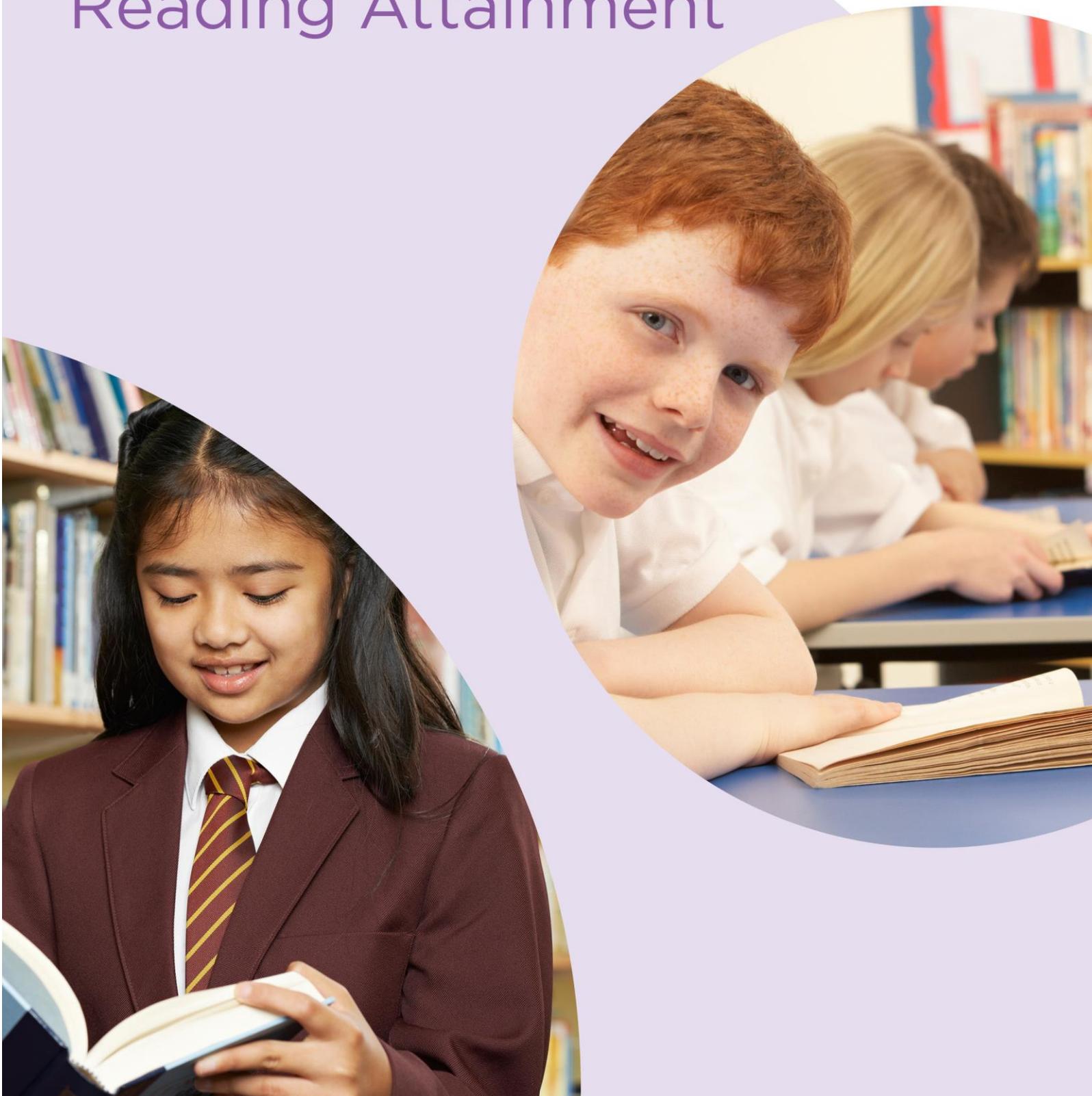


PIRLS 2021 in Northern Ireland: Reading Attainment



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Published in May 2023

By the National Foundation for Educational Research,

The Mere, Upton Park, Slough, Berkshire SL1 2DQ

<https://www.nfer.ac.uk/>

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Registered Charity No. 313392

ISBN: 978-1-912596-85-0

How to cite this publication:

Classick, R., Aston, K., Guevara Duque, M. J., Flemons, L., Faulkner-Ellis, H., Liht, J., Boyd, S., Sizmur, J. and Twist, L. (2023) PIRLS 2021 in Northern Ireland: Reading Attainment. Slough: NFER

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Acknowledgements

Firstly, we would like to thank all the pupils, teachers and principals who took part in PIRLS 2021. The study could not have taken place without them and we are very grateful for their efforts and co-operation in helping to gather valuable PIRLS data, especially during a time of disruption due to the Covid-19 pandemic.

We are grateful for the support and guidance we have received at all stages of the study from colleagues at the Department of Education (DE), Northern Ireland, from the overall general management of the study to the detailed and specific advice provided by the PIRLS team and DE colleagues and contributors. We would also like to thank the reviewers of Northern Ireland's encyclopedia entry, the curriculum questionnaire and this national report, including those from the Council for the Curriculum, Examinations and Assessment (CCEA), the Education and Training Inspectorate Northern Ireland (ETI) and the Education Authority (EA).

PIRLS is a worldwide collaborative project involving a range of international partners. We are grateful to IEA, the International Study Center at Boston College, and Statistics Canada, whose hard work and support contributed towards successful implementation of PIRLS 2021.

Thanks are also due to our NFER colleagues for the invaluable contributions of their reading expertise, school liaison work, implementation and delivery, project administration, statistical analyses, communications, support and advice as well as their continued flexibility, in helping us to navigate through this project, despite the challenges faced as a result of the pandemic. We also wish to acknowledge the work of the wider team of study administrators for their hard work, flexibility and patience in administering the PIRLS study.

Last but not least, we would like to thank Juliet Sizmur who has been the National Research Coordinator for PIRLS in Northern Ireland for the last two cycles and retired in December 2022. Her expertise and understanding of international studies, like PIRLS, was invaluable and she will be missed greatly by the NFER team.

PIRLS 2021 in Northern Ireland: Executive summary

The Progress in International Reading Literacy Study (PIRLS)

PIRLS is an independent worldwide research study organised by the International Association for the Evaluation of Educational Achievement (IEA) which provides data about reading literacy. It takes place every five years and assesses the knowledge and skills of pupils aged 9 to 10 years old. This is Year 6 in Northern Ireland (internationally Grade 4). Due to a delay in data collection in Northern Ireland, pupils in the 2021 PIRLS cycle were at the start of Year 7 (internationally Grade 5).

To contextualise pupils' attainment in reading, PIRLS also gathers extensive background information about pupils' school and home learning environments. This information can be used to provide education policymakers, school leaders, teachers and researchers with powerful insights into how education systems are functioning, strategies used to teach reading, and pupils' level of engagement.

In total, 57 countries along with eight benchmarking participants¹ took part in PIRLS 2021. In September and October 2021, 4050 pupils from 143 schools across Northern Ireland participated in PIRLS 2021. This was the third time Northern Ireland had taken part, having previously participated in the 2016 and 2011 cycles.

PIRLS 2021 included a transition to a digital assessment with pupils in 26 countries and seven benchmarking participants taking a digital assessment (Northern Ireland used the same assessment but on paper).

Covid-19 and the impact on PIRLS 2021

Due to the school disruptions and closures caused by the Covid-19 pandemic, PIRLS 2021 data collection extended over 22 months from October 2020 to July 2022 as some countries' data collection periods were delayed. Because of the varying periods of data collection, the participating countries can be considered to belong to one of three groups:

- Group 1: countries and benchmarking participants that tested according to the original plan, with pupils towards the end of Year 6 (internationally Grade 4).
- Group 2: northern hemisphere countries and benchmarking participants that delayed their data collection period and assessed pupils at the start of Year 7 (internationally Grade 5). Northern Ireland is a Group 2 country.

¹ These are regional entities which follow the same guidelines and targets to provide samples that are representative at regional level. Their results are not presented in this report but are included in PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

- Group 3: countries and benchmarking participants that delayed their data collection period by one year and also tested pupils towards the end of Year 6 (internationally Grade 4).

Countries that Northern Ireland will be compared with in this report

The report compares performance in Northern Ireland with that of six other PIRLS countries. Although it is important to interpret comparisons with caution because of the different periods of data collection, they can still help to contextualise the findings in Northern Ireland and identify patterns. The six countries were selected because they have similarities with Northern Ireland, and/or because they are high performers, and/or because they have demonstrated significant changes between PIRLS cycles. These comparator countries comprise:

- Finland (Group 1)
- Poland (Group 1)
- Singapore (Group 1)
- Republic of Ireland (Group 2)
- Australia (Group 3)
- England (Group 3)

Key findings from each of the chapters in this report are presented throughout the remainder of this executive summary.

Northern Ireland's delay in data collection should be considered alongside these key findings. Pupils in Northern Ireland were at the beginning of Year 7, as opposed to the end of Year 6 as for many other countries and, on average, four to five months older in PIRLS 2021 compared with PIRLS 2011 and 2016. The change in timing introduced additional factors that may affect overall attainment: a potential 'achievement advantage' (Mullis *et al.*, 2023, p.13) related to being older, more contact time in the classroom, and involvement in any catch-up programmes, although there may also be a disadvantage from summer learning loss as well as Covid-19 learning loss. This is discussed more in the report Introduction.

Attainment

Pupils in Northern Ireland performed very well in PIRLS 2021

Pupils in Northern Ireland, with an average score of 566, performed significantly² above the centrepoint of the PIRLS international scale (500).

Pupils in Northern Ireland significantly outperformed those in 52 of the 56 other PIRLS participating countries and were significantly outperformed by pupils in two countries, Singapore (587) and the Republic of Ireland (577).

Northern Ireland's overall attainment in PIRLS has increased over ten years

The largest (although non-significant) increase in score occurred between 2011 (558) and 2016 (565). In 2021, Northern Ireland's performance in reading was similar to 2016 but significantly higher than in 2011.

A dip in performance may have been expected in 2021, with research having demonstrated that the pandemic led to a slowing of progress in reading for primary-aged pupils (see Twist, Jones and Treleaven, 2022). However, pupils in Northern Ireland continued to perform well. This may be related to pupils being older in 2021 than in previous cycles. However, it is difficult to determine what impact, if any, age (and therefore more contact time in the classroom) had on pupils' performance in PIRLS against the impact of Covid-19 learning loss and/or learning recovery.

Research has also suggested that recovery for any lost learning in reading due to the pandemic has happened at a faster rate than for mathematics for all but the youngest pupils (Twist, Jones and Treleaven, 2022; Bethhäuser, Bach-Mortensen and Engzell, 2023). Evidence of the impact of the disruption caused by Covid-19 on reading attainment may therefore not be pronounced in PIRLS, particularly for countries that delayed their data collection period and had a few months longer for recovery in reading.

There was a mixture of trend patterns in performance across countries in PIRLS 2021

The highest attaining countries in PIRLS 2021, Singapore (Group 1) and the Republic of Ireland (Group 2), have shown an upward trend in their performance, with their overall score in each cycle being, in most cases, significantly higher than the previous cycle. For both Singapore and the Republic of Ireland their scores in 2021 were significantly above their scores in 2016; this was seen in only nine countries this cycle, and mostly among

² Throughout this report, the term 'significant' refers to statistical significance. When statistical significance is reported, it indicates that the compared mean scores are significantly different at the five per cent level.

lower attaining countries such as Egypt and Oman (Group 1), and Bahrain, Morocco, Qatar, Saudi Arabia and the United Arab Emirates (Group 2) (see (Mullis *et al.*, 2023).

As pupils in the Republic of Ireland were at the start of Year 7 in PIRLS 2021, there could be an achievement advantage associated with age, but it appears the Republic of Ireland was already on an upward trajectory of performance.

In contrast, two of the comparator countries, Finland (Group 1) and Poland (Group 1), have seen significant decreases in their overall attainment between 2016 and 2021. Significant decreases in attainment were more common across countries that tested as expected, that is, Group 1 countries (18 countries saw a significant decrease), than in countries that delayed their testing to the start of Year 7, that is Group 2 countries (three countries saw a significant decrease).

Almost a quarter of pupils in Northern Ireland demonstrated advanced reading skills

In 2021, 23 per cent of pupils in Northern Ireland reached the Advanced international benchmark in reading, the third highest percentage internationally, below Singapore (35 per cent) and the Republic of Ireland (27 per cent).

Only three per cent of pupils in Northern Ireland failed to reach the Low international benchmark. In comparison, the international average was six per cent.

The proportion of pupils reaching the Advanced international benchmark has increased over ten years

In PIRLS 2011, 19 per cent of pupils reached the Advanced international benchmark. This percentage had increased to 22 per cent in 2016 and remained similar to this level in 2021 (23 per cent).

Of the comparator countries, Singapore and the Republic of Ireland have seen large increases in the proportions reaching this benchmark (24 per cent in 2011 to 35 per cent in 2021 in Singapore, and 16 per cent in 2011 to 27 per cent in 2021 in the Republic of Ireland).

There was a relatively wide spread of reading attainment in Northern Ireland

Another way in which the spread of performance can be examined is by looking at the distribution of PIRLS scale scores.

In Northern Ireland, the gap between high-attainers (indicated by the score at the 90th percentile) and low-attainers (indicated by the score at the 10th percentile) was 204 scale score points. Two of the comparator countries, Australia and Singapore, had a greater gap

in mean scores between high- and low-attainers, 207 scale score points and 213 scale score points respectively.

The scores for low- and high-attainers have remained similar between 2016 and 2021 in Northern Ireland but there has been an increase since 2011, most notably for higher-attainers. This has resulted in a wider distribution and is likely to be a driver in Northern Ireland's significant increase in overall score since 2011.

Attainment by gender

In most countries, girls significantly out-performed boys in reading

In Northern Ireland, and across 51 out of 57 PIRLS countries, there was a significant gender difference in attainment in reading, favouring girls. Girls in Northern Ireland achieved an average score of 578, while boys achieved an average scale score of 553, indicating a gender gap of 24 score points³. On average internationally, boys scored 494 and girls 512.

The gender gap in Northern Ireland was the highest among the comparator countries, with the gaps in England (10 score points) and the Republic of Ireland (11 score points) being the lowest.

In Northern Ireland, a steady increase in girls' attainment resulted in a widening of the gender gap

The gender gap in Northern Ireland was 24 score points in 2021, compared with 18 score points in 2016 and 16 in 2011. This demonstrates an increase in the gender gap over time, driven by a steady increase in girls' average attainment.

Attainment in reading by purpose and process

Pupils in Northern Ireland demonstrated a relative strength in reading for *Literary* purposes and for the *Interpreting, integrating and evaluating* process

Countries' national scores can be broken down further by looking at relative strengths and weaknesses across the two PIRLS purposes for reading (*Literary and Informational*) as well as the PIRLS reading processes (*Retrieving and straightforward inferencing* and *Interpreting, integrating and evaluating*). For example, if the score for *Informational* is higher than countries' overall attainment, this can be described as a relative strength in the *Informational* purpose.

³ after taking into account the rounding of figures

Reading purposes – Compared to the overall national average reading score (566), pupils in Northern Ireland:

- demonstrated a relative strength (that is, scored significantly better) in reading for *Literary* purposes (573)
- demonstrated a relative weakness (that is, scored significantly less well) in reading for *Informational* purposes (562).

This follows the same pattern of strength and weakness as Northern Ireland's performance in 2016.

This 2021 profile of relative strength was also found in the other high-attaining comparator countries of Singapore and the Republic of Ireland. That said, although Singapore did demonstrate a strength in reading for a *Literary* purpose, this was not matched by a significant weakness on the *Informational* side.

A relative strength in *Literary* purpose is consistent with a reading curriculum that starts with stories in the earlier school years, and then transitions to reading for facts and information in subjects such as science, history and geography as pupils get older (Mullis *et al.*, 2023).

Reading comprehension processes – Compared to the overall national average reading score (566), pupils in Northern Ireland:

- demonstrated a relative weakness (that is, scored significantly less well) on the *Retrieving and straightforward inferencing* scale (558)
- demonstrated a relative strength (that is, scored significantly better) on the *Interpreting, integrating and evaluating* scale (573).

This marks a change from 2016, where pupils in Northern Ireland did not score significantly differently from the national average reading score on *Interpreting, integrating and evaluating*. All comparator countries followed the same profile as Northern Ireland – except for Finland, where both reading comprehension process scores were not statistically different from their overall scores.

Covid-19 and the impact on schooling

The Covid-19 pandemic affected all PIRLS countries' education systems in some way

In Northern Ireland, 92 per cent of pupils attended a school where the principal indicated that *more than eight weeks of teaching* had been affected by the Covid-19 pandemic

during the 2020/21 academic year. Most other principals indicated that *five to eight weeks of teaching* had been affected. Internationally, fewer than half (47 per cent) of pupils attended schools where normal operations were affected by the Covid-19 pandemic for *more than eight weeks of teaching* when pupils were in Year 6, and 14 per cent attended schools where normal operations were *not affected*. This indicates that, compared to pupils on average internationally, pupils in Northern Ireland experienced substantially more disruption to the normal operation of their schools.

Pupils from different countries, and also within countries, had different experiences during the Covid-19 pandemic, and countries responded in different ways. Covid-19 affected all education systems of the 56 PIRLS countries⁴ in some way, with all schools affected to some degree in 2020/21.

When normal school operations were affected, remote teaching or providing distance learning resources was common in Northern Ireland

In Northern Ireland, all pupils (100 per cent) attended schools whose principals reported providing remote teaching or distance learning resources for primary year groups when normal school operations were affected by the pandemic (during the 2020/21 academic year). This compared with 93 per cent of pupils internationally – a moderate difference.

Nearly all pupils in Northern Ireland were taught in schools whose principals reported supporting remote learning with *internet-based resources for pupils* (99 per cent) and *access to digital devices for teachers* (97 per cent). For all types of remote learning support provided by schools, a higher proportion of pupils in Northern Ireland received support than the international average, indicated, in most cases, by a large difference.

Principals' preparedness for remote teaching increased over time, as did their feelings of being supported

In Northern Ireland, the proportion of pupils whose principals reported feeling *Very well prepared* or *Well prepared* for remote teaching increased between September 2020 and June 2021 from 48 per cent to 95 per cent.

The proportion of pupils whose principals felt *Not supported at all* by education authorities in providing remote teaching fell between September 2020 and June 2021, from 50 per cent to 29 per cent.

Additionally, over half of pupils in Northern Ireland were taught by teachers who agreed *a lot or a little* that they had received *sufficient guidance* to provide remote learning (60 per

⁴ Data from questionnaire items related to Covid-19 are not available for Singapore.

cent) and *felt able to adequately support pupils during periods of remote learning* (57 per cent).

The statements with the highest proportion of pupils whose teachers disagreed *a lot*, were related to training: *I had adequate access to training in order to provide remote learning* (28 per cent of pupils) and *I felt adequately trained to use software for remote learning, e.g., Microsoft Teams* (26 per cent of pupils). However, the percentage of pupils whose teachers agreed *a lot* with these statements were 15 per cent and 22 per cent respectively.

