Visit a library*	40
Read aloud signs and labels to the child	35
Write letters or words with the child	38
Play word games with the child	46
Talk with the child about what they had read	39
Talk with the child about what they had done	42
Play alphabet with the child	42
Sing songs to the child	41
Tell stories to the child	39
Read books with the child	29

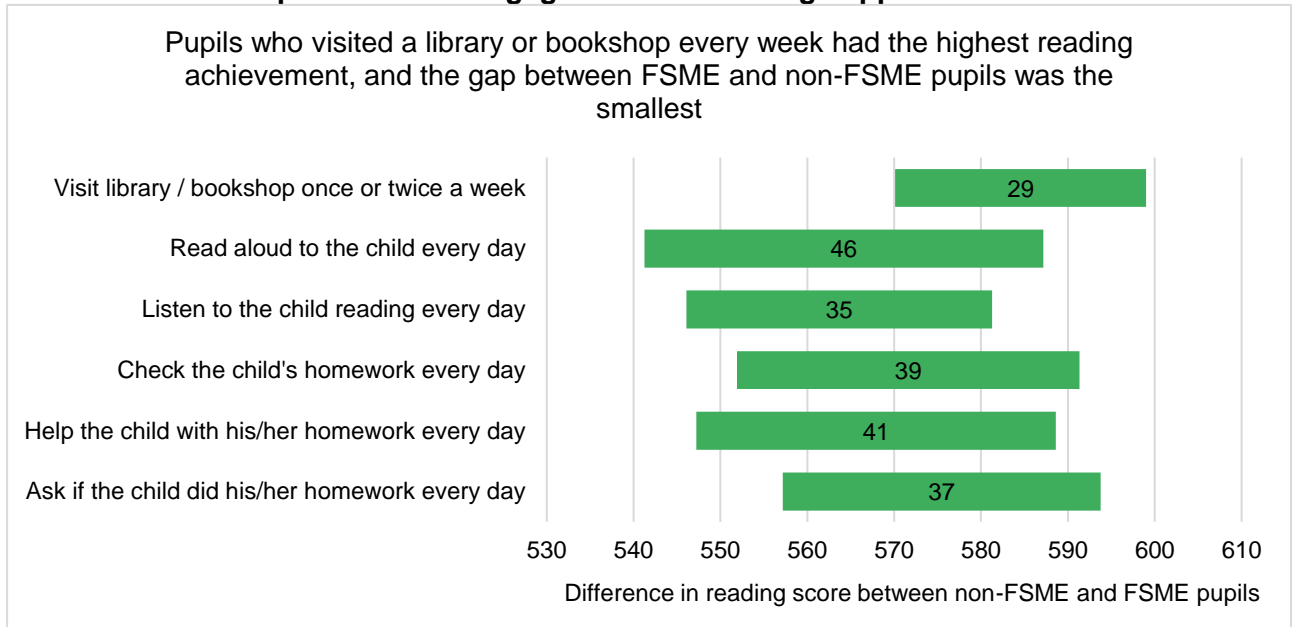Difference in reading score between non-FSME and FSME pupils

Source: PIRLS (2016) NI home questionnaire sample

Second, we compare the achievement of children whose parents who often engaged in home learning support activities. Of all the home learning support activities, both FSME and non-FSME pupils who visited a library or bookshop every week had the highest reading achievement, and the gap between FSME and non-FSME pupils was the smallest.

The fact that differences persist between FSME and non-FSME children even when early literacy and home learning activities are held constant highlights the complexity of disadvantage as a barrier to educational outcomes.

Figure 5.10 Difference in average reading score between non-FSME and FSME pupils whose parents often engage in home learning support activities

Pupils who visited a library or bookshop every week had the highest reading achievement, and the gap between FSME and non-FSME pupils was the smallest

Activity	Value
Visit library / bookshop once or twice a week	29
Read aloud to the child every day	46
Listen to the child reading every day	35
Check the child's homework every day	39
Help the child with his/her homework every day	41
Ask if the child did his/her homework every day	37

Difference in reading score between non-FSME and FSME pupils

Source: PIRLS (2016) NI home questionnaire sample

5.6   To what extent is parental engagement associated with pupil performance?

The analyses in the previous sections in this chapter have compared variables with attitudes or achievement without controlling for other factors which may also be associated with attitudes or performance. In this section, we use multilevel modelling to explore the extent to which parental engagement is associated with pupil performance. A regression analysis allows us to take account of pupils' characteristics (like gender, socioeconomic status and age) when drawing conclusions about our outcomes of interest. Therefore, the regression estimates isolate the differences due to each individual factor (e.g. pupil attitudes and learning environment) once these pupils' characteristics are taken into account.

Multilevel models (or random effects models) recognise the hierarchical nature of the PIRLS data – that pupils in the sample are nested within schools. It takes account of the fact that pupils from the same school are more similar than pupils from different schools. This type of modelling also enables the measurement of the proportion of the variability in reading scores explained by school characteristics that are common to pupils within the same school (e.g. school leadership), and the proportion of the variability in reading scores from individual characteristics (e.g. pupil and home characteristics).

The table below provides descriptive statistics for each of the variables included in the regression analysis. Twenty-one per cent of the pupils in the regression sample were eligible for free school meals, 52 per cent were girls and 67 per cent lived in homes where parents often engaged in early literacy activities.

Table 5.1 Variables included in the early literacy activities regression[7]

Variable	Mean	Std. Deviation
Reading score	587.81	77.55
Age	10.39	0.30
FSME	0.21	0.41
Gender (Girl)	0.52	0.50
Early literacy activities before school (ASDHELA)	0.67	0.47

Source: PIRLS (2016) NI home questionnaire sample

The figure below shows the estimated effect on reading achievement for each variable when the other factors are held constant. Engaging in early literacy activities has a significant positive effect on reading score. Pupils from homes where parents reported engaging "often" in early literacy activities gain, on average, 24 score points compared with pupils whose parents engaged "sometimes"[8] in the same activities.
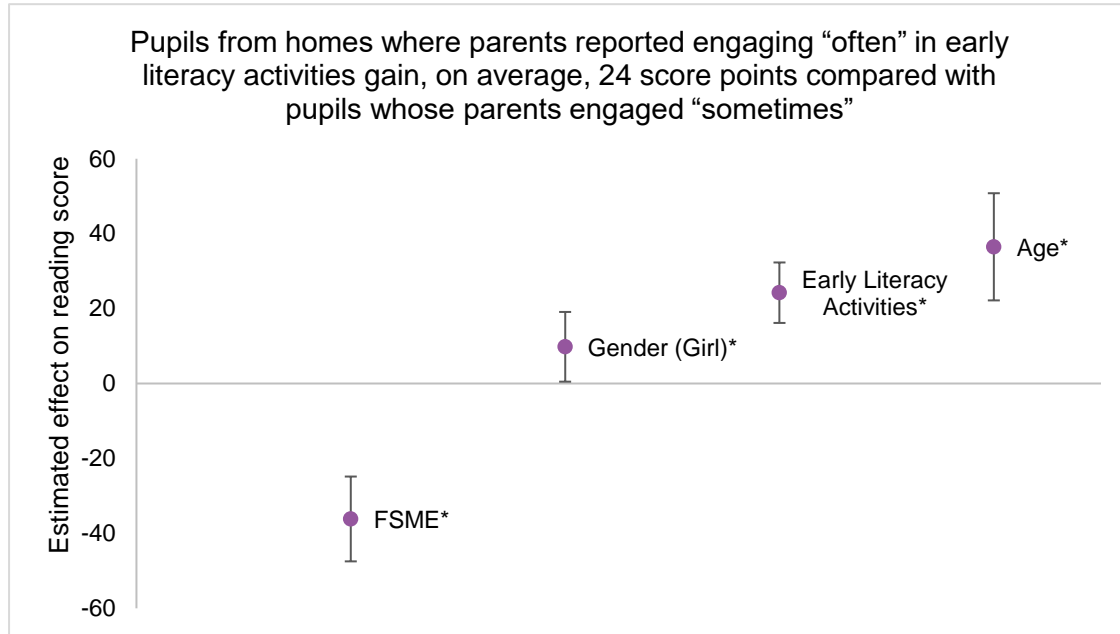
When including the Early Literacy Activities Scale in the model, the effect of age increases and the effect of gender almost halves (from 18 to 10 score points) but remains significant and in favour of girls. This suggests that some of the effect attributed to gender to can be explained by the differences in early learning activities carried out by the parents of boys and girls.