Most parents reported their child's learning had been at least *Somewhat adversely affected*

In Northern Ireland, 31 per cent of pupils had parents who reported that their child's learning had been adversely affected *A lot*, 54 per cent *Somewhat adversely affected* and 11 per cent *Not at all adversely affected* by the Covid-19 pandemic. Internationally, a lower proportion of pupils (22 per cent) had parents who reported that their learning had been adversely affected *A lot* by the Covid-19 pandemic, indicating a moderate difference compared with Northern Ireland.

Socio-economic disadvantage and attainment in PIRLS 2021

Pupils who were eligible for free school meals (FSME) performed less well on PIRLS compared with those who were not eligible

Twenty-seven per cent of pupils in Northern Ireland were eligible for free school meals (FSME) in PIRLS 2021 and these pupils scored, on average, 49 points below non-FSME pupils (531 and 580 respectively). In 2016, this gap was 48 points (Sizmur, Galvis and Kirkup, 2020), suggesting little change over time.

Using a slightly different way of recognising disadvantage found similar results. Pupils who had been FSME at any point in the last six years (39 per cent of pupils) scored, on average, 49 points lower than those who had not (with scores of 537 and 586 respectively).

Evidence continues to suggest a relationship between socio-economic disadvantage and attainment

There is consistent evidence from large-scale international surveys that there is a strong relationship between a pupil's home socio-economic status and their attainment, as well as a school's socio-economic profile and the performance of pupils (Mullis, Martin, Foy, *et al.*, 2017; OECD, 2019; Sizmur, Galvis and Kirkup, 2020). In PIRLS 2021, whichever measure of socio-economic disadvantage was considered, the pattern was the same; socio-

economically disadvantaged pupils had, on average, lower attainment than their non-disadvantaged peers.

A higher proportion of pupils in Northern Ireland were categorised as having *Higher socio-economic status*⁵ compared with the international average (47 per cent and 30 per cent respectively). Pupils categorised as having *Higher socio-economic status* had, on average, higher attainment than those having *Lower socio-economic status*.

Additionally, pupils who were in *More affluent schools*⁶ had, on average, a score higher than those in the *More disadvantaged*⁷ schools. Thirty-eight per cent of pupils in Northern Ireland were categorised as being in *More affluent schools*, compared with 31 per cent in *More disadvantaged schools*.

Reading attitudes and behaviours

Pupils in Northern Ireland appeared more confident in reading than the international average, but liked reading less

Pupils' confidence in reading was higher in Northern Ireland than the international average (47 and 43 per cent of pupils respectively were *Very confident* readers). Both Northern Ireland and the international average have remained similar between 2016 and 2021.

However, the proportion of pupils who *Very much like reading* (28 per cent) in Northern Ireland was lower than the international average (42 per cent) and lower than in 2016 (39 per cent). This large decrease between 2016 and 2021 in Northern Ireland mirrors what is seen in other comparator countries such as the Republic of Ireland and Poland.

The proportion of pupils who were categorised as having *High digital self-efficacy* was also higher than the international average (51 per cent and 38 per cent respectively).

Pupils in Northern Ireland who reported more positive attitudes towards reading (liking of and confidence in) and behaviours (digital self-efficacy) had higher reading attainment. This trend was consistent across comparator countries and with the international average.

⁵ The international Home socio-economic status uses four indicators: 1. parents' education, 2. parents' occupation, 3. number of books in the home and 4. number of children's books in the home.

⁶ Schools where more than 25 per cent pupils come from economically affluent homes and not more than 25 per cent from economically disadvantaged homes.

⁷ Schools where more than 25 per cent of pupils come from economically disadvantaged homes and not more than 25 per cent from economically affluent homes.

Girls reported more positive attitudes and behaviours in reading than boys in Northern Ireland

In Northern Ireland larger percentages of girls compared to boys were in the highest categories across the reading attitudes scales, namely, *Very much like reading* (33 per cent of girls and 22 per cent of boys), *Very confident in reading* (48 per cent of girls and 45 per cent of boys).

Parents also demonstrated positive attitudes in reading

Northern Ireland had a relatively high percentage of pupils with parents who *Very much like reading* (39 per cent) compared with the international average of 31 per cent, and a similar percentage to that in the Republic of Ireland (42 per cent).

Parents in Northern Ireland reported one of the highest percentages of pupils (64 per cent) who were *Often* exposed to early literacy activities (such as reading books, singing songs, writing letters) at home before primary school. This was much higher than the international average (42 per cent) and higher than the other comparator countries, the Republic of Ireland (56 per cent), Poland (53 per cent), Singapore (35 per cent) and Finland (33 per cent).

School resources

Schools in Northern Ireland were perceived to be *Somewhat affected* by resource shortages

Eighty-one per cent of pupils attended schools where the principal reported that teaching reading was *Somewhat affected* by shortages in resources, a higher proportion than the international average (61 per cent). In Northern Ireland, just one per cent of pupils attended schools that were affected *A lot* by shortages in reading resources, moderately lower than the international average (8 per cent).

There are differences between the *Reading resource shortages* scale in 2021 compared with 2016. However, the proportion of pupils in Northern Ireland in schools that were *Not affected* by shortages or inadequacies of resources overall was lower (at 18 per cent) in 2021 than in 2016, when it was 44 per cent of pupils. This may reflect disruption and additional equipment needs resulting from the Covid-19 pandemic.

In Northern Ireland, the majority of pupils were taught in schools with a school library (70 per cent). This was lower than the international average (84 per cent). However, most pupils in Northern Ireland had access to a class library (83 per cent).

School learning environment

In Northern Ireland, pupils tended to be *Very engaged* in their reading lessons but were less positive about the things they were given to read

Over half of pupils were *Very engaged* in their reading lessons (59 per cent). This was similar to the international average (61 per cent) and the highest proportion of the comparator countries. Approximately four-fifths of pupils *Agreed a lot* that their teacher did a variety of things to help them learn (84 per cent) and told them how to do better when they made a mistake (82 per cent).

However, there were some areas of concern. Less than half of pupils *Agreed a lot* that they liked what they read in school (43 per cent), and that their teacher gave them interesting things to read (48 per cent).

Two-thirds of pupils reported being bullied *Never or almost never*

Sixty six per cent of pupils in Northern Ireland reported being bullied *Never or almost never*. This was similar to the international average (63 per cent). Around a fifth of pupils (18 to 23 per cent) reported experiencing specific bullying behaviours such as name-calling, hitting and being left out, at least *Once a month*. Other bullying behaviours such as being threatened, stealing and cyberbullying were less commonly reported (less than 10 per cent of pupils reported having experienced this at least *Once a month*).

Northern Ireland schools were categorised as having a *High emphasis* on academic success and *Hardly any problems* on the *School discipline* scale, and principals of 86 per cent of pupils participating in PIRLS 2021 reported that their schools placed a *High* or *Very high emphasis* on academic success. This was higher than the international average (68 per cent), indicating a large difference. Internationally, pupil attainment in reading tended to be higher in schools where principals reported a greater emphasis on academic success. This was also the case in Northern Ireland.

Principals indicated that the vast majority of pupils in Northern Ireland (84 per cent) were taught in schools with *Hardly any problems* with discipline or safety. This was above the international average of 64 per cent. Pupils in schools judged to have *Hardly any problems* tended to have higher average scores than those in schools judged to have *Minor problems*.

Teachers in Northern Ireland appeared to be less satisfied with their job than was seen internationally and there was an increase over time in perceived limitations on their teaching

Less than half of pupils in Northern Ireland had teachers who were *Very satisfied* with their job (46 per cent). This was lower than the international average (61 per cent) and lower than in 2016 (62 per cent). The decline over time appears to be because more teachers were responding *Often* to the statements about satisfaction which make up the scale, rather than *Very often*.

The vast majority of teachers reported they were *Very often* or *Often* proud of their work (92 per cent) and found it *full of meaning and purpose* (90 per cent). They reported less sense of being appreciated as teachers, with only half of teachers (54 per cent) experiencing this *Very often* or *Often*. This was a large difference compared to the international average (73 per cent).

Around one in five pupils had teachers who reported that their teaching had been substantially limited by *pupils needing additional support with reading, pupils lacking pre-requisite knowledge and skills, and pupils absent from class*. Teaching for around a fifth of pupils was limited *A lot* by each of these factors (20 per cent, 19 per cent and 16 per cent respectively). This was similar to the international average.

For Northern Ireland these issues⁸ have increased since 2016, which might be related to missed learning and pupil absence due to the Covid-19 pandemic. On the other hand, one quarter of pupils (25 per cent) had classroom teaching limited *Very little* by *pupils not ready for instruction*.

Teachers had engaged in a wide range of professional development related to teaching reading over the past two years, but less so than teachers internationally

In Northern Ireland 68 per cent of pupils had teachers who had engaged in at least one professional development activity in reading in the last two years. Across all areas of professional development, fewer pupils in Northern Ireland were taught by teachers who had participated than the international average. Additionally, fewer pupils in Northern Ireland were taught by teachers that identified development areas as a *High priority* compared to the average internationally. The biggest differences for *High priority* were in *teaching reading comprehension skills or strategies* (26 per cent in Northern Ireland, 51

⁸ Pupils needing extra support in reading' was not asked in the 2016 cycle.

per cent internationally) and *integrating literacies across the curriculum* (18 per cent in Northern Ireland and 43 per cent internationally).

Differentiation of teaching for pupils' needs and interests and *integrating technology in teaching reading* were reported both as common areas of professional development in the last two years, 43 and 40 per cent respectively, and as continuing priorities for the future.

There was good access to and use of digital resources at home and in schools for the majority of pupils in Northern Ireland compared to the international average

Almost all pupils in Northern Ireland had an internet connection (98 per cent) at home and over four-fifths (82 per cent) had their own computer or tablet at home. These were both higher for pupils in Northern Ireland than the international averages of 88 per cent and 61 per cent respectively. This suggests that the majority of pupils in Northern Ireland had a means of accessing education material online.

In school, Northern Ireland had better computer access for Year 6 pupils (1.5 pupils per computer) than the international average (2.0 pupils per computer). Most pupils in Northern Ireland (70 per cent) also had access to digital devices for use during reading lessons. This was most commonly in the form of shared devices designated for the class, or school shared devices which the class can sometimes use.

Most pupils in Northern Ireland (87 per cent) had access to digital learning resources, such as books or videos, through school. This was moderately higher than the international average (80 per cent).

Principals were asked to what extent teaching in their school was limited by a shortage or inadequacy of specific digital resources in school. In Northern Ireland, the biggest issue was *A shortage or inadequacy of internet connection*; one in six pupils (16 per cent) in Northern Ireland were taught in schools affected *A lot* by issues with their internet connection.

Curriculum and learning activities

The proportion of teaching time spent on English teaching has remained similar across the last three cycles of PIRLS

Teachers in Northern Ireland spent 27 per cent of teaching time on English teaching⁹, and 15 per cent on teaching reading specifically (including reading across the curriculum).

⁹ Communication in English in the Northern Ireland Curriculum

These figures are similar to the international average (26 per cent and 16 per cent respectively) and those in 2016 for Northern Ireland (27 per cent and 14 per cent) and 2011 (28 per cent and 16 per cent).

The sequencing, across grades, of the reading skills and strategies within the primary curriculum in Northern Ireland is broadly similar to comparator countries and the average internationally

Of the 14 identified skills and strategies for reading, principals reported that seven were emphasised one grade (year group) earlier in Northern Ireland than on average internationally. At least half of the reading skills and strategies are taught in the same grade as in similarly high-attaining countries such as the Republic of Ireland, Singapore and England.

In Northern Ireland, two of the skills (*Evaluating and critiquing the style or structure of a text* and *Determining the author's perspective or intention*) were introduced in Year 5; the remaining 12 were introduced earlier.

Teachers reported that pupils in Northern Ireland are required to practise a wide range of comprehension skills and strategies. All or almost all pupils are asked to *Locate information in a text* (100 per cent), *Explain or support their understanding with text* (99 per cent) and *Identify the main ideas of what they have read* (97 per cent) at least weekly. The least frequently taught comprehension skills and strategies in Northern Ireland relate to *Evaluating the purpose and credibility of websites*, with only a minority of pupils (33 per cent and 24 per cent respectively) practising these skills weekly.

Pupils in 2021 were most commonly taught reading in same-ability groups, as was the case in 2016

As reported by teachers, same-ability grouping was most commonly used to arrange pupils in reading lessons in Northern Ireland, with four-fifths of pupils (85 per cent) being taught this way *Always* or *Often*. Only 40 per cent of pupils were *Always* or *Often* taught in same-ability groups internationally, a large difference compared to Northern Ireland.

In Northern Ireland, around half of pupils frequently engaged with whole-class teaching and independent work in reading lessons (57 and 49 per cent respectively) and two-fifths (40 per cent) had individualised instruction. Approximately one fifth of pupils in Northern Ireland (22 per cent) are frequently taught reading in mixed-ability groups.

In 2021, there was a lower use of same-ability grouping reported compared to 2016, indicated by a large difference (11 percentage points), but this approach is still much more common in Northern Ireland compared to pupils across the world.

Introduction

Report outline

This report summarises results from PIRLS 2021 which measured the reading attainment of pupils at the beginning of Year 7 in Northern Ireland. It also explores the importance of contextual factors that might impact on attainment, such as the home and school learning environments.

As mentioned, in 2021, pupils in Northern Ireland were in Year 7 when they took part in the study. In 2016 and 2011, pupils in Northern Ireland took part in May and June, when they were in Year 6. This difference was due to the impact of Covid-19 on the study. This report makes some comparisons with previous cycles and other participating countries. However, it is very important that readers are mindful of the context and how this may contribute to differences.

The Progress in International Reading Literacy Study (PIRLS) is an independent worldwide research study organised by the International Association for the Evaluation of Educational Achievement (IEA) which provides data about reading literacy. It takes place every five years and assesses the knowledge and skills of pupils aged 9 to 10 years old.

In September and October 2021, 4050 pupils from 143 schools across Northern Ireland took part in PIRLS 2021. This was the third time Northern Ireland had taken part in PIRLS, having previously participated in the 2016 and 2011 cycles.

The PIRLS data collection in Northern Ireland was due to take place in May and June of 2021. At that time, schools were facing a period of disruption resulting from the global Covid-19 pandemic. The Department of Education therefore took the decision to delay PIRLS in Northern Ireland by four months (from May to September) to avoid any further burden on participating schools at an already difficult time.

In this introduction, we outline:

- what PIRLS measures
- the countries which participated in PIRLS and when they participated in order to better understand comparability of data
- important considerations for understanding Northern Ireland's data.

What PIRLS measures

PIRLS identifies and assesses two purposes for reading: reading for *literary experience* and reading to *acquire and use information* (Mullis and Martin, 2019). Within each of the two reading purposes, the PIRLS assessment items measure four comprehension processes:

- focus on and retrieve explicitly stated information
- make straightforward inferences
- interpret and integrate ideas and information
- evaluate and critique content and textual elements.

To contextualise pupils' attainment in reading, PIRLS also gathers extensive background information about their school and home learning environments. This information can be used to provide education policymakers, school leaders, teachers and researchers with powerful insights into how education systems are functioning, including strategies used to teach reading, and pupils' level of engagement.

PIRLS 2021 included a transition to a digital assessment, with pupils in 26 countries¹⁰ and seven benchmarking participants¹¹ taking a digital assessment. As well as the four comprehension processes already mentioned, the digital assessment included five tasks specifically designed to assess online informational reading, based on simulated websites about scientific and historical subject matter. However, Northern Ireland was among the 31 countries and one benchmarking participant which carried out the assessment on paper only. PIRLS 2021 also included a group adaptive design, which was used in Northern Ireland. For more information on the digital and paper-based assessment and the group adaptive design see Appendix A.

All countries that participated in PIRLS 2021 were affected by the Covid-19 pandemic. The remainder of this chapter provides some important information that readers should consider when interpreting the PIRLS 2021 results.

¹⁰ The United States administered the PIRLS 2021 digital assessment and the PIRLS 2021 paper "bridge" assessment. The United States opted to report the paper bridge scores.

¹¹ Benchmarking participants are regional entities which follow the same guidelines and targets to provide samples that are representative at regional level. Their results are not presented in this report but are included in PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023).

Participating countries in PIRLS 2021

PIRLS is a grade-based study rather than an age-based study. In participating countries, pupils are assessed towards the end of their fourth year of compulsory schooling, with a minimum average age constraint of 9.5 years at the time of testing. This means, historically, Year 6 pupils in Northern Ireland were assessed.

In total, 57 countries along with eight benchmarking participants took part in PIRLS 2021. Due to the school disruption and closures caused by the Covid-19 pandemic, PIRLS 2021 data collection extended over 22 months from October 2020 to July 2022. This was because some countries' data collection periods were delayed. Participating countries can, therefore, be considered to belong to one of three groups.

Group 1 – Countries and benchmarking participants which tested according to the original plan

In this group are two southern hemisphere countries, 35 northern hemisphere countries and four northern hemisphere benchmarking participants. These countries and benchmarking participants continued with PIRLS as originally planned. This meant their data were collected towards the end of the pupils' fourth year of schooling¹² (equivalent to Year 6 in Northern Ireland).

Southern hemisphere countries that tested in October to December 2020

- New Zealand
- Singapore

¹² Apart from Norway, which regularly assesses its fifth-grade pupils in PIRLS

Northern hemisphere countries that tested in February to July 2021

- Albania
- Austria
- Azerbaijan
- Belgium (Flemish)
- Belgium (French)
- Bulgaria
- Chinese Taipei
- Cyprus
- Czech Republic
- Denmark
- Egypt
- Finland
- France
- Germany
- Hong Kong, SAR
- Italy
- Jordan
- Kosovo
- Macao, SAR
- Malta
- Montenegro
- Netherlands
- North Macedonia
- Norway (Grade 5 pupils)
- Oman
- Poland
- Portugal
- Russian Federation
- Serbia
- Slovak Republic
- Slovenia
- Spain
- Sweden
- Turkey
- Uzbekistan

Benchmarking participants:

- Alberta, Canada
- British Columbia, Canada
- Newfoundland and Labrador, Canada
- Moscow City, Russian Federation

Group 2 – Northern hemisphere countries and benchmarking participants that delayed their data collection period

Group 2 comprises 14 northern hemisphere countries and three benchmarking participants which had to delay their data collection. Pupils were at the beginning of the fifth grade (equivalent to Year 7 in Northern Ireland).

Northern hemisphere countries that tested in September to December 2021

- Bahrain
- Croatia
- Georgia
- Hungary
- Kazakhstan
- Latvia
- Lithuania
- Morocco
- **Northern Ireland**
- Qatar
- Republic of Ireland
- Saudi Arabia
- United Arab Emirates
- United States

Benchmarking participants:

- Quebec, Canada
- Abu Dhabi, UAE
- Dubai, UAE

Group 3 – Countries and benchmarking participants that delayed their data collection period by one year

A third group of countries conducted their data collection period a year later than they had originally planned. This was made up of three southern hemisphere countries, one southern hemisphere benchmarking participant and three northern hemisphere countries. Pupils were still at the end of Grade 4 (Year 6 equivalent). South Africa assessed both its Grade 4 pupils and its Grade 6 pupils, with the latter being considered a benchmarking participant.

Southern hemisphere countries that tested in August to December 2021

- Australia
- Brazil
- South Africa

Benchmarking participant:

- South Africa (with Grade 6 pupils)

Northern hemisphere countries that tested in April to July 2022

- England
- Iran
- Israel

An important note on comparisons of attainment in PIRLS 2021

Because of the Covid-19 disruption, data collection for pupils assessed in Group 2 took place when pupils were, on average, six months older than pupils in previous cycles, and in the first term of the following school year. Pupils in Group 2 countries were assessed in the fifth grade (Year 7 in Northern Ireland), rather than the fourth grade (Year 6 in Northern Ireland) as in previous cycles. Pupils in Northern Ireland were between four to five months older in PIRLS 2021 than in PIRLS 2016 (average ages of 10.8 and 10.4 respectively; see Appendix A.6 for more details on Northern Ireland's trend in pupil populations).

The PIRLS 2021 international report (Mullis *et al.*, 2023) notes a more positive trend over time for Group 2 countries than is seen in the other countries (also discussed in Chapter 1 of this report). This could be seen as a potential 'achievement advantage' (Mullis *et al.*, 2023, p.13) related to pupils being older in Group 2 countries. As such, caution should be applied when making comparisons with countries in other groups, and when making over-time comparisons for Group 2 countries.

As the pupils were older, higher attainment scores might be expected, but it is impossible to determine the effect of age on pupils in PIRLS whilst also considering other factors. For example, research has pointed to learning loss caused by the Covid-19 pandemic (Moscoviz and Evans, 2022; Twist, Jones and Treleaven, 2022). The PIRLS 2021 cohort in Northern Ireland was in the first term of Year 7, which means pupils would have experienced up to three months more contact time in the classroom. However the assessment took place after the summer holidays which may suggest some summer learning loss. Additionally, achievement in the autumn can be influenced by whether pupils participated in summer schools/programmes (Cooper, Charlton and Valentine, 2000; Kim and Quinn, 2013).

As a result, throughout this report, comparisons made involving Northern Ireland's attainment data should be interpreted with caution.

Countries with which Northern Ireland is compared

The report compares performance in Northern Ireland with that of six other PIRLS countries. Although it is important to interpret comparisons with caution because of the different periods of data collection, they can still help to contextualise the findings in Northern Ireland and identify patterns. The six countries were selected because they have similarities with Northern Ireland, and/or because they are high performers, and/or because they have demonstrated significant changes between PIRLS cycles. Table 1 provides the reason for their inclusion.

Table 1 **Comparator countries for this report**

Country	Group	Reasons for comparison
Finland	1	<ul style="list-style-type: none"> • Finland has been among the highest-performing countries in previous cycles. There has been a decline between 2016 and 2021 which is interesting to consider alongside Northern Ireland. • It is a European country. • Finland has a similar socio-economic profile to Northern Ireland using the PIRLS measure of Socio-Economic Status (SES).

Country	Group	Reasons for comparison
Poland	1	<ul style="list-style-type: none"> Poland was a high-performing country in PIRLS 2016. In 2021, it performed less well than 2016, making it interesting to examine alongside Northern Ireland's stable performance. It is a European country.
Singapore	1	<ul style="list-style-type: none"> Singapore is the highest-performing country in PIRLS 2021. It continues to demonstrate significant improvements over time. Pupils take the assessment in English, as they do in Northern Ireland.
Republic of Ireland	2	<ul style="list-style-type: none"> The Republic of Ireland is a Group 2 country, meaning it also tested pupils at the beginning of the fifth grade (Year 7 in Northern Ireland). This makes the Republic of Ireland Northern Ireland's strongest comparator country. It is a high-performing country, showing a general trend of improvement over time. Pupils take the assessment in English, as they do in Northern Ireland. The Republic of Ireland has cultural similarities to Northern Ireland.
Australia	3	<ul style="list-style-type: none"> Australia is among the top-performing English-speaking countries. It significantly improved between the 2011 and 2016 cycles and its performance has remained stable between 2016 and 2021.
England	3	<ul style="list-style-type: none"> England is a high-achieving English-speaking country. As with Northern Ireland, England's performance has been relatively stable over time. England has cultural similarities to Northern Ireland. <p>However, it is worth noting that England participated a year later than planned. Whilst pupils were of the correct PIRLS age, they participated in 2022 (as opposed to 2021 as most other countries). These pupils would have benefited from a longer time in school after periods of closure, and from longer to avail of relevant Covid-19 recovery programmes compared with pupils in Northern Ireland.</p>

Although the countries in Group 2 which delayed testing, as Northern Ireland did, may be considered useful as comparators, they differ from Northern Ireland in many other ways (apart from the Republic of Ireland). This is why they do not make up the comparator countries in this report.

Northern Ireland's participation rate in PIRLS 2021

The PIRLS samples were drawn according to internationally specified criteria and were intended to be representative of the national population of pupils in the target grade. Strict criteria needs to be met for inclusion in the international database, and only a small proportion of schools from the original representative sample may be replaced and this is only after agreement from the international consortium (further details can be found in Appendix A.5).

In Northern Ireland, 143 schools and 4050 pupils took part in PIRLS 2021. This gave Northern Ireland an overall participation rate of 67 per cent before replacement schools, and 81 per cent after the inclusion of replacement schools (as shown in Table 2).

Table 2 Northern Ireland's PIRLS 2021 participation rates (weighted)

School (before replacement) (%)	School (after replacement) (%)	Class (%)	Pupil (%)	Overall (before replacement) (%)	Overall (after replacement) (%)
74	90	100	90	67	81

Source: Exhibit A.5, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Northern Ireland's data met the international requirements and were deemed to be nationally representative. However, there was an increase in the sampled pupils who did not participate in the study compared to previous cycles.

Absence rate

At the time of testing, Covid-19 was affecting schools, with staff and pupils required to stay at home if they had Covid-19 or had been identified as a close contact. In Northern Ireland, 456 pupils were absent¹³ from the study. This is a larger number of pupils than in PIRLS 2016 (180) and 2011 (280).

¹³ Absence includes both pupils who were absent on the day of the test and those who were withdrawn by their parents.

Exclusion rate

In some circumstances, schools and pupils may be excluded from PIRLS. For pupils, this is because, in the opinion of an educational professional, they have a disability or language barrier that prevents them from accessing the assessment (see Appendix A.5 for further details).

In PIRLS 2021, Northern Ireland's overall exclusion rate of 5.5 per cent was higher than in previous cycles (3 per cent in 2016 and 3.5 per cent in 2011). The increase was predominantly driven by pupil-level exclusions (rather than exclusions at school-level, such as special schools). In Northern Ireland, decisions about individual pupils were made by their teachers based on internationally agreed criteria. There are two reasons for the possible increase. Firstly, correspondence with some schools indicated that teachers were identifying a higher than expected instance of special education needs (SEN) in their cohorts. Secondly, for the first time, pupils from Learning Support Centres were included in Northern Ireland's sampling frame on the assumption that they could be excluded later, which they were. (Further details on Northern Ireland's exclusion rate can be found in Appendix A.6.)

Trend comparisons with 2016 and 2011

The report outlines Northern Ireland's performance in PIRLS 2021 and the performance in PIRLS 2016 and PIRLS 2011 (Chapter 1). As highlighted above, pupils in 2021 were between four and five months older than pupils in 2016 and 2011. Additionally, pupils who participated in PIRLS 2021 had their learning disrupted substantially by the Covid-19 pandemic (Chapter 5 has more detail). As such, caution is needed when comparing Northern Ireland's performance over time.

Where possible, the report also explores whether the background factors that impact on attainment have changed between the cycles of PIRLS. Additionally, the contextual questionnaires (school questionnaire, teacher questionnaire, pupil questionnaire and home questionnaire) have undergone some changes since previous PIRLS cycles, and it is important to recognise that the context and interpretation of the questions may also have changed over time. As such, comparisons around background questionnaires should also be interpreted with caution and more information is provided within each relevant chapter.

1. Attainment in PIRLS 2021 in Northern Ireland

Chapter outline

This chapter summarises pupils' attainment in reading in PIRLS 2021. In each section, the relevant tables of results are presented, accompanied by discussion of the outcomes.

Outcomes for Northern Ireland are compared with those of other relevant countries. This chapter also looks at Northern Ireland's performance over time across three PIRLS cycles and highlights some relevant policy changes and education initiatives over that period. Variations in score by pupil background (e.g., gender, socio-economic status, level of attainment) are discussed elsewhere in the report.

Key findings

Northern Ireland's delay in data collection should be considered alongside these key findings. Pupils in Northern Ireland were at the beginning of Year 7, as opposed to the end of Year 6 as in 43 other countries, and four to five months older in PIRLS 2021 compared with PIRLS 2016 and 2011.

- In PIRLS 2021, the average score for reading in Northern Ireland was 566, which was significantly¹⁴ above the PIRLS Scale Centrepoint (500).
- Pupils in Northern Ireland significantly outperformed 52 of the 56 other participating countries in reading and were significantly outperformed by two (Singapore and the Republic of Ireland).
- Northern Ireland's overall attainment in PIRLS has increased over ten years. The largest (although non-significant) increase in score occurred between 2011 (558) and 2016 (565). In 2021, Northern Ireland's performance in reading was similar to 2016 but significantly higher than in 2011.
- There was a mixture of trend patterns across comparator countries. Singapore and the Republic of Ireland have shown an upward trend in performance over time, with overall respective scores in each cycle being, in most cases, significantly higher than the previous cycle.
- In contrast, Finland and Poland have seen significant decreases in overall attainment between 2016 and 2021. This pattern was more common across Group 1 countries (that is, countries that tested according to the original PIRLS timeline), whereas

¹⁴ Throughout this report, the term 'significant' refers to statistical significance. When statistical significance is reported, it indicates that the compared mean scores are significantly different at the five per cent level

Group 2 countries (countries that delayed their testing to the start of Year 7) had a more positive trend.

Interpreting differences between countries

It is important to know what can reasonably be concluded from the PIRLS data, which interpretations would be going beyond the reasonable level and what can be reliably supported by the results. Some important points need to be kept in mind while reading this report.

Sources of uncertainty

There are two sources of uncertainty which have to be taken into account in the statistical analysis and interpretation of any test results. These are described as sampling error and measurement error. The use of the term 'error' does not imply that a mistake has been made; it simply highlights the necessary uncertainty.

Sampling error stems from the inherent variation of human populations which can never be summarised with absolute accuracy. It affects virtually all research and data collection that makes use of sampling. Only if every 9- and 10-year-old in each participating country had taken part in PIRLS could it be stated with certainty that the results are totally representative of the attainment of the entire population of pupils in those countries. In reality, the data were collected from a sample of pupils. Therefore, the results are a best estimation of how the total population of 9- and 10-year-olds could be expected to perform in these tests. There are statistical methods to measure how good the estimation is. It is important to recognise that all data on human performance or attitudes which is based on a sample carries a margin of error.

Measurement error relates to the results obtained by each individual pupil. It takes account of variations in their scores which are not directly due to underlying ability in the subject, but which are influenced by other factors related to individuals or to the nature of the tests or testing conditions.

Important note on scaling the PIRLS 2021 data

PIRLS 2021 faced some analytic complexities which had not been experienced in previous PIRLS cycles. Delays in countries' data collection periods led to unforeseen differences across countries' performance. Additionally, the transition to digital in PIRLS 2021 (mentioned in the Introduction) adds complexity to the data because of the potential differences in taking a digital test versus a paper-and-pen test. It was necessary for the

international consortium to adapt past scaling procedures to ensure that the results from countries administering the digital tests and those administering paper-based tests were comparable. More detail can be found in PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) or the PIRLS 2021 Technical Report (Bezirhan, Foy and von Davier, 2023).

An important note on comparisons of attainment in PIRLS 2021

Cross-country and trend comparisons concerning Northern Ireland's attainment should be interpreted with caution.

Because of the Covid-19 pandemic, data collection for pupils assessed in Group 2 (including Northern Ireland and the Republic of Ireland) and Group 3 (including England) was disrupted. For Group 2, data collection took place when pupils were, on average, six months older than pupils in previous cycles, and in the first term of the following school year (Year 7 in Northern Ireland, rather than Year 6, as in previous cycles). Pupils in Group 3 tested one year later than Group 1 countries, but pupils were also in Grade 4 (equivalent to Year 6). The change in timing introduced additional factors that may affect overall attainment: a potential 'achievement advantage' (Mullis *et al.*, 2023, p.13) related to pupils being older in Group 2 countries, more contact time in the classroom, and involvement in any catch-up programmes, as well as potential disadvantages related to summer learning loss as well as Covid-19 learning loss.

Interpreting the data: participation notes

Countries participating in PIRLS follow guidelines and strict sampling targets to provide samples that are nationally representative¹⁵.

Northern Ireland successfully met the sampling requirements for participation once replacement schools were included. Consequently, further analysis of the sample, to ensure it was not biased, was not required.

¹⁵ For full details of PIRLS Methods and Procedures see von Davier *et al.*, 2023

1.1. Reading attainment across countries in PIRLS 2021

Table 1.1 shows the average (mean) reading attainment for all countries participating in PIRLS 2021. Countries¹⁶ are presented according to their average attainment in descending order. Northern Ireland's position is indicated by a black outline. This table also shows whether a country's average attainment is significantly different from the PIRLS Scale Centrepoint (500) and whether it is significantly different from Northern Ireland's average attainment.

As noted previously, there are some differences in the sample of pupils making up countries' average scores due to the delay in testing periods. The PIRLS 2021 International Results in Reading report (Mullis *et al.*, 2023) does not include significance testing for Group 2 countries compared with Group 1 and 3 countries¹⁷. However, testing for statistical significance provides meaning and further context to Northern Ireland's average score and ranking. It can tell us *where* there are differences, but further work is needed to investigate *why* there are differences. We have therefore used the international database to calculate significant differences between Northern Ireland and the other PIRLS countries¹⁸ and these are included in Table 1.1.

Interpreting the data: performance groups

Countries' mean scores on the PIRLS achievement scale are listed in the 'Average scale score' column of Table 1.1. The PIRLS achievement scale has a centre point of 500 and a standard deviation of 100. The scale is standardised in this way to facilitate comparisons between countries and over time.

The third column in Table 1.1 indicates whether the average attainment in that country is significantly higher or lower than the PIRLS Scale Centrepoint of 500. The standard error (in brackets after the average scale score) refers to uncertainty in estimates resulting from random fluctuations in samples. The smaller the standard error, the better the score is as an estimate of the population's score. The distribution of attainment is discussed further in Chapter 3.

The fourth column identifies whether any given difference between Northern Ireland's score and those of other countries is, or is not, statistically significant. Readers should

¹⁶ PIRLS includes 'benchmarking participants'. These are regional entities which follow the same guidelines and targets to provide samples that are representative at regional level. Their results are not reported here but are included in the PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023).

¹⁷ The authors of the PIRLS international report say Group 2 countries are a different *a priori* and cannot be compared with a null hypothesis of no difference.

¹⁸ With approval from the authors of the PIRLS international report

keep in mind that Northern Ireland pupils were at the beginning of Year 7, and there were higher absence and exclusion rates in PIRLS 2021 than in previous cycles (see Introduction).

Interpreting the data: international rankings

Rankings can be volatile, and it is important to bear in mind that small differences in overall attainment may or may not be statistically significant, depending on the size of the standard error for each country.

Table 1.1 Average reading attainment in PIRLS 2021

Countries in pink delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green assessed one year later than originally scheduled, with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Average scale score	Significantly higher or lower than the PIRLS Scale Centrepont (500)	Significantly higher or lower than Northern Ireland (566)
Singapore [3]	587 (3.1)	Higher	Higher
Republic of Ireland	577 (2.5)	Higher	Higher
Hong Kong, SAR [2] [RS]	573 (2.7)	Higher	No significant difference
Russian Federation	567 (3.6)	Higher	No significant difference
Northern Ireland [2] [RS]	566 (2.5)	Higher	-
England	558 (2.5)	Higher	Lower
Croatia [RS]	557 (2.5)	Higher	Lower
Lithuania	552 (2.3)	Higher	Lower
Finland	549 (2.4)	Higher	Lower
Poland	549 (2.2)	Higher	Lower
United States [2] [D]	548 (6.8)	Higher	Lower
Chinese Taipei	544 (2.2)	Higher	Lower
Sweden [2]	544 (2.1)	Higher	Lower
Australia	540 (2.2)	Higher	Lower
Bulgaria	540 (3.0)	Higher	Lower

Country	Average scale score	Significantly higher or lower than the PIRLS Scale Centrepoint (500)	Significantly higher or lower than Northern Ireland (566)
Czech Republic	540 (2.3)	Higher	Lower
Hungary	539 (3.4)	Higher	Lower
Denmark [2] [RS]	539 (2.2)	Higher	Lower
Norway [Grade 5]	539 (2.0)	Higher	Lower
Italy [2]	537 (2.2)	Higher	Lower
Macao, SAR	536 (1.3)	Higher	Lower
Austria	530 (2.2)	Higher	Lower
Slovak Republic [RS]	529 (2.7)	Higher	Lower
Latvia	528 (2.6)	Higher	Lower
Netherlands [D]	527 (2.5)	Higher	Lower
Germany	524 (2.1)	Higher	Lower
New Zealand [RS]	521 (2.3)	Higher	Lower
Spain	521 (2.2)	Higher	Lower
Portugal [2]	520 (2.3)	Higher	Lower
Slovenia	520 (1.9)	Higher	Lower
Malta	515 (2.7)	Higher	Lower
France	514 (2.5)	Higher	Lower
Serbia [3]	514 (2.8)	Higher	Lower
Albania [2]	513 (3.1)	Higher	Lower
Cyprus	511 (2.9)	Higher	Lower
Belgium (Flemish)	511 (2.3)	Higher	Lower
Israel [3]	510 (2.2)	Higher	Lower
Kazakhstan	504 (2.7)	No significant difference	Lower
PIRLS Scale Centrepoint	500	-	Lower
Turkey [2]	496 (3.4)	No significant difference	Lower
Belgium (French) [2]	494 (2.7)	Lower	Lower

Country	Average scale score	Significantly higher or lower than the PIRLS Scale Centrepont (500)	Significantly higher or lower than Northern Ireland (566)
Georgia [1]	494 (2.6)	Lower	Lower
Montenegro [3]	487 (1.6)	Lower	Lower
Qatar	485 (3.7)	Lower	Lower
United Arab Emirates	483 (1.8)	Lower	Lower
Bahrain	458 (2.9)	Lower	Lower
Saudi Arabia [3]	449 (3.6)	Lower	Lower
North Macedonia	442 (5.3)	Lower	Lower
Azerbaijan	440 (3.6)	Lower	Lower
Uzbekistan	437 (2.9)	Lower	Lower
Oman	429 (3.7)	Lower	Lower
Kosovo [2]	421 (3.1)	Lower	Lower
Brazil [2] [RS]	419 (5.3)	Lower	Lower
Iran	413 (4.9)	Lower	Lower
Jordan	381 (5.4)	Lower	Lower
Egypt [2] [R15]	378 (5.4)	Lower	Lower
Morocco	372 (4.5)	Lower	Lower
South Africa [R25]	288 (4.4)	Lower	Lower

The PIRLS achievement scale was established in 2001 based on the combined achievement distribution of all countries that participated in PIRLS 2001. To provide a point of reference for country comparisons, the PIRLS Scale Centrepont of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population. A [1] indicates the national target population does not include all of the international target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included. [D] indicates the country did not satisfy guidelines for sample participation rates.