When exploring interactions between factors, we didn't find a significant effect of early literacy activities subject to the socioeconomic status of the pupil. For details of regression coefficients please see Appendix C.

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[7] The means differ from the national averages due to the reduced sample size of the regression (n=1434)
[8] Early Literacy Activities index (and each ELA activity) has three response options: often, sometimes and never/almost never. For robustness we used "often" as the base category, and we are reporting the effect of moving from "often" to "sometimes". For the purpose of reporting we reversed the sign of the coefficients so a positive movement is associated with a higher frequency of ELA.

Figure 5.11 Regression coefficients - Effect of early literacy activities on average reading score

Pupils from homes where parents reported engaging "often" in early literacy activities gain, on average, 24 score points compared with pupils whose parents engaged "sometimes"
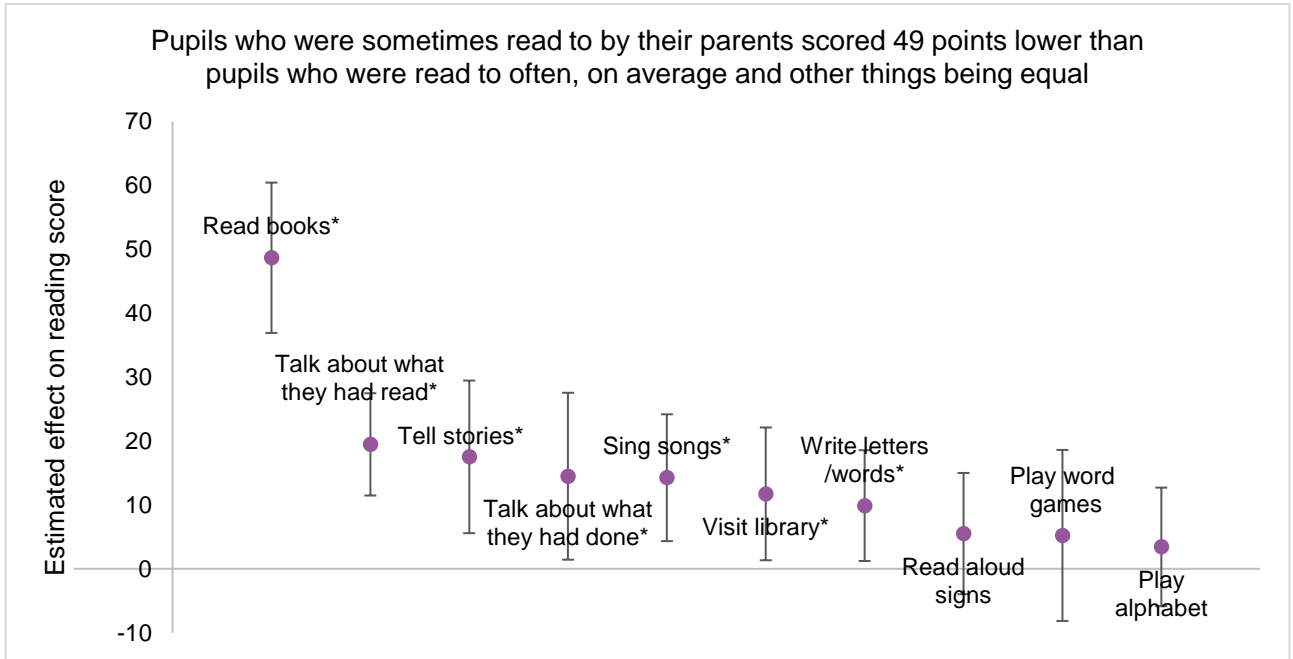
*Statistically significant at the 5% level

Source: PIRLS (2016) NI home questionnaire sample

We also explored the individual effect of each early literacy activity (ELA) on reading achievement (see Table A4 in Appendix A for the relationship between each ELA activity and reading achievement). Given that most of these activities are highly correlated, we ran independent regressions for each activity, with the reading score as the outcome variable, and controlling for the effect of age, gender and FSME. We recoded each variable in order to compare the effect of doing these activities "sometimes" as compared with doing them "often", as reported by parents[9].

The activities with the largest impact and strength are those relating to books. Pupils with parents who "sometimes" read to them before primary school have a reading score, on average and holding other factors constant, 49 points lower than their peers with parents who read to them "often". Similarly, pupils whose parents "sometimes" talked to them about what they have read, "sometimes" told them stories, and "sometimes" talked to them about things they had done score on average 19, 18 and 14 points lower, respectively, than pupils whose parents did these activities "often". These findings are interesting, in Chapter 3 we found that reading books with their child is the early literacy activity which parents are most likely to do often, and in Chapter 4 we found that some of the biggest differences in early literacy activities for children from more deprived backgrounds compared with less deprived children are how often they read books with their parents and how often they talk about what they have read.

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[9] Although these regressions were estimated using the most common category ("often") as the base case, leading to negative coefficients for the impact of only undertaking the activities "sometimes", the chart shows these in reverse for ease of interpretation and consistency with the previous chart.

Figure 5.12 Regression coefficients – effect of independent early literacy activities on average reading score

Pupils who were sometimes read to by their parents scored 49 points lower than pupils who were read to often, on average and other things being equal

*The effect on reading score is statistically significant at the 5% level

Source: PIRLS (2016) NI home questionnaire sample

When other factors are taken into account (age, gender and socioeconomic status), early literacy activities have a significant correlation with later reading outcomes. The types of early literacy activities which are most strongly related to later reading outcomes are those relating to talking, reading together and discussing rather than those which replicate later academic activities, such as word games and alphabet games.

6 How does parental engagement in Northern Ireland compare with the Republic of Ireland?

Key findings

Pupils in Northern Ireland were more confident at reading than the Republic of Ireland, and pupils in both countries were more confident than the international average. Confidence in reading has the highest correlation with early literacy activities in both countries, but the relationship was stronger in Republic of Ireland.

Parents in Northern Ireland were more likely to do early literacy activities with their children, to have positive perceptions of their child's school, and to have more home learning resources than parents in the Republic of Ireland. Home resources for learning were most strongly associated with higher achievement in reading in both Northern Ireland and the Republic of Ireland.