[R15] means reservations about reliability because the percentage of pupils with attainment too low for estimation exceeds 15 per cent but does not exceed 25 per cent. [R25] means reservations about reliability because the percentage of pupils with attainment too low for estimation exceeds 25 per cent.

Source: Exhibit 1.3 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and PIRLS 2021 international database for comparison to Northern Ireland's score

Northern Ireland performed very well in PIRLS 2021. The PIRLS 2021 reading score for pupils was 566, significantly above the PIRLS Scale Centrepoint (500). This mean scale score was 21 scale points lower than that of the highest performing country, Singapore, and 278 scale points higher than that of the lowest performing country, South Africa.

Although comparisons across groups should be undertaken with care (as pupils in Group 2 countries were older than in other countries), the findings show that Northern Ireland was significantly outperformed by two of the 56 other participating countries (Singapore and the Republic of Ireland). However, two more countries performed similarly to Northern Ireland (Hong Kong SAR and Russian Federation) as, whilst their scale scores are higher, the differences are not statistically significant. Northern Ireland significantly outperformed the remaining 52 participating countries.

Of the countries selected for comparison in this report, two had significantly higher scores than Northern Ireland (Singapore and the Republic of Ireland), whereas the others had significantly lower scores compared with Northern Ireland (England, Finland, Poland and Australia).

Among the 14 countries that delayed their data collection until the beginning of Year 7 (Group 2 countries, highlighted in pink on Table 1.1), Northern Ireland's average reading attainment was second only to the Republic of Ireland. In 2016, Northern Ireland and the Republic of Ireland also significantly outperformed the other Group 2 countries, indicating that Northern Ireland and the Republic of Ireland are generally higher attaining in PIRLS than the other Group 2 countries.

Northern Ireland ranked fifth¹⁹ among all the participating nations. In PIRLS 2016, Northern Ireland ranked seventh and this change in ranking in 2021 is due to decreases in the reading attainment scores over time in Finland and Poland (see Section 1.2).

¹⁹ Rankings should be treated with caution as some apparent differences in attainment may not be statistically significant. See 'Interpreting the data: international rankings' for more information. In absolute terms, Northern Ireland is ranked fifth, but the Russian Federation, for example, which is ranked fourth, has a scale score that is not significantly different from that of Northern Ireland (see Table 1.1).

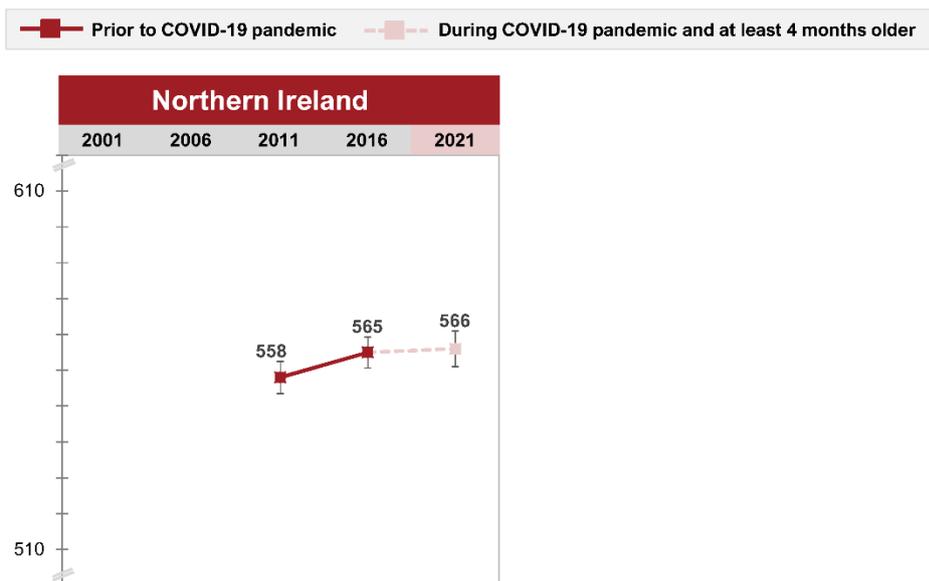
1.2. Attainment in PIRLS over time

One of the benefits of PIRLS is the ability to track country-level performance over time. Looking only at country rankings can result in misleading interpretations, as rankings can be volatile, varying according to the mix of countries participating in any given cycle. Measurement of trends in scores can indicate progress in a more stable fashion, since the outcomes from successive cycles of PIRLS are analysed on comparable scales.

As already noted, PIRLS 2021 was impacted by the Covid-19 pandemic which affected some countries' testing periods. This means the interpretation of trends should be undertaken with caution, always keeping in mind the context of this PIRLS cycle.

Figure 1.1 shows the reading attainment for pupils in Northern Ireland over three cycles: 2011, 2016 and 2021.

Figure 1.1 Trends in reading achievement in Northern Ireland



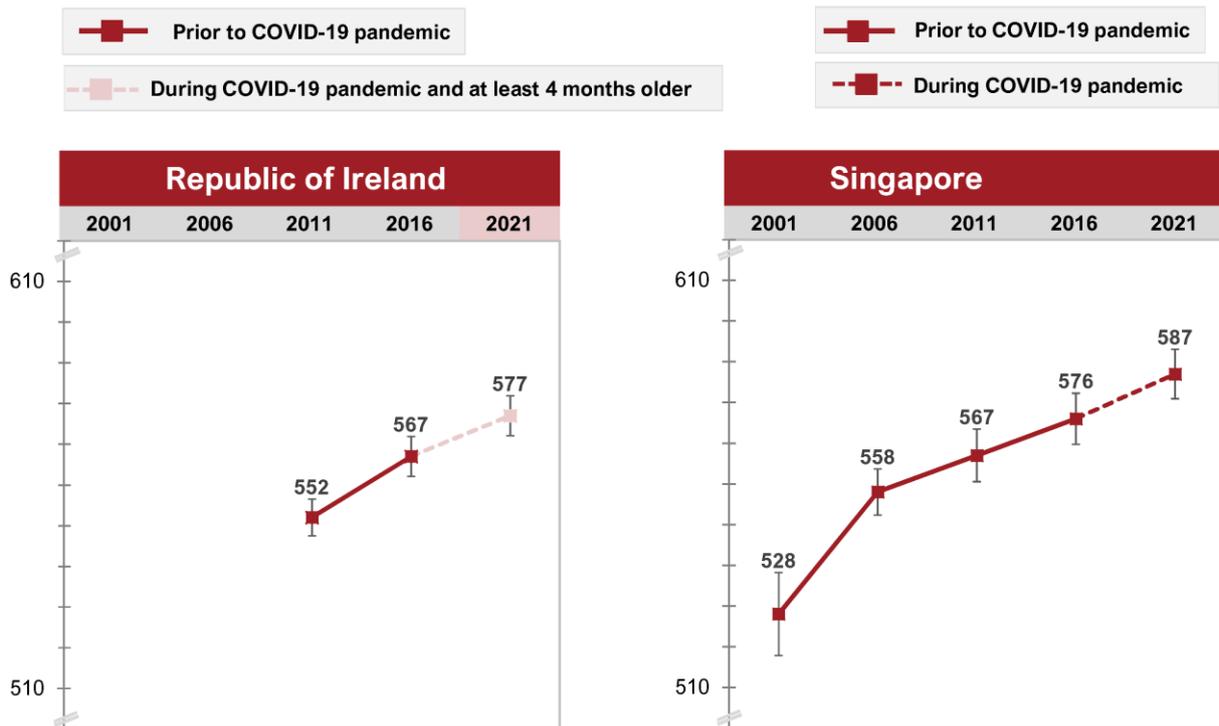
Source: Exhibit 2.2.1 PIRLS 2021 International Results in Reading (Mullis et al., 2023)

Figure 1.1 shows that reading attainment in Northern Ireland has increased since 2011. The largest (but non-significant) increase in score occurred between 2011 (558) and 2016 (565). The score in 2021 was significantly higher than in 2011, but similar to the score in 2016.

Pupils in 2021 were four to five months older than pupils who took part in PIRLS 2016. It is difficult to determine what impact, if any, age (and therefore more contact time in the classroom) had on pupils' performance in PIRLS 2021 against the impact of Covid-19 learning loss and/or learning recovery.

Figures 1.2 to 1.4 present the trend performance of the comparator countries. These are grouped to demonstrate the different patterns in performance over time. The dotted line is used to indicate the Covid-19 pandemic which occurred after the 2016 cycle, but the annotation does not indicate the scale of any disruption or impact of the pandemic, or whether there was any impact.

Figure 1.2 Trends in reading achievement in the Republic of Ireland and Singapore



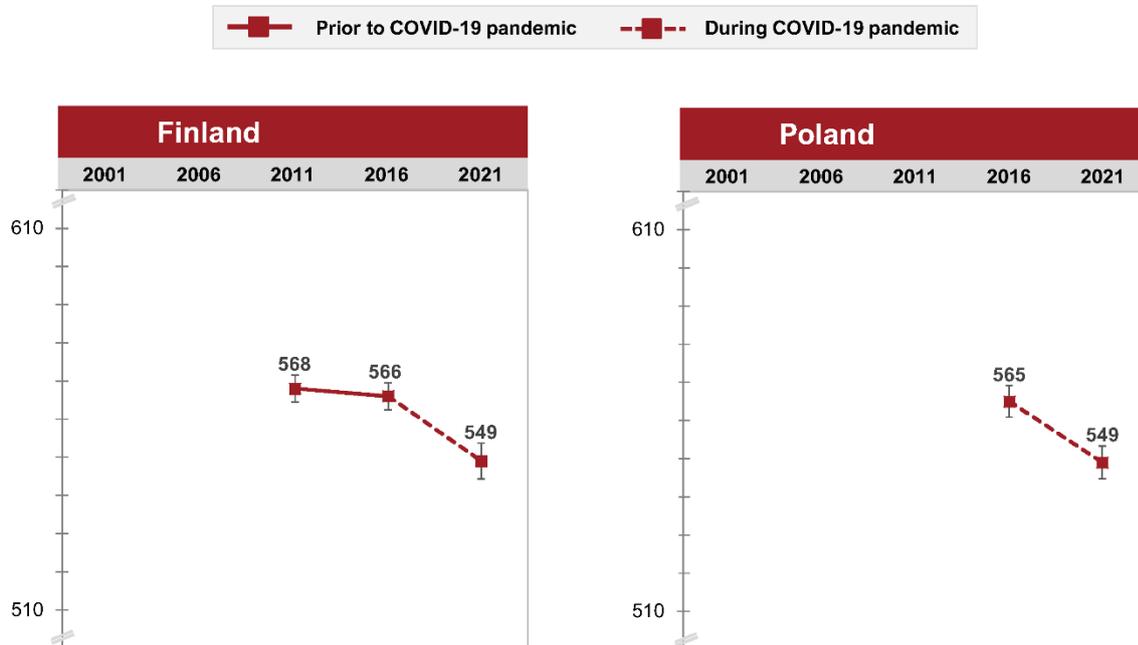
Source: Exhibit 2.1.1 and Exhibit 2.2.1 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Singapore and the Republic of Ireland, the two highest performing countries in PIRLS 2021, have shown an upward trend in their performance, with their overall score in each cycle being, in most cases, significantly higher than the previous cycle. Pupils in the Republic of Ireland were tested at the start of Year 7 in PIRLS 2021, and so there could be an age advantage. However, the Republic of Ireland was already on an upward trajectory of performance, evidenced by a statistically significant increase in its average score between 2011 and 2016. This improvement over time in both countries is also reflected in higher scores for both low- and high-attainers (indicated by a higher score at the 10th percentile and at the 90th percentile (see Chapter 3).

Only nine of the 57 countries had a score in 2021 that was significantly higher than their 2016 score. Aside from Singapore and the Republic of Ireland, the other countries which

demonstrated a significant increase were lower attaining: Egypt and Oman (Group 1), Bahrain, Morocco, Qatar, Saudi Arabia and the United Arab Emirates (UAE) (Group 2).

Figure 1.3 Trends in reading achievement in Poland and Finland

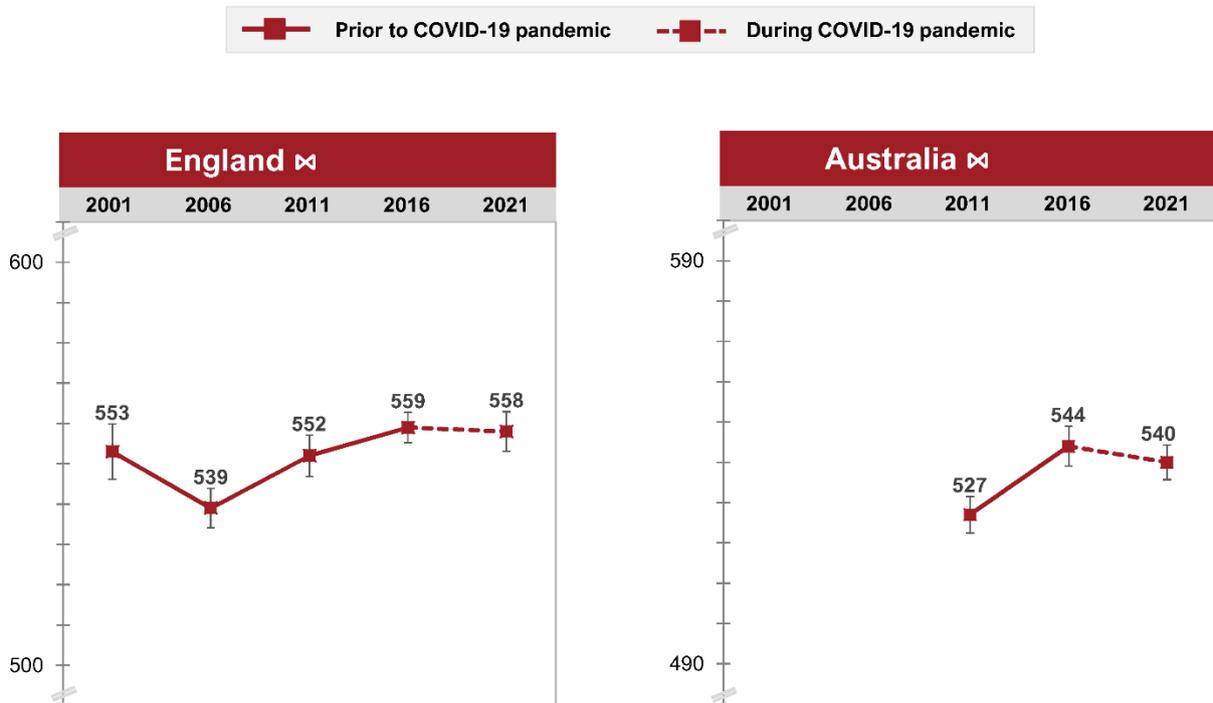


Source: Exhibit 2.1.1 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Both Poland and Finland had significant decreases in their overall attainment between 2016 and 2021. This trend was more common, especially amongst Group 1 countries, which may suggest at least some widespread negative impact from the pandemic on reading attainment for pupils in Year 6 (Mullis *et al.*, 2023).

Figure 1.4 Trends in reading achievement in Australia and England

“∞” = Assessed one year later than originally scheduled – six-year trend from PIRLS 2016



Source: Exhibit 2.1.1 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Both England and Australia were in Group 3 and assessed their pupils one year later than scheduled, so they were on a six-year trend. There was no significant change between 2016 and 2021 for England and Australia despite both countries having improved their scores in 2016 compared to earlier cycles. With PIRLS data alone, we cannot determine whether this demonstrates a stable performance or provides evidence of recovery after a dip caused by the Covid-19 pandemic.

1.2.1. Trends in reading attainment across each group

Generally, Group 2 countries (that is, countries which delayed their testing to the start of Year 7) had a more positive trend picture than Group 1 countries. Of the 13 Group 2 countries with 2016 data, six countries had 2021 scores which were significantly higher than in 2016 (Republic of Ireland, Bahrain, Morocco, Qatar, Saudi Arabia and UAE), four remained stable over the same period (Northern Ireland, Georgia, Lithuania and the United States), whilst three saw declines in performance (Hungary, Kazakhstan and Latvia). Croatia (also Group 2) did not participate in 2016.

This contrasts with Group 1 countries. Of the 27 countries which tested as planned in 2021 (and which had 2016 data) three had significantly higher average attainment in 2021

(Egypt, Oman and Singapore), six had no significant change (Belgium [French], Czech Republic, France, Hong Kong SAR, New Zealand and Slovak Republic), and the rest (18 countries) had significantly lower average reading attainment. Of the Group 3 countries, two had significantly lower average reading attainment in 2021 compared with 2016 (Iran and Israel) and one country had a similar score in 2021 as in 2016 (England).

The delay in data collection in the Group 2 countries may have increased the size of the gains in attainment to an unknown degree (Mullis *et al.*, 2023). However, it is difficult to determine what impact, if any, age (and therefore more contact time in the classroom) had on pupils' performance in PIRLS 2021, especially as some Group 2 countries had demonstrated high levels of reading attainment in PIRLS 2016.

1.2.2. Research into learning during the pandemic

Whilst the impact of the pandemic on education has been the subject of much research at local and national levels, there is little internationally comparable research (Meinck, Fraillon and Strietholt, 2022). Instead, research has tended to be systematic reviews of available national research.

Moscoviz and Evans (2022) conducted a review of empirical studies across 27 countries related to learning loss and drop-out rates for pupils in pre-primary, primary and post-primary schools. The highest concentration of evidence in this study came from the United Kingdom (although this is not further split by country), and most studies were from 2020, prior to the PIRLS data collection and early into the pandemic. The study found that the pandemic was generally estimated to have had a negative impact on attainment, especially in low- and middle-income countries, and that that impact was consistently much higher for pupils with lower socio-economic status. A more recent systematic review and meta-analysis on learning during the pandemic across countries concluded that learning deficits were larger in mathematics than in reading (Betthäuser, Bach-Mortensen and Engzell, 2023).