In the previous chapters we have set Northern Ireland's results in the international context by making comparisons with the international average. This average is calculated from data from all participating countries, many with very different educational, social and political contexts. In this chapter we compare some of Northern Ireland's high level findings with the Republic of Ireland, where the home questionnaire was also administered.

As when making comparisons between cycles of PIRLS, in order to compare context questionnaire data, we compare country-data with the international centrepoint. It is important to note that the correlations described in this chapter do not imply causation and do not account for pupil or home characteristics, as were controlled in the regression in section 5.4.

6.1 The relationship between pupil attitudes and early literacy activities

The figure below compares pupil attitudes in Northern Ireland and the Republic of Ireland, both in terms of how these differ from each other and international norms, and in terms of the extent to which they correlate with the ELA scale.

Pupils in Northern Ireland and the Republic of Ireland had similar levels of confidence and engagement in reading, and were more confident and engaged compared to the international average. Pupils in Northern Ireland enjoyed reading slightly less than the international average, whereas pupils in the Republic of Ireland enjoyed reading slightly more than the international average. When the three scales are correlated with the Early Literacy Activities Scale, confidence in reading has the highest correlation with early literacy activities in both countries, but the relationship is stronger in Republic of Ireland. Further details of these correlations are provided in Appendix B.

Figure 6.1 Comparison of pupil attitudes and correlation with early literacy activities
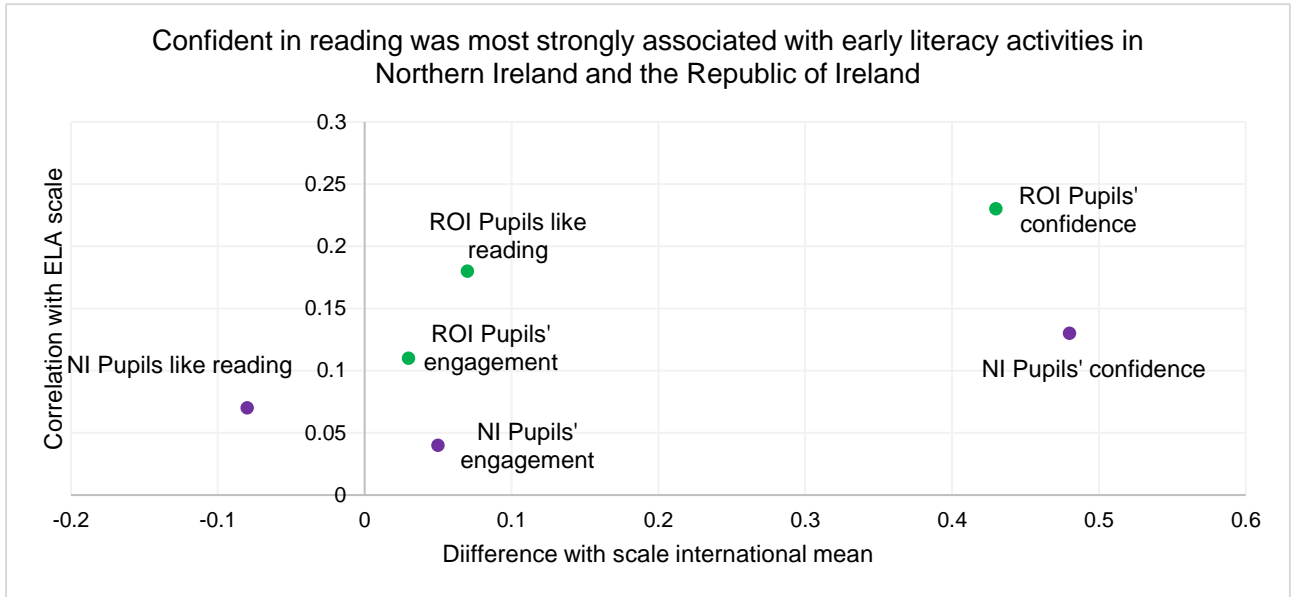
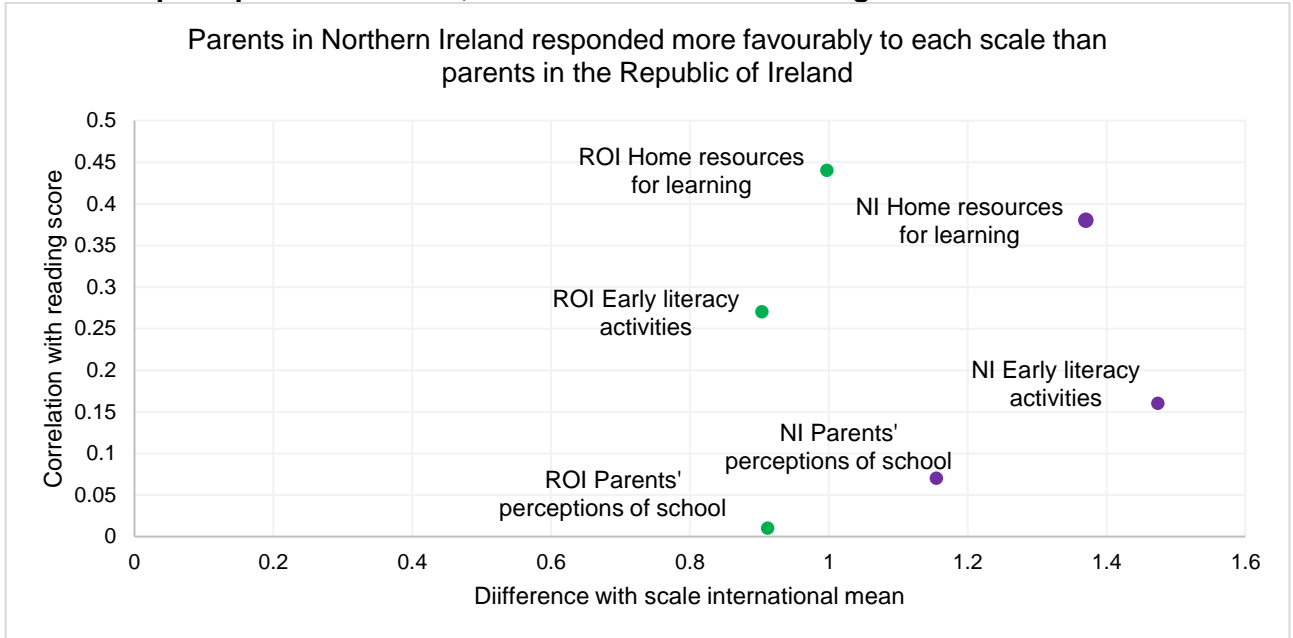Source: PIRLS (2016) NI and ROI home questionnaire sample

6.2   The relationships between early literacy activities, home resources and parents' perceptions of school and reading performance

The figure below compares early literacy activities, home learning resources and parents' perceptions of school in Northern Ireland and the Republic of Ireland. The horizontal axis compares the two countries with each other relative to the international centrepoint, and the vertical axis compares the correlation between the scale and national average reading achievement.

For all three scales, parents in Northern Ireland and the Republic of Ireland responded more favourably than the international average: parents in Northern Ireland and the Republic of Ireland are more likely to do early literacy activities with their children, to have positive perceptions of their child's school, and to have more home learning resources than the international average. In addition, for all three scales, parents in Northern Ireland responded more positively than their counterparts in the Republic of Ireland.

When the three scales are correlated with reading achievement, home resources for learning had the largest correlation with reading score in both countries (slightly more correlated in the Republic of Ireland), and parents' perceptions of the child's school has the weakest correlation. More details are provided in Appendix B.

Figure 6.2 Comparison of early literacy activities, home learning resources and perceptions of school, and correlation with reading achievement

Source: PIRLS (2016) NI and ROI home questionnaire sample

7   Conclusions

The analyses in this report have looked at the engagement of parents in Northern Ireland, and the associations between parental engagement and attitudes towards reading and reading performance. In order to make the best use of the data collected in PIRLS, we broadened the analyses of parental engagement to include parental engagement in literacy activities before children begin school, aspects of children's home-life which may relate to literacy skills and readiness to learn, and parental engagement with their children's primary school. We have also reviewed how engagement has changed since PIRLS 2011, and compared engagement with the Republic of Ireland.

As discussed in section 2.2, the response rate for the PIRLS home questionnaire in Northern Ireland in 2016 was 39 per cent, reducing the sample for the analysis to 1,454 pupils in 123 schools. As detailed in Appendix A, these pupils are more socioeconomically advantaged and have a higher reading achievement, as compared with the whole PIRLS 2016 sample. However, the analysis does allow us to draw relevant conclusions to inform policy and brings together information we do not have from other sources.

Parental engagement in Northern Ireland compared favourably with engagement on average internationally.

A much larger proportion of parents in Northern Ireland often engaged in early literacy activities before their child started school than parents internationally. Parents had high aspirations for their children, and aspirations had increased since PIRLS 2011.

We found that parents of FSME pupils engaged less often in early literacy activities with their children.

We looked in detail at pupils eligible for free school meals (FSME) compared with those not eligible. We found that parents of FSME pupils engaged less often in early literacy activities with their children, particularly activities which relate to books: their parents were less likely to read to them, they were less likely to talk about what they have read, they were less likely to go to the library, and they tended to have far fewer children's books in the home. In addition, their parents were less likely to enjoy reading. In contrast, parents of FSME pupils were *more* likely to engage in home learning support activities (such as getting involved with their child's homework) whilst their child is at primary school.

Pupils who engaged more often in early literacy activities were more likely to be more confident readers and enjoy reading in primary 5.

When considering the associations between parental engagement and pupil attitudes towards reading and reading performance, we found that pupils who engaged more often in early literacy activities were more likely to be more confident readers and enjoy reading in primary 5. When other factors are taken into account (age, gender and socioeconomic status), early literacy activities had a significant correlation with later reading outcomes. Interestingly, the difference between achievement of girls and boys in PIRLS almost halves once early literacy activities are accounted for. This suggests that some of the effect attributed to gender to can be explained by the differences in early learning activities carried out by the parents of boys and girls. The types of

early literacy activities which were most strongly related to later reading outcomes were those relating to talking, reading together and discussing rather than those which replicate later academic activities, such as word games and alphabet games.

Compared with pupils in the Republic of Ireland, pupils in Northern Ireland had greater confidence in their reading ability and their parents were more likely to have done early literacy activities with them.

We compared engagement of parents in Northern Ireland with parents in the Republic of Ireland. Pupils in Northern Ireland had greater confidence in their reading than the Republic of Ireland. Confidence in reading had the highest correlation with early literacy activities in both countries, but the relationship was stronger in the Republic of Ireland. Parents in Northern Ireland were more likely to do early literacy activities with their children, and to have positive perceptions of their child's school.

As discussed in the introduction to this report, the literature on parental engagement can be divided into two types – naturally occurring engagement between the child and parent, and interventions. We have analysed the types and level of naturally occurring engagement and the relationship with later literacy attitudes and outcomes. These relationships cannot be regarded as causal, but they do provide helpful indications of the types of activities which may be most beneficial for later literacy outcomes.

The literature identifies pre-primary parental engagement as key to later success and that the most successful interventions provide direct support or skills training to parents and are clear in their desired outcomes. The analyses in this report show that Northern Ireland is in a good position: parents engage much more often in early literacy activities than their counterparts in other countries, and parents continue to support their children throughout primary school, particularly parents whose children are falling behind. In addition, parents were more engaged than in 2011.

The findings from this report suggest three focuses for policy:

Read to your child every day before they start school

The analyses in this report support the previous findings in the literature that early intervention is crucial. We found that the activities with the largest impact and strength are those related to books: parents reading to children often and talking to children about the books they have read.

Talk about what you have read

The review of the literature highlighted the importance of guidance for parents to ensure that engagement is most effective. Parents were much less likely to talk about the book they had read than to read to their child, and therefore it would be helpful to model questions which parents could ask.

Increase the reach of libraries

Children from more deprived backgrounds had far fewer books at home. This means less variety of reading material, less variety potentially makes reading less exciting for the child and the parent, and makes it difficult to have different discussions about books. Libraries need to reach more deprived families and encourage them to engage in literacy activities with their children.

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Appendix A

Table A1 Home questionnaire sample characteristics

Characteristic	PIRLS 2016 NI home questionnaire sample		PIRLS 2016 NI sample	
	n	**%**	**n**	**%**
Gender				
Girl	739	52%	1,837	50%
Boy	715	48%	1,856	50%
FSM Eligibility*				
FSM non-eligible	1,146	79%	2,556	69%
FSM Eligible	284	21%	1,054	31%
SEN Statement*				
No statement of SEN	1,191	83%	2,787	77%
SEN Statement 1 to 5	239	17%	823	23%
Newcomer status*				
Not a newcomer	1,396	98%	3,517	98%
Newcomer	34	2%	93	2%
International benchmarks				
Low	114	8%	466	13%
Intermediate	293	20%	966	26%
High	581	40%	1,429	38%
Advanced	832	22%	465	32%
	Mean	**s.e.**	**Mean**	**s.e.**
Average reading score	588	3.27	565	2.24

* From PIRLS 2016 NI school census-matched dataset

Table A2 Home environment and associated reading achievement in Northern Ireland, PIRLS 2016

Characteristic	n	% of pupils	Avg. reading achievement	Standard error
Home resources for learning				
Many resources	626	42%	615	4.29
Some resources	809	57%	569	3.74
Few resources	10	1%	468	29.05
Early literacy activities before primary school				
Often	970	65%	597	3.90
Sometimes	481	34%	571	3.96
Never/Almost never	7	0%	580	36.25
Parents' perceptions of their child school				
Very satisfied	1236	86%	589	3.54
Somewhat satisfied	193	13%	583	6.70
Less than satisfied	26	2%	541	25.43
Parental aspirations: How far in his/her education do you expect your child to go?				
GCSE or equivalent	187	14%	522	7.08
Post-secondary	309	22%	559	5.04
Bachelor's degree	644	45%	608	4.01
Master's or higher	299	19%	622	4.36
Parents like reading				
Very much like	717	49%	602	3.87
Somewhat like	529	36%	577	5.11
Do not like	208	15%	568	5.95
Digital devices in the home				
High access	478	32%	599	4.97
Medium access	967	67%	582	3.57
Low access	4	0%	566	21.88