Twist, Jones and Treleaven (2022) collected evidence across studies that used standardised test data. They concluded that, for Key Stage 2 pupils in England (equivalent to Years 4 to 7 in Northern Ireland), the research suggested that the Covid-19 gaps between pupils were widest after periods of partial school closure and that there was evidence of recovery by the summer of 2021 when schools were back open. Again, the research appears to suggest that mathematics recovery was slower than that for reading.

1.3. Contextualising the trends – key policy areas

The remainder of this chapter explores some key policies, initiatives and events to help contextualise what each cohort of pupils in Northern Ireland would have experienced prior to participating in PIRLS, drawing on sources such as the Northern Ireland encyclopedia chapters for PIRLS [2011](#), [2016](#) and [2021](#) (Mullis, M. O. Martin, *et al.*, 2012; Mullis, Martin, Goh, *et al.*, 2017; Reynolds *et al.*, 2022). A full list of policies, events and initiatives can be found in Appendix B.

Policies and key programmes in the education sector in Northern Ireland have concerned early years, curriculum changes, teacher training, school improvement and self-evaluation, and support for disadvantaged pupils and/or lower attainers. This reflects some of the Department of Education's key priorities over the last decade, such as:

- raising standards for all
- closing the performance gap, increasing access and equality
- developing the education workforce (e.g., Department of Education, 2018).

Some of the themes are expanded below. Policies and provision related to Covid-19 are discussed in Chapter 5.

The curriculum and supporting lower attainers

The revised curriculum in Northern Ireland was introduced in the 2007/2008 academic year. All pupils who took part in PIRLS would have had some experience of this new curriculum, although for the 2011 cohort, this would only have been for a portion of their time in school.

All schools have a responsibility to meet the education needs of all of their pupils, including high- and low-attaining pupils. *Every School a Good School: A Policy for School Improvement* was published in 2009. It was designed to support and, where necessary, motivate schools to improve the quality of educational provision and outcomes for their pupils, particularly in literacy and numeracy. This policy came into action when the 2011 cohort was aged between seven and eight, and remained in place over the 2016 and 2021 cohorts' primary schooling.

The *Delivering Social Change Literacy and Numeracy Signature Programme* (running until 2015) and *Count, Read: Succeed: A Strategy to Improve Outcomes in Literacy and Numeracy* (2011) both had a focus on improving literacy and numeracy for lower attainers and, in turn, closing the attainment gap (these programmes are discussed in more detail in Chapter 6 in the context of socio-economic disadvantage). Both were introduced after the 2011 PIRLS cohort took part in PIRLS but are likely to have affected the 2016 and 2021

cohorts in some way. *Count, Read: Succeed* originally had a target that, by 2020, 90 per cent of pupils at the end of primary education should achieve the expected levels in the cross-curricular skill of communication. However, monitoring this progress has proved challenging, as participation in end of key stage assessment has been significantly impacted by industrial action by teaching staff, that is, Action short of strike (Department of Education, 2020c), and assessment arrangements were suspended during Covid-19 (Department of Education, 2021a).

Professional development

Since 2011, there has been some emphasis on professional development, with one strategy (*Leading Learners Strategy*) and two programmes *Understanding Difficulties in Literacy Development* (2012 to 2015) and *The Literacy and Numeracy Key Stage 2 and Key Stage 3 Continuing Professional Development Transition Project* (2015 to 2020) being introduced. The strategy, introduced in 2016, included three strategic objectives: the development of an agreed Teacher Professional Learning Framework; the promotion of collaborative working and sharing of best practice; and the strengthening of leadership capacity in schools. The aim of the *Understanding Difficulties in Literacy Development* programme was to enhance the skills of teachers in primary schools for the teaching of reading, writing and spelling, enabling them to identify and address literacy difficulties. *The Literacy and Numeracy Key Stage 2 and Key Stage 3 Continuing Professional Development Transition Project* focused on learning issues related to the transition from primary to post-primary education.

School expectations and self-evaluation

The Education and Training Inspectorate (ETI) developed Together Towards Improvement (TTI) in 2003 as a resource to support schools in the process of self-evaluation and to provide transparency in the inspection process by the publication of key indicators. The TTI would have been in place by the time the PIRLS 2011 cohort began school. It was replaced by the Inspection and Self-Evaluation Framework (ISEF) in 2017, affecting only the PIRLS 2021 cohort. This update was in response to the changing educational landscape and new government strategies, as well as advances in technology and understanding how children learn and develop.

It is worth noting the extent to which schools engaged in either TTI and ISEF might have been affected by Action short of strike.

Nurture provision

Despite targeting a relatively small group of pupils, it is worth drawing attention to the provision of nurture groups in Northern Ireland. These are short-term, focused interventions for children with particular social, emotional and behavioural difficulties which

are creating a barrier to learning within mainstream classes (Education Authority and Department of Education, 2023). Schools without a funded nurture group can also access training and support to deliver nurture approaches. Whilst a small number of groups existed beforehand, since 2012, groups have been established and funding continues to be provided for them by the Department.

Most of the policies and initiatives identified started after 2011. With PIRLS data alone, we cannot infer a causal relationship between policy and attainment. However, there is evidence of an upward trajectory in reading attainment in Northern Ireland since 2011.

1.4. Conclusion

In PIRLS 2021, pupils in Northern Ireland significantly outperformed 52 countries and were significantly outperformed by just two. Reading attainment in Northern Ireland in 2021 was similar to that in 2016 but significantly higher than in 2011. There have also been a number of new policies and initiatives introduced in Northern Ireland since 2011, and further work could explore if particular policies or initiatives have contributed to a rise in reading attainment over that same period.

The highest attaining countries in PIRLS 2021, Singapore and the Republic of Ireland, have shown an upward trend in their performance, with their overall score in each cycle being, in most cases, significantly higher than the previous cycle. This trend in performance is unusual for this cycle, as most countries (particularly those who tested according to the original PIRLS schedule, i.e., those in Group 1) had a downward trend in performance over time.

A decrease in performance may have been expected for Northern Ireland, as research has demonstrated that the pandemic led to a slowing of progress in reading for primary-aged pupils (see Twist, Jones and Treleaven, 2022). However, pupils in Northern Ireland continued to perform very well in PIRLS 2021. This may be related to pupils being older in the 2021 cohort than in previous cycles. However, it is difficult to determine what impact, if any, age (and therefore more contact time in the classroom) had on pupils' performance in PIRLS, especially as some Group 2 countries had demonstrated they had high levels of reading attainment in PIRLS 2016 with Year 6 pupils. Research has also suggested that recovery for any lost learning in reading has happened at a faster rate than for mathematics for all but the youngest pupils (Twist, Jones and Treleaven, 2022; Betthäuser, Bach-Mortensen and Engzell, 2023). Evidence of the impact of the disruption due to Covid-19 on reading attainment may therefore not be pronounced in PIRLS, particularly for countries that delayed their data collection period and had a few months longer for that reading recovery.

This chapter presented countries' average scores. However, it is also important to consider variations in pupils' performance, such as by gender, socio-economic status, scores for high- and low- attainers and whether the patterns seen in the overall scores are replicated. These are discussed in subsequent chapters of this report.

2. Gender

Chapter outline

This chapter summarises pupils' attainment by gender in reading in PIRLS 2021. Outcomes for Northern Ireland are compared with other countries, where relevant.

Key findings

- In Northern Ireland, and across 51 out of 57 PIRLS countries, there was a significant²⁰ gender difference in attainment in reading, favouring girls.
- In Northern Ireland, girls achieved an average scale score of 578, while boys achieved an average scale score of 553, indicating a gender gap of 24 score points.
- The gender gap in Northern Ireland was the highest among the comparator countries with the gap in England (10 score points) and the Republic of Ireland (11 score points) being the lowest.
- The gender gap in Northern Ireland was 24 score points in 2021, compared with 18 score points in 2016 and 16 in 2011. This demonstrates an increase in the gender gap over time, driven by a steady increase in girls' average attainment.

An important note on comparisons of attainment in PIRLS 2021

Cross-country and trend comparisons concerning Northern Ireland's attainment should be interpreted with caution.

Because of the Covid-19 pandemic, data collection for pupils assessed in Group 2 (including Northern Ireland and the Republic of Ireland) and Group 3 (including England) was disrupted. For Group 2, data collection took place when pupils were on average, six months older than pupils in previous cycles, and in the first term of the following school year (Year 7 in Northern Ireland, rather than Year 6, as in previous cycles). Pupils in Group 3 tested one year later than Group 1 countries, but pupils were also in Grade 4 (equivalent to Year 6). The change in timing introduced additional factors that may affect overall attainment: a potential 'achievement advantage' (Mullis *et al.*, 2023), p.13) related to pupils being older in Group 2 countries, more contact time in the classroom, and involvement in any catch-up programmes, as well as potential disadvantages related to summer learning loss as well as Covid-19 learning loss.

²⁰ Throughout this report, the term 'significant' refers to statistical significance. When statistical significance is reported, it indicates that the compared mean scores are significantly different at the five per cent level.

Interpreting the data: gender differences

The PIRLS achievement scale was established in 2001 based on the combined achievement distribution of all countries that participated in PIRLS 2001. To provide a point of reference for country comparisons, the PIRLS Scale Centrepoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponds to the standard deviation of the distribution.

The tables show the direction and size of any gender difference for each country. Statistically significant differences are shown in purple in the 'Difference bar' column.

2.1. Attainment by gender in PIRLS

2.1.1. Gender differences in reading attainment

Table 2.1 shows the average reading scale scores by gender for Northern Ireland, comparator countries and the international average²¹. Countries are in ascending order, by size of gender difference.

²¹ Throughout this chapter, the international average refers to the average across all 57 countries and eight benchmarking entities, including countries with delayed assessments at the fifth grade (Year 7 in Northern Ireland). This may differ from the international average of the 43 countries assessing Year 6 pupils at the end of the school year.

Table 2.1 PIRLS 2021 gender differences in reading

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland). All differences that are statistically significant are indicated by a purple bar.

Country	Girls (%)	Average scale score – Girls	Boys (%)	Average scale score – Boys	Difference	Difference bar – in favour of girls
England	51 (0.9)	562 (3.1)	49 (0.9)	553 (3.1)	10 (3.7)	
Republic of Ireland	49 (1.0)	583 (3.3)	51 (1.0)	572 (2.8)	11 (3.5)	
Australia	50 (0.7)	549 (2.5)	50 (0.7)	532 (2.8)	17 (3.0)	
Finland	50 (0.8)	558 (2.7)	50 (0.8)	541 (2.7)	18 (2.7)	
Singapore [3]	49 (0.6)	596 (3.0)	51 (0.6)	578 (3.7)	18 (2.7)	
Poland	47 (1.0)	560 (2.5)	53 (1.0)	540 (2.7)	20 (2.9)	
Northern Ireland [2] [RS]	52 (1.0)	578 (2.9)	48 (1.0)	553 (3.1)	24 (3.4)	
International average	50 (0.1)	512 (0.5)	50 (0.1)	494 (0.5)	18*	

Standard errors appear in brackets (²²). Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

* The standard error for international average gender difference was not provided in Exhibit 1.5

Source: Exhibit 1.5, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

²² Throughout the report, standard errors are presented when available in the PIRLS international report (Mullis *et al.*, 2023)

Girls outperformed boys in all PIRLS participating countries and the difference was significant in most²³, including in Northern Ireland and all comparator countries.

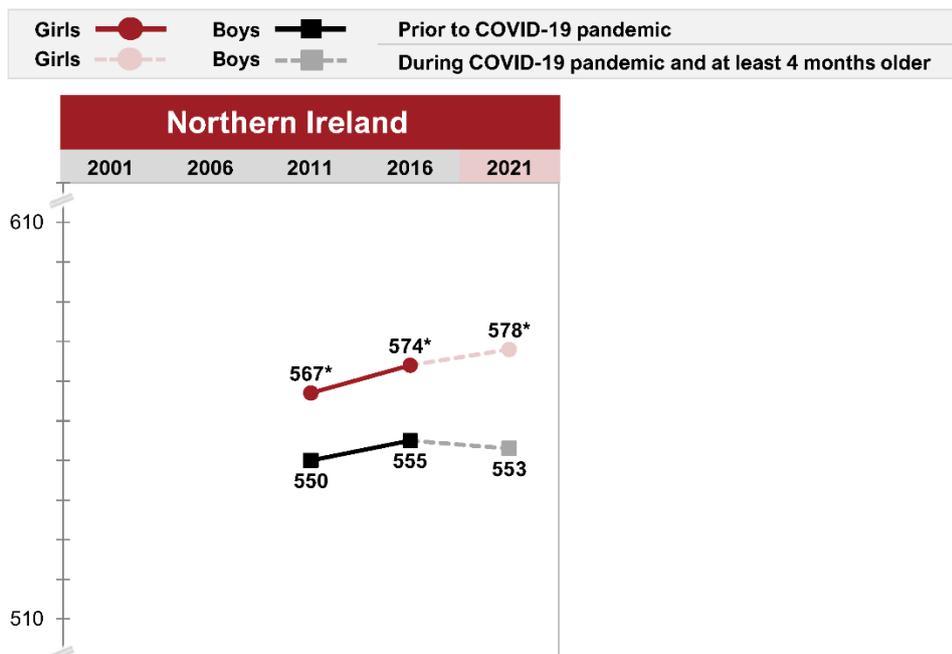
Girls in Northern Ireland achieved an average scale score of 578 while boys had an average scale score of 553, a difference of 24 score points (taking rounding into account).

The gender gap in Northern Ireland was greater than that seen in any other comparator country, most noticeably compared with England (10 score points) and the Republic of Ireland (11 score points).

2.1.2. Trends in gender differences in reading attainment

Whilst pupils in Northern Ireland were four to five months older in PIRLS 2021 than pupils in 2016 and 2011, it is still useful to consider gender differences over time. Figure 2.1 shows the reading attainment by gender in Northern Ireland over the three PIRLS cycles in which it has participated.

Figure 2.1 Trends in reading attainment by gender in Northern Ireland



* indicates the score is significantly higher than the other gender

Source: Exhibit 2.4, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

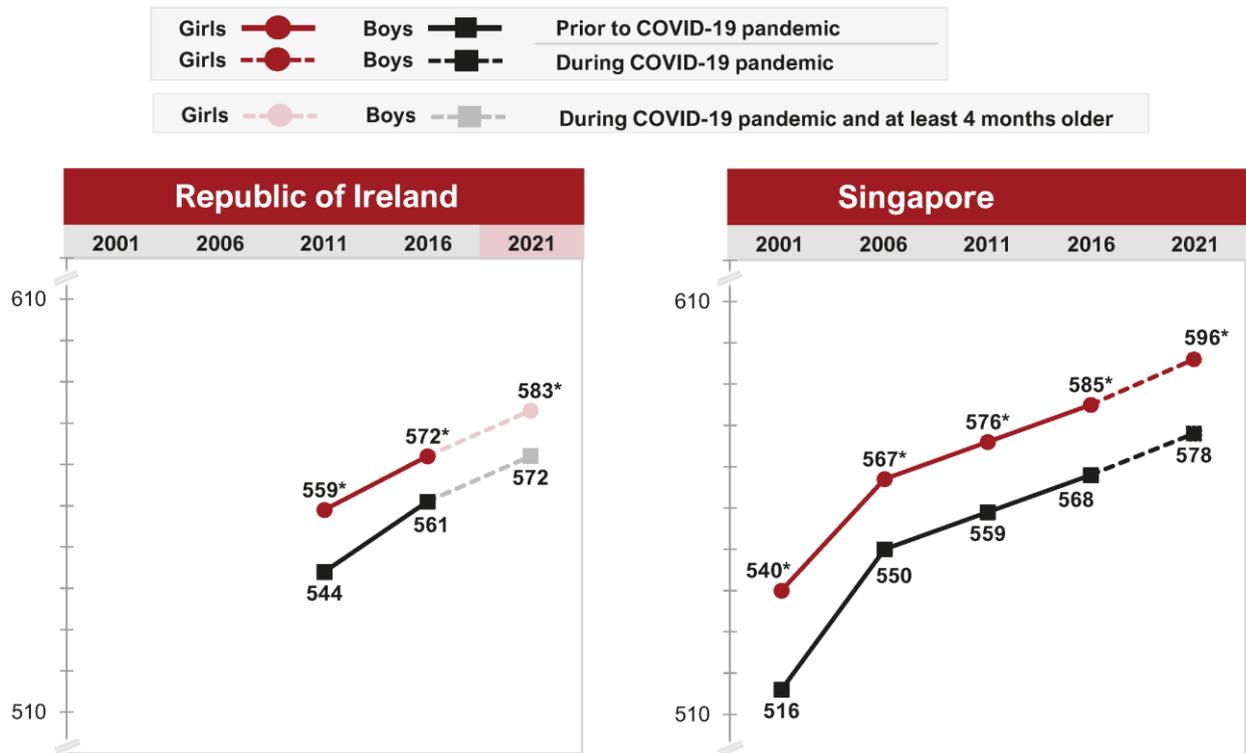
Girls have performed significantly better than boys in Northern Ireland in all cycles of PIRLS since 2011. Girls' average attainment has increased steadily over the three cycles

²³ The difference was not significant in Spain, Czech Republic, Israel, Malta and Iran.

but the average attainment for boys has not followed this pattern. This is driving an increase in the gender gap over time (a difference²⁴ of 16 score points in 2011, 18 score points in 2016 and 24 score points in 2021).