Source: PIRLS (2016) NI home questionnaire sample

Table A3 Pupils responses about hunger and tiredness and their reading achievement

	n	% of pupils	Avg. reading achievement	Standard error
Pupil feels hungry				
Every day	509	14%	524	4.9
Almost every day	406	11%	546	4.5
Sometimes	1562	43%	571	2.5
Never	1139	32%	584	3.2
Pupil feels tired				
Every day	710	20%	534	4.2
Almost every day	728	20%	571	3.3
Sometimes	1869	51%	578	2.6
Never	342	9%	555	5.3

Source: PIRLS (2016) NI sample

Table A4 Frequency of early literacy activities and pupils' reading achievement

Characteristic	n	% of pupils	Avg. reading achievement	Standard error
Before primary school, how often did someone in the home read books with the child?				
Often	1220	83%	597	3.18
Sometimes	226	16%	539	7.06
Never or almost never	8	1%	573	39.82
Before primary school, how often did someone in the home tell stories to the child?				
Often	1052	71%	593	3.72
Sometimes	369	26%	577	5.31
Never or almost never	29	2%	578	21.12
Before primary school, how often did someone in the home sing songs to the child?				
Often	1103	76%	592	3.63
Sometimes	308	21%	577	5.21
Never or almost never	37	3%	556	16.36
Before primary school, how often did someone in the home play alphabet with the child?				
Often	982	67%	591	3.98
Sometimes	435	30%	585	4.21
Never or almost never	40	3%	546	19.22
Before primary school, how often did someone in the home talk with the child about what they had done?				
Often	1183	80%	592	3.70
Sometimes	259	19%	572	5.94
Never or almost never	11	1%	542	36.32
Before primary school, how often did someone in the home talk with the child about what they had read?				
Often	711	48%	599	4.12
Sometimes	658	45%	577	4.15
Never or almost never	83	6%	577	10.77
Before primary school, how often did someone in the home play word games with the child?				
Often	667	45%	592	4.59

Characteristic	n	% of pupils	Avg. reading achievement	Standard error
Sometimes	675	47%	587	3.69
Never or almost never	106	8%	571	11.22
Before primary school, how often did someone in the home write letters or words with the child?				
Often	765	51%	593	3.98
Sometimes	578	41%	582	4.24
Never or almost never	108	8%	587	13.09
Before primary school, how often did someone in the home read aloud signs and labels to the child?				
Often	796	54%	594	4.51
Sometimes	539	37%	584	3.72
Never or almost never	113	8%	568	9.15
Before primary school, how often did someone in the home visit a library?				
Often	570	39%	604	4.80
Sometimes	650	44%	585	3.85
Never or almost never	232	17%	557	5.62

Source: PIRLS (2016) NI home questionnaire sample

Figures A1 to A5   Home Resources for Learning Scale items by FSME and non-FSME pupils

Figure A1
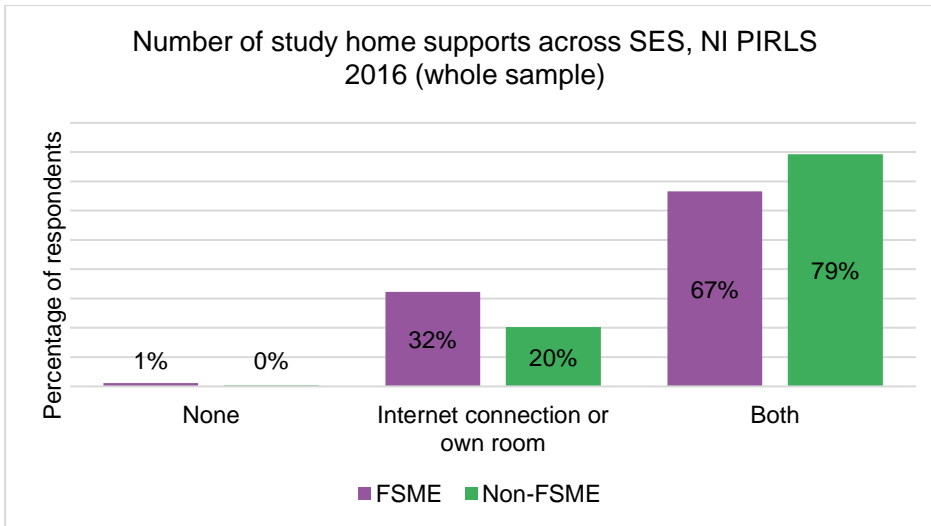
Number of books at home across SES

Source: PIRLS (2016) NI home questionnaire sample

Figure A2

Source: PIRLS (2016) NI home questionnaire sample

Figure A3
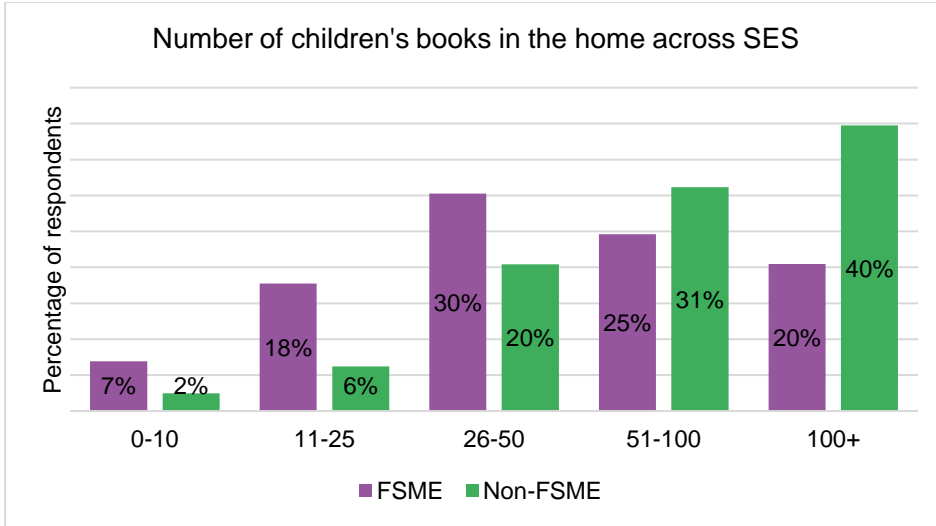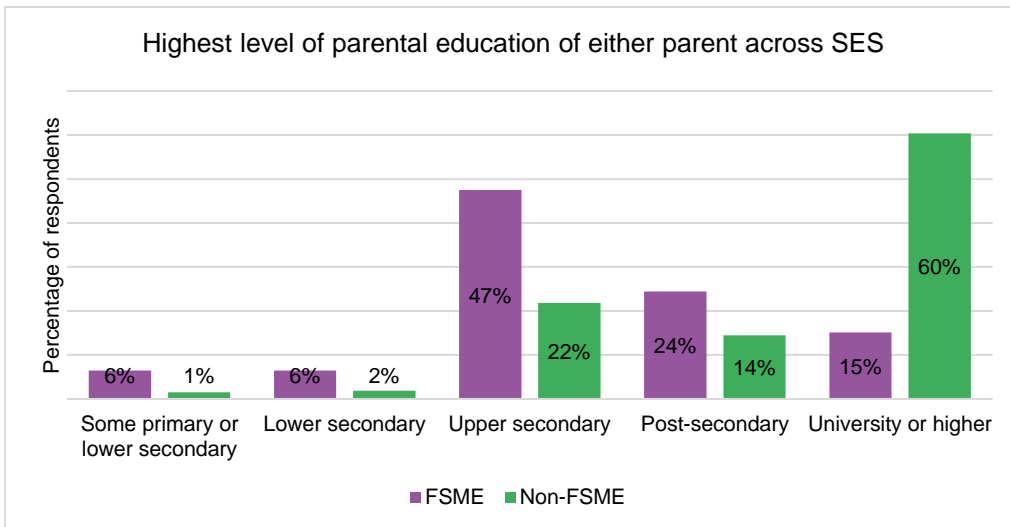
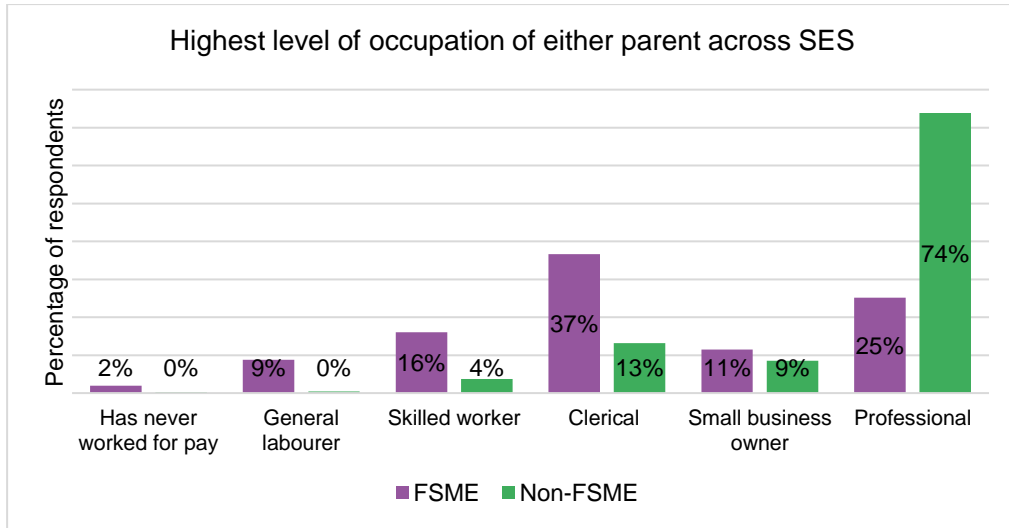Number of children's books in the home across SES

Source: PIRLS (2016) NI home questionnaire sample

Figure A4

Highest level of parental education of either parent across SES

Source: PIRLS (2016) NI home questionnaire sample

Figure A5

Highest level of occupation of either parent across SES

Source: PIRLS (2016) NI home questionnaire sample

Appendix B

Table B1 Home environment means and correlations in NI and ROI

Scale	Mean	Mean s.e.	Mean s.d.	Correlation with reading achievement	Correlation s.e.
Northern Ireland					
Home resources for learning	11.37	0.05	1.61	0.38	0.03
Early literacy activities before school	11.47	0.06	2.09	0.16	0.03
Parents perceptions of child school	11.16	0.06	1.61	0.07	0.04
Parents like reading	10.32	0.07	2.17	0.18	0.03
Digital devices in the home	10.89	0.06	1.75	0.12	0.03
Republic of Ireland					
Home resources for learning	11.00	0.05	1.58	0.44	0.02
Early literacy activities before school	10.90	0.04	2.04	0.27	0.02
Parents perceptions of child's school	10.91	0.05	1.70	0.01	0.02
Parents like reading	10.27	0.05	1.96	0.26	0.02
Digital devices in the home	10.43	0.03	1.71	0.11	0.02

Source: PIRLS (2016) NI and ROI home questionnaire sample

Appendix C

Table C1 Early literacy activities before primary school regression table

Variable	Coefficient	Coefficient s.e.	t-value
Constant	218.83	75.48	2.89
Gender (Girl)	9.80	4.75	2.06
Age	36.49	7.30	5.00
FSME	-36.15	5.78	-6.26
Early Literacy Activities - Often			
Early Literacy Activities - Sometimes	-24.24	4.12	-5.89
Early Literacy Activities - Never	-21.07	43.52	-0.48
Sample size (n)	1,434		
Intra cluster correlation (ICC)	10.2%		

Table C2 Early literacy activities before primary school with FSME interaction regression table

Variable	Coefficient	Coefficient s.e.	t-value
Constant	167.51	76.88	2.17
Gender (Girl)	10.30	4.68	2.19
Age	35.92	7.26	4.94
FSME	-78.43	35.65	-2.19
Early Literacy Activities*	4.24	1.13	3.75
ELA*FSME	3.73	3.03	1.23
Sample size (n)	1,434		
Intra cluster correlation (ICC)	9.7%		

*For this regression we used the ELA scale (continuous) rather than the index. Higher values of the scale reflect higher frequency of early literacy activities before school.

Table C3 Early Literacy activities primary school Northern Ireland- Independent regressions*

Variable	Coefficient	Coefficient s.e.	t-value
Read books with the child - Sometimes	-48.69	6.00	-8.11
Read books with the child - Never	-10.12	28.72	-0.35
Tell stories to the child - Sometimes	-17.52	6.10	-2.87
Tell stories to the child - Never	-7.09	15.41	-0.46
Sing songs to the child – Sometimes	-14.27	5.07	-2.82
Sing songs to the child – Never	-31.29	15.92	-1.97
Play alphabet with the child - Sometimes	-3.43	4.74	-0.73
Play alphabet with the child - Never	-48.59	20.25	-2.40
Talk with the child about what they had done - Sometimes	-14.50	6.67	-2.17
Talk with the child about what they had done - Never	-22.78	34.72	-0.66
Talk with the child about what they had read - Sometimes	-19.48	4.08	-4.79
Talk with the child about what they had read - Never	-21.28	9.81	-2.17
Play word games with the child - Sometimes	-5.23	5.16	-1.01
Play word games with the child - Never	-22.45	10.64	-2.11
Write letters or words with the child - Sometimes	-9.89	4.42	-2.24
Write letters or words with the child - Never	-8.51	12.11	-0.70
Read aloud signs and labels to the child - Sometimes	-5.52	4.84	-1.14
Read aloud signs and labels to the child - Never	-25.16	10.62	-2.37
Visit a library - Sometimes	-11.73	5.30	-2.21
Visit a library - Never	-37.75	5.67	-6.66

*All coefficients correspond to independent regressions of each activity, controlling for age, gender and FSME. Base category is parents who reported doing these activities "Often"