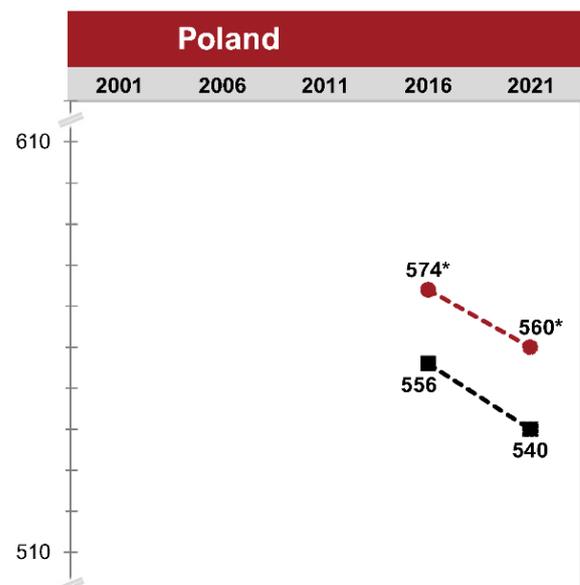
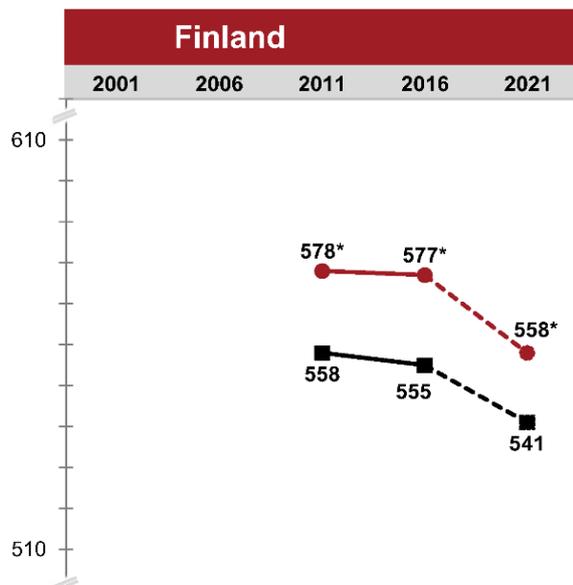
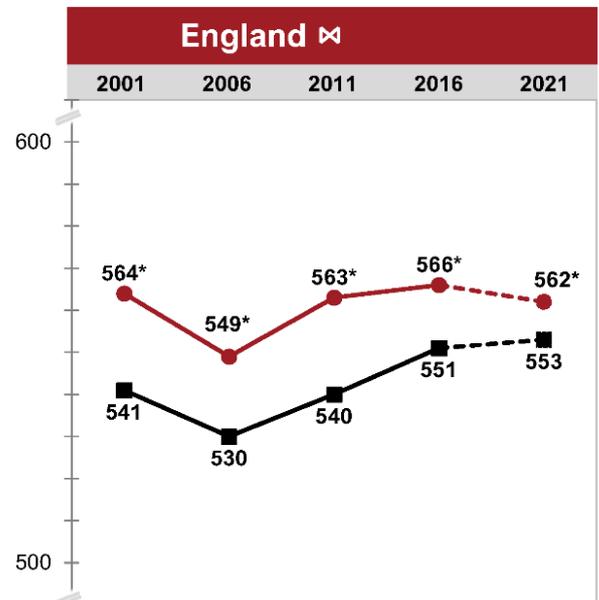
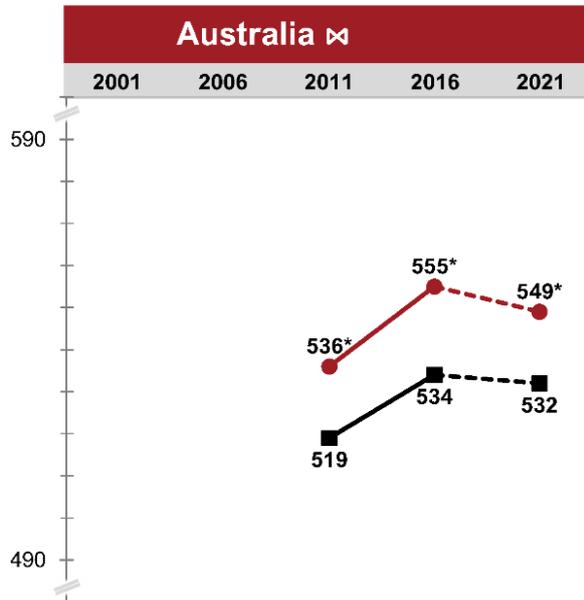
Figure 2.2 shows the difference between girls' and boys' performance in the comparator countries through different PIRLS cycles.

Figure 2.2 Trends in reading attainment by gender in comparator countries



²⁴ after taking into account the rounding of figures

✕ Assessed one year later than originally scheduled



* indicates the score is significantly higher than the other gender

Source: Exhibit 2.3 and Exhibit 2.4, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

The pattern of gender gaps over time differs across comparator countries. Reflecting their overall attainment (see Chapter 1), Singapore and the Republic of Ireland have seen increases in average attainment for both boys and girls resulting in a consistent gender gap. For Australia, England and Finland, the gender gap narrowed in 2021. For England, this was due to a decrease in girls' average attainment by four scale score points and an increase in boys' average attainment by two scale score points. For Finland, this decrease

in the attainment gap was due to a greater decrease in girls' average attainment compared with the decrease in boys' average attainment.

2.2. Conclusion

Girls continue to significantly outperform boys in reading in PIRLS in Northern Ireland and across most participating PIRLS countries.

For Northern Ireland, there was an increase of six score points in the gender gap between 2016 and 2021. This was driven by a steady increase in girls' average attainment between 2011 and 2021 but there was no clear pattern in boys' average attainment over the same period.

3. Distribution of attainment in PIRLS 2021

Chapter outline

This chapter outlines the distribution of attainment in reading in Northern Ireland in PIRLS 2021. It describes the PIRLS benchmarks of attainment and the proportions of Northern Ireland's pupils reaching each benchmark, and provides examples of questions at each of the benchmarks.

In addition, the chapter shows the score distributions for reading for Northern Ireland and the subset of six main comparator countries (Australia, England, Finland, Poland, the Republic of Ireland and Singapore).

Key findings

- Almost a quarter of pupils in Northern Ireland (23 per cent) reached the Advanced international benchmark in reading, the third highest percentage internationally below Singapore (35 per cent) and the Republic of Ireland (27 per cent).
- Only three per cent of pupils in Northern Ireland failed to reach the Low international benchmark. In comparison, the international average was six per cent.
- Despite pupils being four to five months older in PIRLS 2021 than in previous cycles, Northern Ireland has had a similar proportion of pupils reaching the Advanced benchmark over time (19 per cent in 2011 and 23 per cent in 2021). Of the comparator countries, Singapore and the Republic of Ireland have seen large increases in the proportions reaching this benchmark (24 per cent in 2011 to 35 per cent in 2021 in Singapore, and 16 per cent in 2011 to 27 per cent in 2021 in the Republic of Ireland).
- In Northern Ireland, there was a relatively wide spread of attainment for reading. The gap between high- (at the 90th percentile) and low-attainers (at the 10th percentile) was 204 scale score points. Two of the comparator countries, Australia and Singapore, had a greater gap in mean scores between high- and low-attainers: 207 scale score points and 213 scale score points respectively.
- The scores for low-attainers and high-attainers have remained similar between 2016 and 2021 but there has been a notable increase in the score for high-attainers since 2011.

3.1. Distribution of attainment in PIRLS

In PIRLS, attainment outcomes for each country are reported as an average scale score, as outlined in Chapter 1. In addition to knowing how well pupils in Northern Ireland performed overall and across different purposes and processes assessed in PIRLS (see Chapter 4), it is also important, for the purposes of teaching and learning, to examine the spread in performance between high- and low-attainers. Amongst countries with similar mean scores, there may be differences in the percentages of high- and low-scoring pupils (the highest and lowest attainers). For example, a country with a wide spread of attainment may have large proportions of pupils who are underachieving as well as pupils performing at high levels, whereas a country with a lower spread of attainment may have fewer very high achievers but may also have fewer underachievers.

The first way of examining the spread of attainment is by looking at Northern Ireland's performance at each of the PIRLS international benchmarks (that is, the progression in reading skills and strategies across all levels of pupils' attainment).

Table 3.1 summarises the international benchmarks for reading. As PIRLS 2021 also included a digital element, some of the descriptions for the benchmarks cover skills demonstrated in digital reading. Northern Ireland pupils took part on paper only, and so could not have demonstrated those skills in PIRLS 2021.

Interpreting the data: international benchmarks

The PIRLS achievement scale summarises pupil performance; it has a centre point of 500 and a standard deviation of 100, and reports attainment at four points along the scale as 'international benchmarks'. The Advanced international benchmark is set at a scale score of 625, the High international benchmark at 550, the Intermediate international benchmark at 475, and the Low international benchmark at 400. The benchmark descriptions summarise what pupils scoring at each PIRLS international benchmark typically know and can do.

Table 3.1 Summary of international benchmarks for reading

International benchmark	Scale score	Literary	Informational
Advanced	625	<p>When reading predominately difficult literary texts, pupils can:</p> <ul style="list-style-type: none"> interpret and integrate story events and character actions to describe reasons, motivations, feelings, and character development evaluate the intended effect of the author's language, style, and composition choices. 	<p>When reading predominately difficult informational texts or online tasks, pupils can:</p> <ul style="list-style-type: none"> make inferences about complex information across different webpages and parts of text to recognise the relevant information in a list and use evidence in the text to support ideas interpret and integrate multiple pieces of different information across text and webpages to present an overview of ideas in the text and provide comparisons and explanations evaluate textual, visual, and interactive elements to explain their purpose, and identify the writer's point of view and provide supporting evidence.
High	550	<p>When reading medium and difficult literary texts, pupils can:</p> <ul style="list-style-type: none"> locate and identify significant actions and details embedded across the text make inferences about relationships between intentions, actions, events, and feelings interpret and integrate story events to give reasons for 	<p>When reading informational texts or online tasks of medium or high difficulty, pupils can:</p> <ul style="list-style-type: none"> locate and identify relevant information in texts with a variety of features, such as diagrams and illustrations make inferences to provide comparisons, descriptions, explanations, predictions, and choose a relevant website interpret and integrate textual and visual information across texts and webpages to connect

International benchmark	Scale score	Literary	Informational
		<p>character actions and feelings</p> <ul style="list-style-type: none"> recognise the meaning of some figurative language (e.g., metaphor, imagery). 	<p>ideas, sequence events, identify characteristics, and provide explanations</p> <ul style="list-style-type: none"> evaluate the content to take and justify a position; describe how illustrations, diagrams, photographs, and maps convey and support content; and recognise the contribution of word choice in conveying the writer's point of view.
Intermediate	475	<p>When reading literary texts of easy or medium difficulty, pupils can:</p> <ul style="list-style-type: none"> locate, recognise, and reproduce explicitly stated actions, events, and feelings make straightforward inferences about events and characters' actions interpret reasons for characters' feelings or actions, and identify supporting evidence. 	<p>When reading informational texts or online tasks of easy or medium difficulty, pupils can:</p> <ul style="list-style-type: none"> locate, recognise, and reproduce explicitly stated information across texts make straightforward inferences to provide comparisons, descriptions, and explanations interpret and integrate to provide information about central ideas and reasons for actions, events, and outcomes.
Low	400	<p>When reading predominantly easy literary texts, pupils can:</p> <ul style="list-style-type: none"> locate, retrieve, and reproduce explicitly stated information, actions, or ideas make simple straightforward inferences about characters' actions. 	<p>When reading predominantly easy informational texts, pupils can:</p> <ul style="list-style-type: none"> locate, retrieve, and reproduce explicitly stated information make simple straightforward inferences to provide a reason for an outcome.

Source: PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

An important note on comparisons of attainment in PIRLS 2021

Cross-country and trend comparisons concerning Northern Ireland's attainment should be interpreted with caution.

Because of the Covid-19 pandemic, data collection for pupils assessed in Group 2 (including Northern Ireland and the Republic of Ireland) and Group 3 (including England) was disrupted. For Group 2, data collection took place when pupils were, on average, six months older than pupils in previous cycles, and in the first term of the following school year (Year 7 in Northern Ireland, rather than Year 6, as in previous cycles). Pupils in Group 3 tested one year later than Group 1 countries, but pupils were also in Grade 4 (equivalent to Year 6). The change in timing introduced additional factors that may affect overall attainment: a potential 'achievement advantage' (Mullis *et al.*, 2023, p.13) related to pupils being older in Group 2 countries, more contact time in the classroom, and involvement in any catch-up programmes, as well as potential disadvantages related to summer learning loss as well as Covid-19 learning loss.

3.1.1. Distribution in reading attainment in Northern Ireland: PIRLS 2021 international benchmarks

Table 3.2 shows the percentage of pupils reaching each benchmark for reading in Northern Ireland and the comparator countries. The table is in descending order of pupils reaching the Advanced international benchmark.

Table 3.2 Percentages of pupils reaching each benchmark for reading

This table indicates the percentage of pupils reaching each of the four benchmarks. Percentages are cumulative.

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Advanced benchmark (625) (%)	High benchmark (550) (%)	Intermediate benchmark (475) (%)	Low benchmark (400) (%)
Singapore [3]	35 (1.4)	71 (1.6)	90 (0.9)	97 (0.5)
Republic of Ireland	27 (1.3)	67 (1.5)	91 (0.7)	98 (0.4)
Northern Ireland [2] [RS]	23 (1.2)	61 (1.5)	87 (1.0)	97 (0.5)
England	18 (1.2)	57 (1.3)	86 (0.9)	97 (0.4)
Finland	14 (1.0)	53 (1.4)	84 (1.0)	96 (0.5)
Australia	14 (0.7)	48 (1.3)	80 (1.0)	94 (0.5)
Poland	14 (0.8)	52 (1.5)	85 (1.0)	97 (0.5)
International median	7	36	75	94

Standard errors appear in brackets ()²⁵. Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

Source: Exhibit 4.2, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

²⁵ Throughout this report, standard errors are presented when available in the PIRLS international report (Mullis *et al.*, 2023)

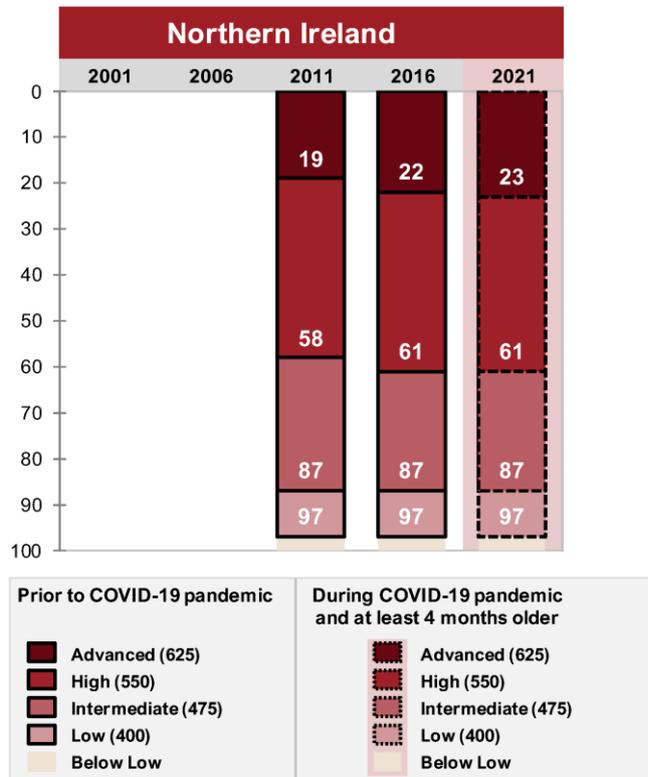
In Northern Ireland, 23 per cent of pupils reached the Advanced international benchmark in reading. Pupils reaching this benchmark can interpret and integrate story events and characters' actions in difficult literary texts to describe reasons, motivations, feelings and character development (see Table 3.1). A further 38 per cent of pupils in Northern Ireland reached the High benchmark. These pupils can evaluate content to take and justify a position when reading informational texts of high or medium difficulty. In total, 61 per cent of pupils reached at least the High benchmark. The cumulative proportion of pupils across the benchmarks in Northern Ireland was above the international median. Only three per cent of pupils failed to meet the Low benchmark in Northern Ireland, compared to six per cent internationally.

Of all the countries in PIRLS, only Singapore and the Republic of Ireland (the latter, like Northern Ireland, delaying the data collection period until the beginning of Year 7) had a greater percentage of pupils reaching the Advanced international benchmark in reading, with 35 and 27 per cent reaching that level, respectively.

3.1.2. Distribution in reading attainment over time in Northern Ireland

Although pupils in Northern Ireland were four to five months older in PIRLS 2021 than in previous PIRLS cycles, it is still useful to examine, with caution, the trend over time. Figure 3.1 shows the proportion of pupils at each benchmark over the three cycles in which Northern Ireland has participated. For 2021, a dotted line is used to indicate that the data were collected during the Covid-19 pandemic.

Figure 3.1 Trends in the distribution of pupils in Northern Ireland reaching the PIRLS international benchmarks

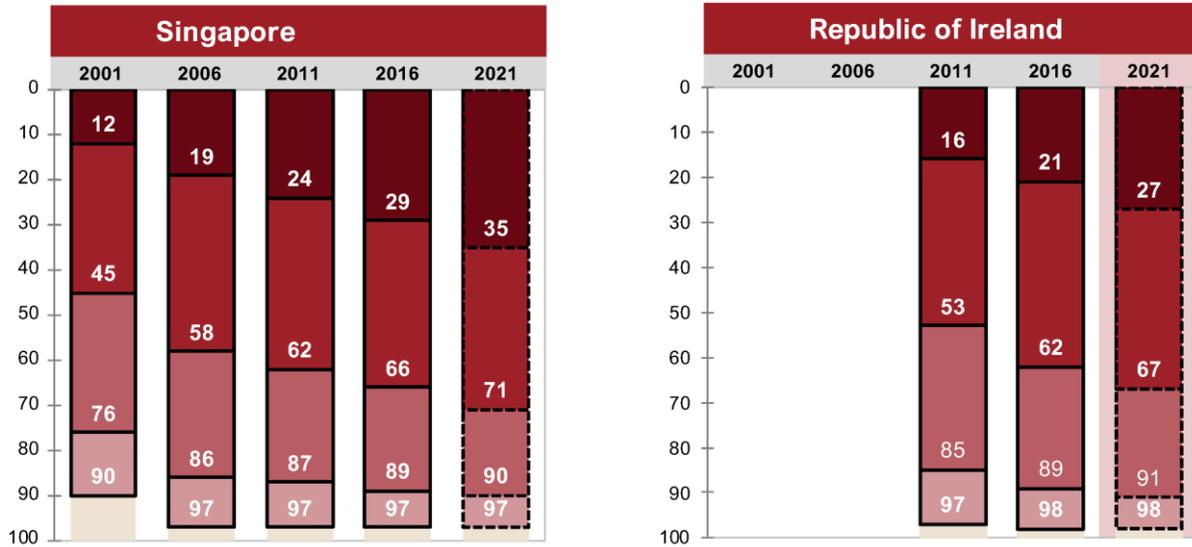


Source: Adapted from Exhibit 4.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

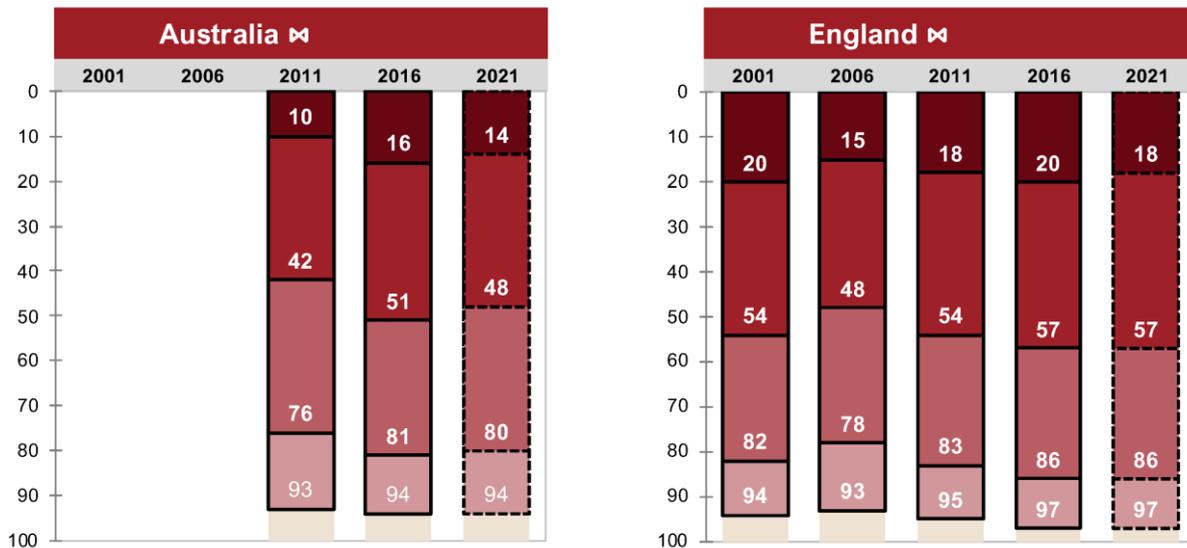
In Northern Ireland, there was a small increase in the proportion of pupils reaching the Advanced benchmark between 2011 and 2021 (19 per cent in 2011, 22 per cent in 2016 and 23 per cent in 2021; a total difference of four percentage points). The proportions of pupils reaching at least the Intermediate and Low benchmarks have remained the same over three cycles.