Appendix D

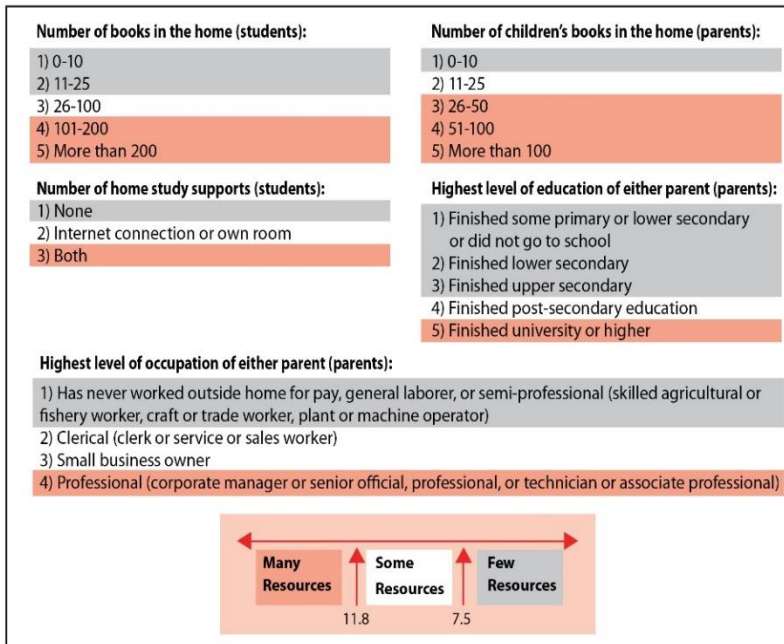**Figure D1 Composition of PIRLS 2016 Home Resources for Learning Scale**

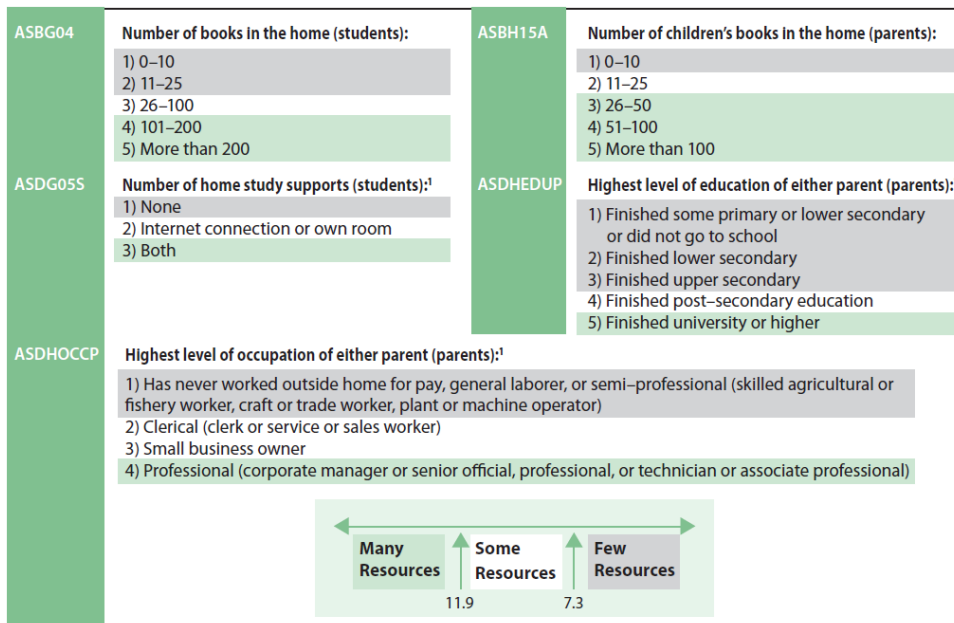**Figure D2 Composition of PIRLS 2011 Home Resources for Learning Scale**

Figure D3 Composition of PIRLS 2016 Early Literacy Activities Scale
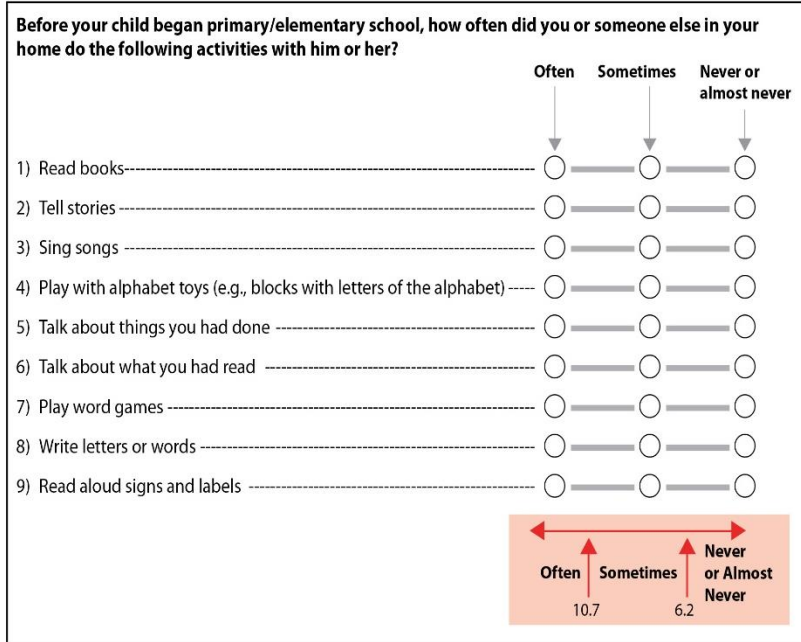

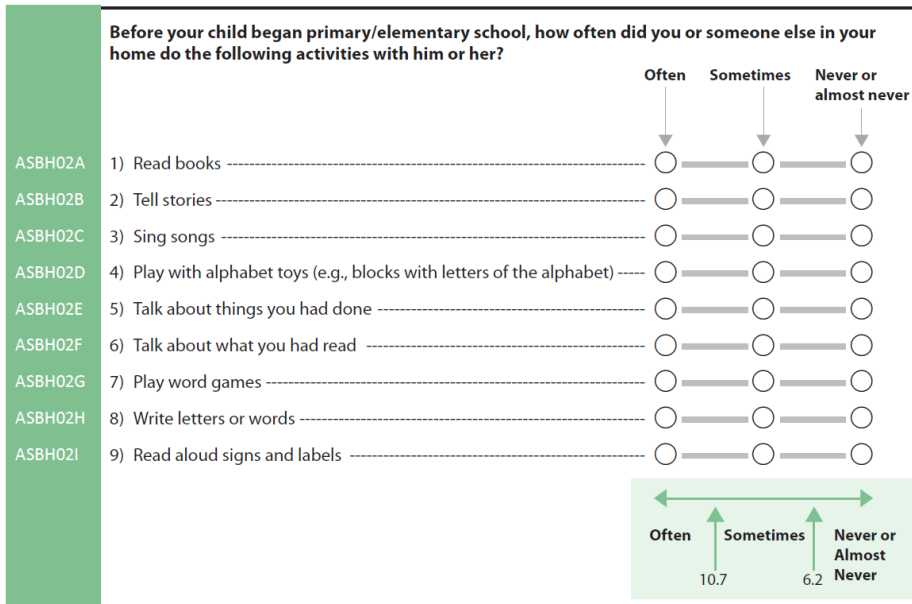## Figure D4 Composition of PIRLS 2011 Early Literacy Activities Scale

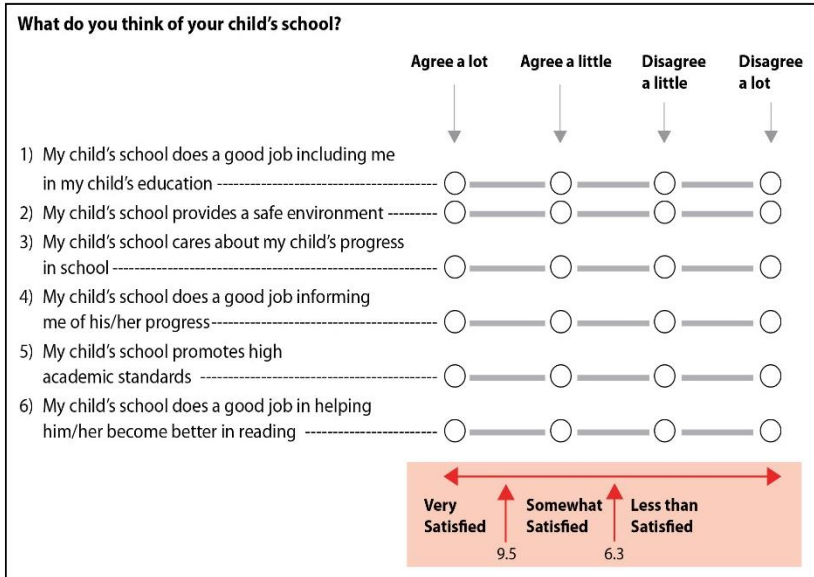## Figure D5 Composition of PIRLS 2016 Parents' perceptions of their child school scale

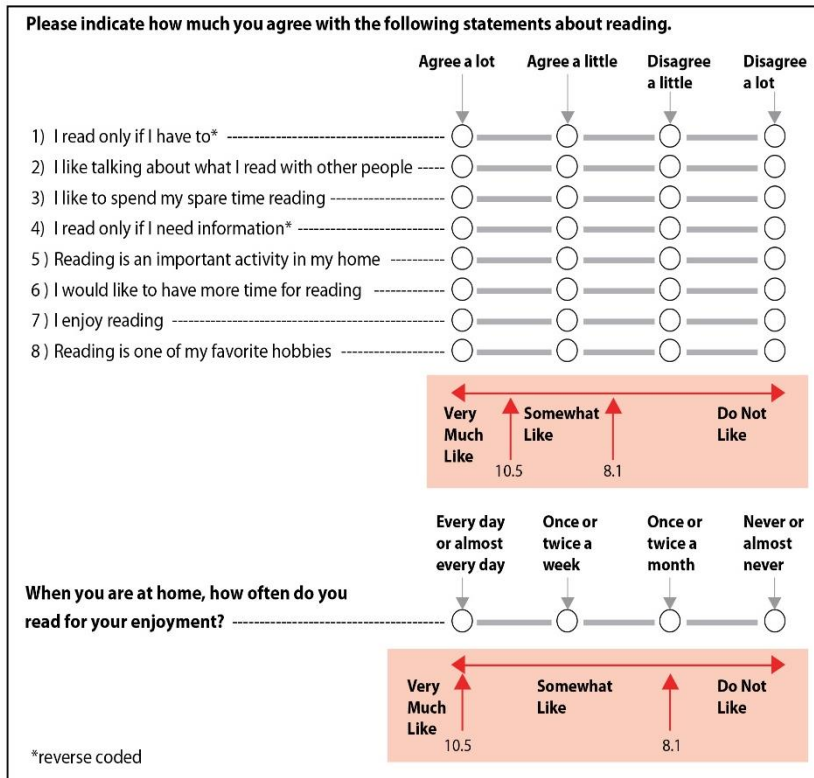## Figure D6 Composition of PIRLS 2016 Parents' like reading scale

Figure D7 Composition of PIRLS 2011 Parents' like reading scale
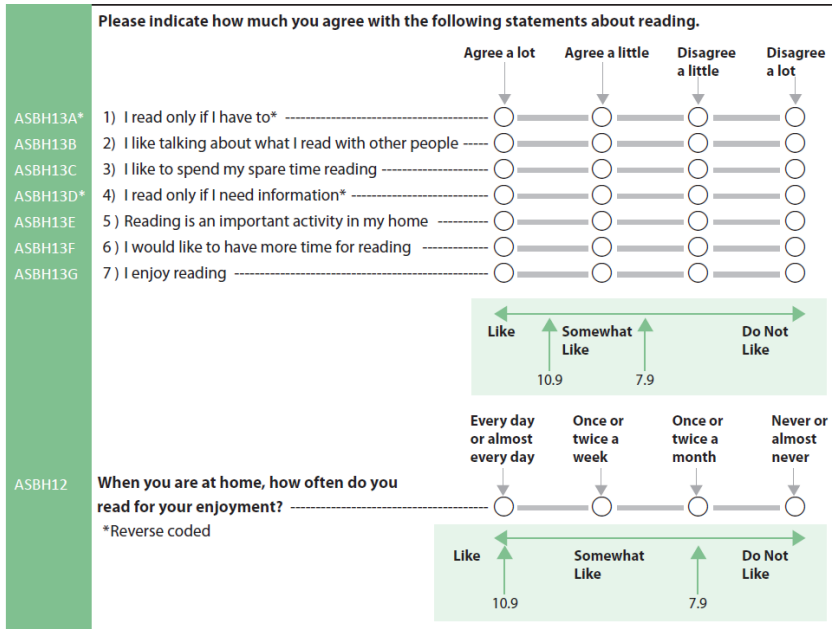
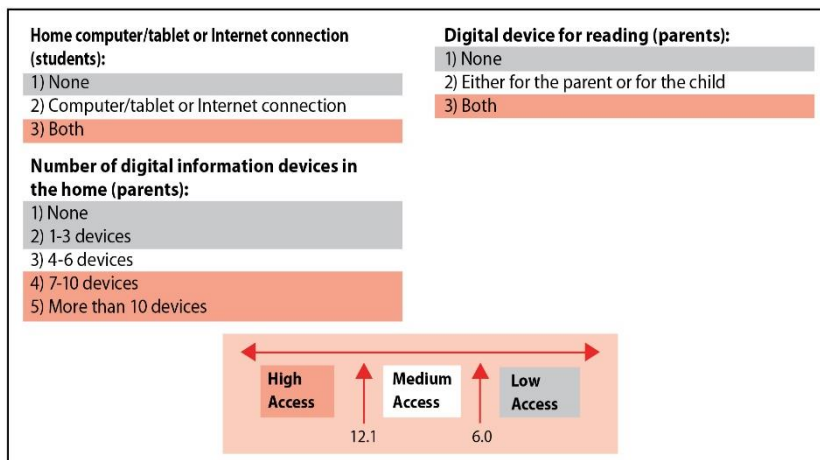## Figure D8 Composition of PIRLS 2016 Digital devices in the home scale

Table D1 Categories and aggregation for "How far in his/her education do you expect your child to go?" ASNH19

ASNH19 category	Category for analysis
Finish GCSE course	GCSE or equivalent
1-4 GCSEs or Foundation Diploma or GNVQ Foundation or NVQ Level 1 or BTEC Certificate	GCSE or equivalent
5 or more GCSE (A*-C) passes or Higher Diploma or NVQ Level 2 or GNVQ Intermediate or BTEC Diploma or trade apprenticeship	GCSE or equivalent
AS or A Level or Advanced Diploma or NVQ Level 3 or GNVQ Advanced or International Baccalaureate	Post-secondary
Complete an access course for higher education	Post-secondary
HNC or HND or BTEC Higher	Post-secondary
Bachelor's degree	Bachelor's degree
Master's degree	Master's or higher
Doctorate	Master's or higher

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