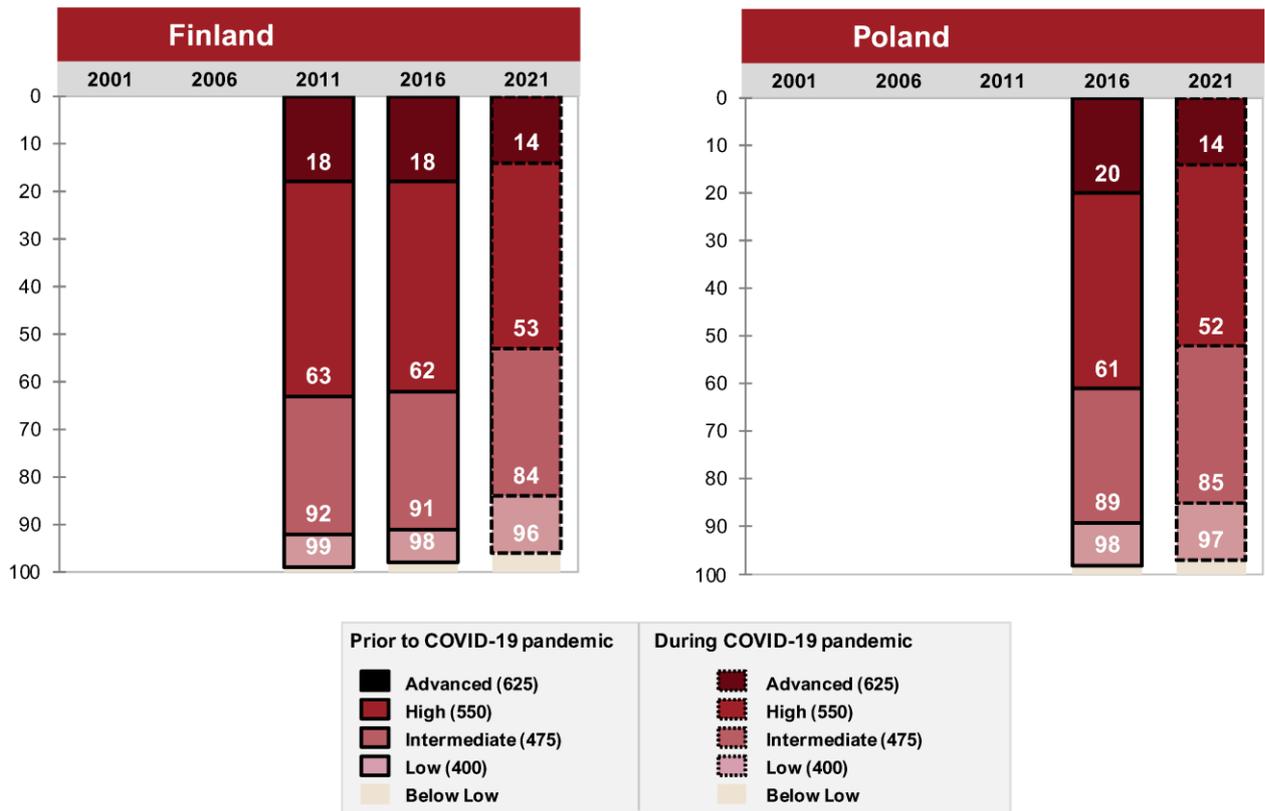
Equivalent charts are provided for comparator countries in Figure 3.2.

Figure 3.2 Trends in the distribution of pupils across comparator countries reaching the PIRLS international benchmarks



✕ Assessed one year later than originally scheduled – six-year trend from PIRLS 2016





Source: Adapted from Exhibit 4.3 and Exhibit 4.4 PIRLS 2021 International Results in Reading (Mullis et al., 2023)

Among the comparator countries, both Singapore and the Republic of Ireland saw an increase over time in the percentage of pupils reaching the Advanced benchmark. For example, in Singapore, this was 24 per cent in 2011, 29 per cent in 2016 and 35 per cent in 2021. For the Republic of Ireland, 16 per cent of pupils reached the Advanced benchmark in 2011, 21 per cent in 2016 and 27 per cent in 2021. For both countries an increase of 11 percentage points over ten years indicates a large increase.

England had similar proportions of pupils reaching the Advanced benchmark in 2021 (18 per cent) compared with 2016 (20 per cent) and 2011 (18 per cent). Australia saw an increase in the proportion of pupils reaching the Advanced benchmark between 2011 (10 per cent) and 2016 (16 per cent) and, in 2021, the proportion (14 per cent) was similar to 2016.

For the remaining comparator countries, Finland and Poland, there were lower proportions of pupils in the Advanced benchmark in 2021 than in 2016; Finland had 18 per cent in 2016 and 14 per cent in 2021 and Poland 20 per cent in 2016 compared with 14 per cent in 2021 (both indicating a small decrease). This reflects their decrease in overall attainment over the two cycles (see Chapter 2).

Figures 3.3 to 3.6 provide questions from each of the international benchmarks using two of the released PIRLS texts, *The Empty Pot* (Literary) and *The Amazing Octopus* (Informational). To see the full passage and associated questions from these texts visit the [PIRLS international website](#)²⁶.

Figure 3.3 Example reading item – Advanced international benchmark

Text: *The Empty Pot*

Purpose: Literary

Process: Evaluate and critique

Description: Evaluate textual elements and content to support the writer’s intent

9. Why did the other children laugh at Jun? Use what happened in the story to explain your answer.

 _____

Source: Question adapted from the international PIRLS test booklets

²⁶ In some countries, pupils took the PIRLS assessment on computer. The videos on the PIRLS international website demonstrate the passages and questions in their digital format.

Figure 3.4 Example reading item – High international benchmark

Text: The Amazing Octopus

Purpose: Informational

Process: Interpret and integrate

Description: Interpret and integrate information to provide three examples of a central idea

14. The writer thinks octopuses are “amazing”. Give three examples of what octopuses in aquariums have learned to do that are amazing.

 1. _____

 2. _____

 3. _____

Source: Question adapted from the international PIRLS test booklets

Figure 3.5 Example reading item – Intermediate international benchmark

Text: The Empty Pot

Purpose: Literary

Process: Straightforward inferences

Description: Retrieve, combine, and visualise a procedural sequence and recognize matching diagram

5. Which of these looks most like Jun's flowerpot when he first planted the seed?

The image shows four diagrams of a flowerpot, each with a different internal structure. Each pot contains a layer of brown soil at the top and a layer of grey pebbles at the bottom. A red seed is placed in the soil. Diagram A shows the seed in the soil above the pebbles. Diagram B shows the seed in the soil below the pebbles. Diagram C shows the seed in the soil above a layer of pebbles, which is above another layer of pebbles. Diagram D shows the seed in the soil above a layer of pebbles, which is above a layer of pebbles, which is above another layer of pebbles.

Source: Question adapted from the international PIRLS test booklets

Figure 3.6 Example reading item – Low international benchmark

Text: The Amazing Octopus

Purpose: Informational

Process: Focus on and retrieve

Description: Retrieve and reproduce an explicitly stated detail

2. What do octopuses use to make doors for their dens?

 _____

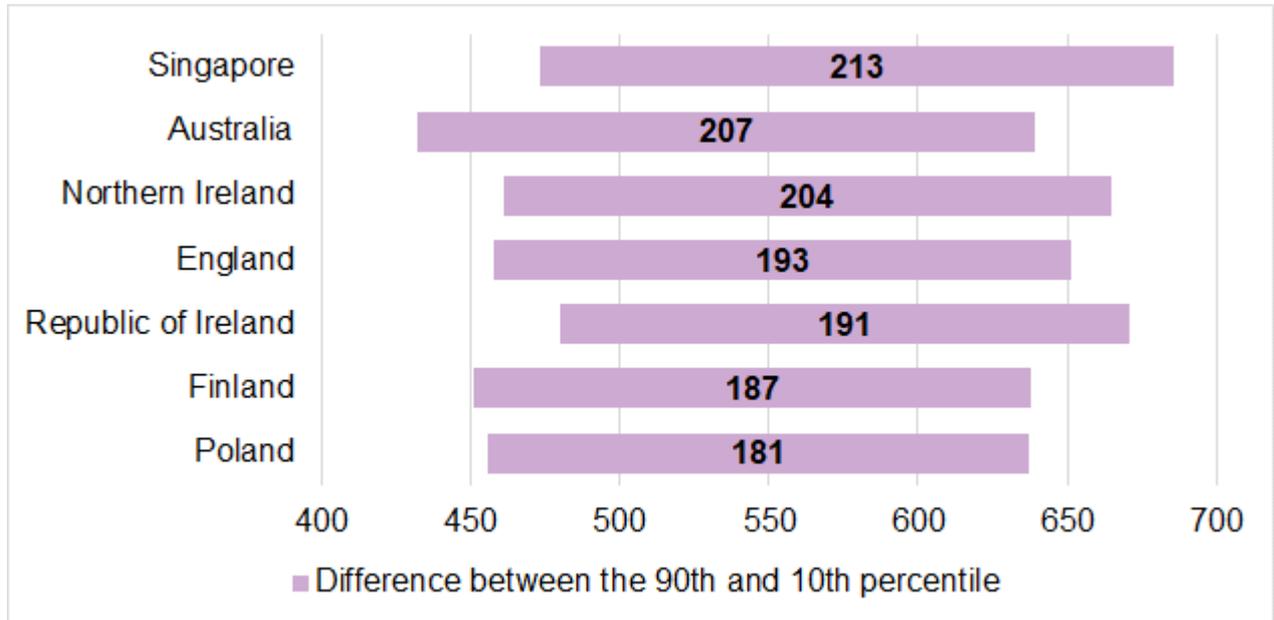
Source: Question adapted from the international PIRLS test booklets

3.1.3. Distribution in reading attainment: score distribution

The second way in which the spread of performance can be examined is by looking at the distribution of PIRLS scale scores. The 10th percentile (low-attainers) is the score not achieved by ten per cent of pupils and the 90th percentile (high-attainers) is the score that ten per cent of pupils exceed. The difference between high- and low-attainers at the 90th and 10th percentiles is a better measure of the spread of scores for comparing countries than using the lowest and highest scoring pupils, as the latter comparison may be affected by a small number of pupils in a country with unusually high or low scores.

Figure 3.7 demonstrates the difference between high- and low-attaining pupils in Northern Ireland and across comparator countries. Countries are ordered by size of the difference in attainment. Table 3.3 provides the data used in Figure 3.7.

Figure 3.7 Reading score difference between high- and low-attainers



Source: Exhibit B.1 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Table 3.3 Reading score difference between high- and low-attainers

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled.

Country	Average scale score	Score at 10 th percentile	Score at 90 th percentile	Range ²⁷
Singapore [3]	587 (3.1)	473 (6.1)	686 (2.1)	213
Australia	540 (2.2)	432 (6.7)	639 (3.4)	207
Northern Ireland [2] [RS]	566 (2.5)	461 (5.1)	665 (3.9)	204
England	558 (2.5)	458 (3.8)	651 (3.5)	193
Republic of Ireland	577 (2.5)	480 (4.7)	671 (2.5)	191
Finland	549 (2.4)	451 (4.3)	638 (3.4)	187
Poland	549 (2.2)	456 (4.5)	637 (2.6)	181

Standard errors appear in brackets ()

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

Source: Exhibit 1.3 for the average scale score and Exhibit B.1 for the score at each percentile, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

The score at the 10th percentile for pupils in Northern Ireland was 461, while the score at the 90th percentile was 665 – a difference of 204 score points. Of the comparator countries, Australia and Singapore had a wider score distribution than Northern Ireland, with a difference of 207 and 213 score points respectively. The narrowest gap between high- and low-attainers was in Poland, where the range was 181 score points. Northern Ireland had a similar score at the 10th percentile to England but a greater score at the 90th percentile (665 compared with 651), which means the spread was wider than in

²⁷ Gap between high- and low-attaining pupils (i.e., score at the 90th percentile and 10th percentile)

England. For the Republic of Ireland, the score at the 10th percentile (480) was higher than in Singapore (473) but the score at the 90th percentile (671) was lower (686).

Although pupils in Northern Ireland were four to five months older in PIRLS 2021 than in 2016 and 2011, it is still useful to examine, with caution, the trend over time. Northern Ireland's range has remained similar since 2016 as both the score at the 10th percentile (460 in 2016 and 461 in 2021) and the score at the 90th percentile (662 in 2016 and 665 in 2021) were similar. (In 2016 there were 202 score points between high- and low-attainers.) However, there has been a notable increase in score at the 90th percentile since 2011 (650), whereas the score at the 10th percentile was similar (458 in 2011); a difference of 192 score points. This reflects Northern Ireland's overall performance over time for the same period (see Chapter 1), with a significant²⁸ increase since 2011 likely to be driven by an increase in score for higher-attainers.

The pattern of stability between 2016 and 2021 between high- and low-attainers in Northern Ireland was different from the patterns across comparator countries. For example, Finland has seen a large increase in range between 2016 and 2021 (166 in 2016 and 187 in 2021) which is due to a greater decrease in score at the 10th percentile than the score at the 90th percentile. In both Singapore and the Republic of Ireland, the size of the gap has also changed over time (by 9 and 7 points respectively). This change was driven by increases in scores at both the 90th and 10th percentiles, but a comparatively larger increase in the score at the 90th percentile.

3.2. Conclusion

In Northern Ireland, 23 per cent of pupils were working at the Advanced international benchmark meaning they demonstrated higher-order reading skills. Over the three PIRLS cycles, there has been a small increase in the percentage of pupils in Northern Ireland reaching the Advanced benchmark in reading and similar proportions reaching the High, Intermediate and Low benchmarks.

The distribution of scores in Northern Ireland was relatively wide, with only two comparator countries having a greater difference in scores between high- and low-attainers (Australia and Singapore).

Although pupils in Northern Ireland were older in PIRLS 2021, it is still useful to examine, with caution, the trend over time. Northern Ireland has followed a fairly stable pattern over time compared to the other comparator countries, in terms of pupils reaching the

²⁸ Throughout this report, the term 'significant' refers to statistical significance. When statistical significance is reported, it indicates that the compared mean scores are significantly different at the five per cent level

international benchmarks. The size of the difference in average scores between high- and low-attainers has increased since 2011 and this is largely driven by a greater increase in score for higher-attainers compared with lower-attainers. For Singapore and the Republic of Ireland, the two highest-performing countries in PIRLS 2021, there has been a large increase in the proportion of pupils reaching the Advanced benchmark between 2011 and 2021, and an increase in the scores for both low- and high-attainers between 2016 and 2021.

4. Attainment by purpose and process in Northern Ireland

Chapter outline

This chapter focuses on performance in Northern Ireland in PIRLS 2021. It summarises pupils' reading attainment across the PIRLS purposes and processes as outlined in the *PIRLS 2021 Assessment Framework* (Mullis and Martin, 2019).

PIRLS assesses two reading purposes (*Literary* and *Informational*) and two reading comprehension processes (*Retrieving and straightforward inferencing* and *Interpreting, integrating and evaluating*). More information about each of these is given in Section 4.1. Further information about international performance on these purposes and processes is available in the PIRLS international report (Mullis *et al.*, 2023).

Key findings

Reading purposes – in Northern Ireland, compared to the overall average reading score (566), pupils:

- scored significantly²⁹ better on *Literary* purposes (573)
- scored significantly less well on *Informational* purposes (562).

This follows the same pattern of strength and weakness as Northern Ireland's performance in 2016.

Reading comprehension processes – in Northern Ireland, compared to the overall average reading score (566), pupils:

- scored significantly less well on the *Retrieving and straightforward inferencing* scale (558)
- scored significantly better on the *Interpreting, integrating and evaluating* scale (573).

This marks a change from 2016, where pupils in Northern Ireland did not score significantly differently from the average reading score on *Interpreting, integrating and evaluating*.

²⁹ Throughout this report, the term 'significant' refers to statistical significance. When statistical significance is reported, it indicates that the compared mean scores are significantly different at the five per cent level.

Interpreting the data: numerical scales

This section discusses pupils' attainment across the PIRLS purposes and comprehension processes for reading. To allow this comparison, scale scores are generated for each purpose and process. It is important to note that the scale scores representing the purposes and processes are not directly comparable since they represent different aspects of reading. However, each subscale can be compared directly with the overall mean scale score from which it is drawn, and this allows comparison of the relative strengths and weaknesses of each country for each aspect. Differences between the scale score and the overall average (mean) in each case are rounded to the nearest whole number.

An important note on comparisons of attainment in PIRLS 2021

Cross-country and trend comparisons concerning reading attainment in Northern Ireland should be interpreted with caution.

Because of the Covid-19 pandemic, data collection for pupils assessed in Group 2 (including Northern Ireland and the Republic of Ireland) and Group 3 (including England) was disrupted. For Group 2, data collection took place when pupils were, on average, six months older than pupils in previous cycles, and in the first term of the following school year (Year 7 in Northern Ireland, rather than Year 6, as in previous cycles). Pupils in Group 3 tested one year later than Group 1 countries, but pupils were also in Grade 4 (equivalent to Year 6). The change in timing introduced additional factors that may affect overall attainment: a potential 'achievement advantage' (Mullis *et al.*, 2023, p.13) related to pupils being older in Group 2 countries, more contact time in the classroom, and involvement in any catch-up programmes, as well as potential disadvantages related to summer learning loss as well as Covid-19 learning loss.

4.1. The reading purposes and reading comprehension processes in PIRLS 2021

Reading: what PIRLS assesses

PIRLS is designed to assess pupils' reading literacy at the end of their fourth year of schooling which, due to an average age constraint of 9.5 years, equates to Year 6 in Northern Ireland. However, because of the impact of the global Covid-19 pandemic, PIRLS 2021 was delayed in Northern Ireland by four months (from May to September) until pupils were at the beginning of Year 7 (see the Introduction for further details).

The two reading purposes assessed in PIRLS are:

- *reading for literary experience*
- *reading to acquire and use information.*

The four reading comprehension processes are:

- *focus on and retrieve explicitly stated information*
- *make straightforward inferences*
- *interpret and integrate ideas and information*
- *evaluate and critique content and textual elements.*

The latter are combined to form two reading comprehension process domains:

- *Retrieving and straightforward inferencing*
- *Interpreting, integrating and evaluating.*

More information is available in the PIRLS 2021 Assessment Framework (Mullis and Martin, 2019).

4.2. Attainment by reading purpose

Tables 4.1 and 4.2 present the average attainment of pupils in Northern Ireland and comparator countries in the two purposes for reading identified in PIRLS 2021, *reading for literary experience* and *reading to acquire and use information*, as compared with overall reading achievement. Countries are in descending order by overall average attainment.

Table 4.1 Attainment in reading for Literary purposes

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland). All differences that are statistically significant are indicated by a coloured bar.

Country	Overall PIRLS average scale score	Literary purposes – average scale score	Literary purposes – difference from overall PIRLS score	Literary purposes – difference bar
Singapore [3]	587 (3.1)	591 (3.2)	4* (0.9)	
Republic of Ireland	577 (2.5)	584 (2.5)	6* (1.1)	
Northern Ireland [2] [RS]	566 (2.5)	573 (2.3)	7* (1.2)	
England	558 (2.5)	558 (2.4)	1 (1.0)	
Finland	549 (2.4)	547 (2.6)	-2* (0.8)	
Poland	549 (2.2)	552 (2.3)	3 (1.5)	
Australia	540 (2.2)	543 (2.4)	3* (1.2)	

*Indicates a statistically significant difference compared to the overall national reading score. Statistically significant differences are also indicated by a coloured difference bar, with purple indicating a positive difference, orange a negative difference and black indicating no significant difference.

Standard errors appear in brackets ()³⁰. Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

Source: Exhibit 3.2, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

³⁰ Throughout the report, standard errors are presented when available in the PIRLS international report (Mullis et al., 2023).

Table 4.2 Attainment in reading for Informational purposes

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland). All differences that are statistically significant are indicated by a coloured bar.

Country	Overall PIRLS average scale score	Informational purposes – average scale score	Informational purposes – difference from overall PIRLS score	Informational purposes – difference bar
Singapore [3]	587 (3.1)	586 (3.1)	-1 (0.8)	
Republic of Ireland	577 (2.5)	574 (2.4)	-4* (1.0)	
Northern Ireland [2] [RS]	566 (2.5)	562 (2.3)	-4* (1.1)	
England	558 (2.5)	559 (2.5)	1 (0.9)	
Finland	549 (2.4)	550 (2.6)	1 (0.9)	
Poland	549 (2.2)	548 (2.2)	-1 (1.2)	
Australia	540 (2.2)	539 (2.3)	-1 (1.0)	

*Indicates a statistically significant difference compared to the overall national reading score. Statistically significant differences are also indicated by a coloured difference bar, with orange indicating a negative difference and black indicating no significant difference.

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

Source: Exhibit 3.2, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

The performance of pupils in Northern Ireland differed between the two purposes for reading. Their *Literary* score (573) was significantly higher than their overall PIRLS attainment (566), while their *Informational* score (562) was significantly lower than their overall PIRLS score. This follows the same pattern as Northern Ireland's performance in 2016.

Of the comparator countries, two (England and Poland) demonstrated no significant strength or weakness in relation to reading purposes. Around half of the participating countries (23 out of 57) had a relative strength in one purpose and a relative weakness in another, with a further fifth (11 out of 57) demonstrating a strength or weakness in just one purpose.

The two comparator countries that had significantly higher average reading attainment than Northern Ireland, Singapore and the Republic of Ireland, followed a similar pattern to Northern Ireland, scoring significantly higher in reading for a *Literary* purpose (591 and 584 respectively) compared to their average reading attainment (587 and 577 respectively). While Australia had significantly lower average reading attainment than Northern Ireland, it also scored significantly higher in reading for a *Literary* purpose (543) compared to its overall attainment score (540).

Like Northern Ireland, the Republic of Ireland scored significantly less well on reading for an *Informational* purpose compared to its overall attainment (574 and 577 respectively). No significant differences were found for Singapore or Australia between their scores for reading for an *Informational* purpose and their average reading scores.

None of the comparator countries had an *Informational* score which was significantly higher than its overall PIRLS score. This reflects broader international trends that saw nearly twice as many countries (18) demonstrate a relative strength in *Literary* purpose than in *Informational* purpose (10). Relative strength in *Informational* purposes was more commonly a strength in East Asian countries such as Macao, Hong Kong SAR and Chinese Taipei, as well as Middle Eastern countries such as Egypt, the United Arab Emirates (UAE) and Oman. Of the comparator countries, Finland scored significantly less well on reading for *Literary* purposes (547) compared to its overall reading score (549), but there was no significant difference for reading for *Informational* purposes (550).

Northern Ireland demonstrated the same pattern of strength and weakness in reading purposes in PIRLS 2021 as it had in 2016. This was, however, relatively unusual among the comparator countries. While England had matched Northern Ireland's profile in 2016, it demonstrated no significant strength or weakness in 2021. Singapore achieved almost the exact opposite profile in 2016 compared to 2021, with a strength, in 2016, in *Informational* purposes and no significant difference in its score for *Literary* purposes compared to its overall score. In 2021, Finland demonstrated a weakness in *Literary* purposes that had not been present in 2016, and no longer demonstrated any significant strength in reading for an *Informational* purpose. Finally, the Republic of Ireland demonstrated a weakness in *Informational* purposes in 2021 which had not been present in 2016.

4.3. Attainment by reading comprehension processes

The study also provides attainment scale scores in the two reading comprehension process domains identified in PIRLS 2021 *Retrieving and straightforward inferencing* and *Interpreting, integrating and evaluating*. These are presented in Tables 4.3 and 4.4 in descending order of overall attainment score.

Table 4.3 Attainment in retrieving and straightforward inferencing

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland). All differences that are statistically significant are indicated by a coloured bar.

Country	Overall PIRLS average scale score	Retrieving & inferencing – average scale score	Retrieving & inferencing – difference from overall PIRLS score	Retrieving & inferencing – difference bar
Singapore [3]	587 (3.1)	584 (3.0)	-3* (0.7)	
Republic of Ireland	577 (2.5)	571 (2.3)	-6* (0.9)	
Northern Ireland [2] [RS]	566 (2.5)	558 (2.6)	-8* (1.5)	
England	558 (2.5)	554 (2.4)	-3* (0.9)	
Finland	549 (2.4)	550 (2.6)	1 (0.8)	
Poland	549 (2.2)	545 (2.2)	-4* (1.2)	
Australia	540 (2.2)	534 (2.4)	-6* (1.1)	

*Indicates a statistically significant difference compared to the overall national reading score. Statistically significant differences are also indicated by a coloured difference bar, with orange indicating a negative difference and black indicating no significant difference.

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

Source: Exhibit 3.4, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

Relative to their overall reading score (566), pupils in Northern Ireland scored significantly lower on the *Retrieving and straightforward inferencing* scale (558) and significantly higher on the *Interpreting, integrating and evaluating* scale (573). This represents a change since the 2016 study for the *Interpreting, integrating and evaluating* scale, when no significant difference was observed.

Table 4.4 Attainment in interpreting, integrating and evaluating

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland). All differences that are statistically significant are indicated by a coloured bar.

Country	Overall PIRLS average scale score	Interpreting, integrating & evaluating – average scale score	Interpreting, integrating & evaluating – difference from overall PIRLS score	Interpreting, integrating & evaluating – difference bar
Singapore [3]	587 (3.1)	591 (3.2)	4* (0.5)	
Republic of Ireland	577 (2.5)	582 (2.7)	5* (1.9)	
Northern Ireland [2] [RS]	566 (2.5)	573 (2.2)	8* (1.8)	
England	558 (2.5)	561 (2.5)	4* (1.4)	
Finland	549 (2.4)	549 (2.4)	0 (0.8)	-
Poland	549 (2.2)	552 (2.0)	3* (1.1)	
Australia	540 (2.2)	547 (2.3)	7* (1.0)	

*Indicates a statistically significant difference compared to the overall national reading score. Statistically significant differences are also indicated by a coloured difference bar, with purple indicating a positive difference and black indicating no significant difference.

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

A [3] indicates the national defined population covers less than 90 per cent of the national target population (but at least 77 per cent). A [2] indicates the national defined population covers 90 to 95 per cent of the national target population.

[RS] indicates the country met guidelines for sample participation rates only after replacement schools were included.

Source: Exhibit 3.4, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

All comparator countries followed the same profile as Northern Ireland, with relative weaknesses in the *Retrieving and straightforward inferencing* scale and strengths in *Interpreting, integrating and evaluating*, except for Finland, where reading comprehension process scores were not statistically different from its overall scores in 2021. This was also the case in Finland in 2016.

Unlike the reading purposes measure, for the reading comprehension process scores, most of the comparator countries (Singapore, Poland, England and Australia) had retained the same pattern of strengths and weaknesses as in 2016. The exception to this, alongside Northern Ireland, was the Republic of Ireland, which had demonstrated no significant strength or weakness in 2016. In addition, Finland showed a different pattern to Northern Ireland, having demonstrated a strength in *Retrieving and straightforward inferencing* and a weakness in *Interpreting, integrating and evaluating* in 2016, but no significant differences in 2021.

4.4. Conclusion

Northern Ireland has continued to show a persistent and significant relative strength in reading for a *Literary* purpose and the process of *Interpreting, integrating and evaluating* since 2011. This profile of strength is similar to that of the other high-achieving comparator countries (Singapore and the Republic of Ireland). Relative strength in *Literary* purpose is consistent with a reading curriculum that starts with stories in the earlier school years, and then transitions to reading for facts and information in subjects such as science, history and geography as pupils get older (Mullis *et al.*, 2023).

While Northern Ireland has retained its strengths in both reading for a *Literary* purpose and the reading comprehension process of *Interpreting, integrating and evaluating* since 2016, it has also retained its relative weakness in reading for an *Informational* purpose. This pattern was largely reflected in the profiles of the high-achieving comparator countries, although Singapore did demonstrate a strength in reading for a *Literary* purpose that was not matched by a significant weakness on the *Informational* side. It is, however, difficult to fully understand the implication of these trends given the delay in the data collection that occurred as a result of the challenges imposed by the Covid-19 pandemic.

5. Covid-19 and the impact on schooling

Chapter outline

This chapter summarises principals', teachers' and parents' reports of schooling during the 2020/21 academic year, a year in which the Covid-19 pandemic impacted schools around the world.

Key findings

- In Northern Ireland, 92 per cent of pupils attended a school where the principal indicated that *more than eight weeks of teaching* had been affected by the Covid-19 pandemic during the 2020/21 academic year. Most other principals indicated that *five to eight weeks of teaching* had been affected.
- On average internationally, fewer than half (47 per cent) of pupils attended schools where normal operations were affected by the Covid-19 pandemic for *more than eight weeks of teaching*, and 14 per cent attended schools where normal operations were *not affected*.
- Covid-19 affected all education systems of the 56 PIRLS countries³¹ in some way, evidenced by the fact that all countries had at least some pupils in schools *affected* to some degree when pupils were in Year 6.
- In Northern Ireland, all pupils (100 per cent) attended schools whose principals reported providing remote teaching or distance learning resources for primary year groups when normal school operations were affected by the pandemic (during the 2020/21 academic year). This compared with 93 per cent of pupils on average internationally – a moderate difference.
- Nearly all pupils in Northern Ireland were taught in schools whose principals reported supporting remote learning when normal primary school operations were affected by the Covid-19 pandemic with *internet-based resources for pupils* (99 per cent) and *access to digital devices for teachers* (97 per cent). The vast majority of pupils attended schools that delivered *printed learning materials to pupils* (96 per cent), gave *access to digital devices for pupils* (90 per cent), gave *recommendations for teachers about how to provide online teaching* (96 per cent) and provided *technical support for teachers* (93 per cent).

³¹ Home and school questionnaire data are not available for Singapore.

- For all types of remote learning support provided by schools, a higher proportion of pupils in Northern Ireland received support than the international average. In most cases, the difference was large.
- In Northern Ireland, the proportion of pupils whose principals reported feeling *Well prepared* for remote teaching increased between September 2020 and June 2021 from 48 per cent to 95 per cent.
- The proportion of pupils in Northern Ireland whose principals felt *Not supported at all* by education authorities in providing remote teaching fell from 50 per cent to 29 per cent for September 2020 and June 2021.
- Over half of pupils in Northern Ireland were taught by teachers who agreed they had *received sufficient guidance in order to provide remote learning* (60 per cent) and felt *able to adequately support pupils during periods of remote learning* (57 per cent).
- An analysis of teachers' estimations suggests that teachers perceived that more pupils were *working towards the expected level* of attainment and fewer were *exceeding the expected level* at the end of the 2020/21 academic year compared with previous (non-Covid-19) years.
- In Northern Ireland, 31 per cent of pupils had parents who reported that their child's learning had been *Adversely affected a lot*; 54 per cent *Somewhat adversely affected* and 11 per cent *Not at all adversely affected* by the Covid-19 pandemic. On average internationally, fewer pupils (22 per cent) had parents who reported that their learning had been *Adversely affected a lot* by the Covid-19 pandemic, indicating a moderate difference compared with Northern Ireland.
- More pupils in Northern Ireland had parents who reported doing a range of activities with their children *often* when schools were *closed for most children* during the pandemic, compared with when they *were open for all children*. The largest difference was found between the percentage of pupils whose parents *measured or weighed things* when schools were closed (46 per cent) and the percentage of pupils whose parents *measured or weighed things* when schools were open (34 per cent).

5.1. Northern Ireland's education response to the Covid-19 pandemic

The Covid-19 pandemic was unprecedented in the impact it had on education systems worldwide. This chapter provides some background context on Northern Ireland's response to the Covid-19 pandemic, as well as drawing on other research related to schools', parents' and children's experiences.

5.1.1. Partial school closures and remote learning

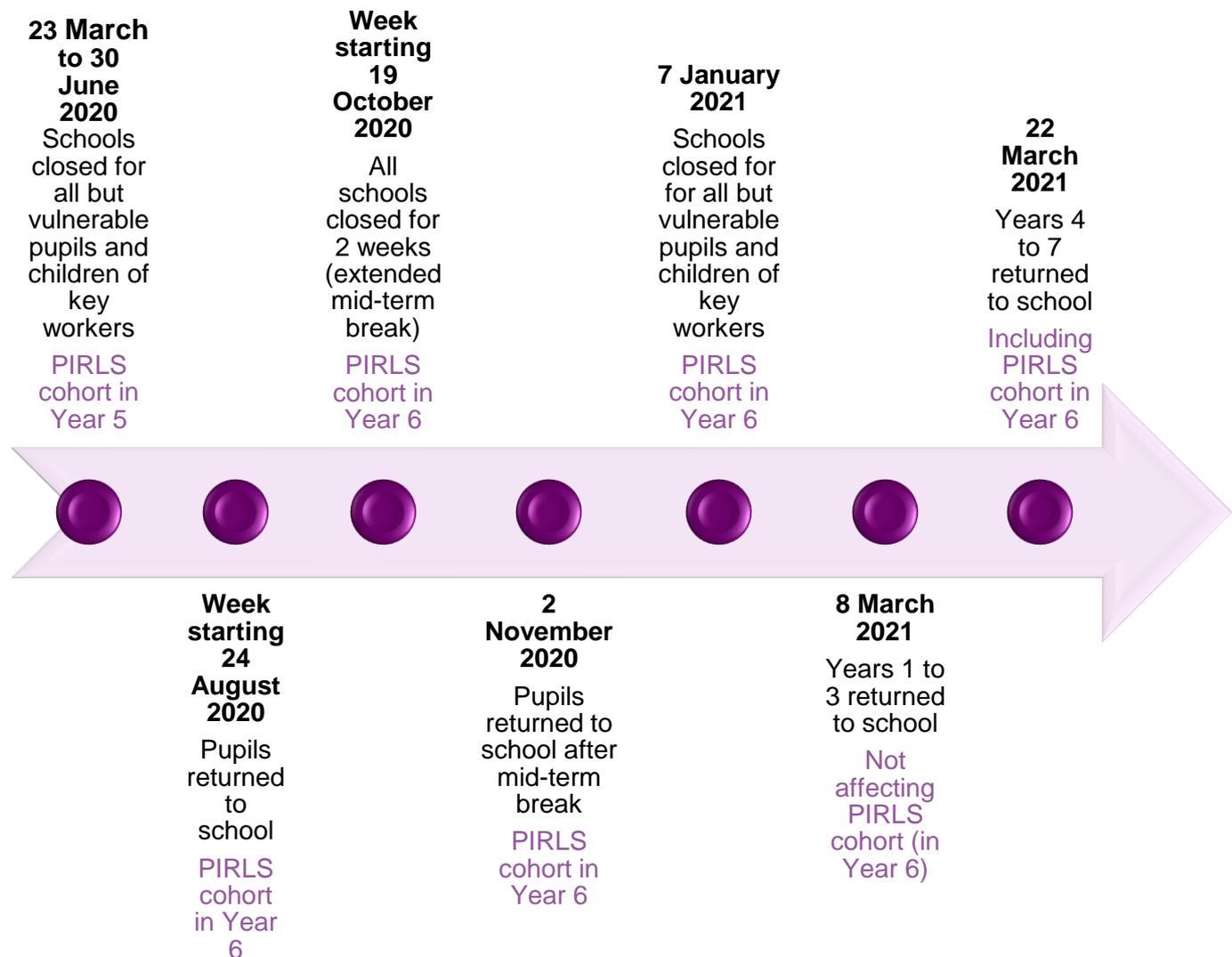
On 23 March 2020, schools in Northern Ireland closed and remained closed until the end of that academic year (30 June) for all but vulnerable pupils and children of key workers³². Schools, teachers, parents and pupils had to adjust to new ways of teaching and learning, alongside the everyday concerns and adjustments brought about by a global pandemic.

During the 2020/21 academic year (when the PIRLS 2021 cohort was in Year 6), schools in Northern Ireland experienced two periods of closure: first, an extended mid-term break (October 2020), and then a longer closure between January and March 2021, as illustrated in Figure 5.1. In both periods of closure, some schools remained open for vulnerable children and children of key workers. It is noteworthy that pupils returned to school with many new operations in place (e.g., a bubble system³³, one-way systems, hand sanitising), all of which potentially impacted upon how they settled back into school and developed. Their daily social enrichment opportunities were reduced dramatically, for example, no longer eating their lunches outside of their classrooms.

³² Parents whose work was critical to the Covid-19 response, such as those working in key public services, health and social care, education, local and national government, public safety and national security etc.

³³ Where pupils could only mix with a fixed group when they were in school (e.g., a subgroup from their class, their whole class or their year group)

Figure 5.1 Timeline of school closures in Northern Ireland



Source: (Department of Education, 2021c)

The Department of Education (DE) guidance on supporting remote learning, published in early June 2020 (when the PIRLS cohort was at the end of Year 5), advised schools to take a pragmatic approach to delivering the curriculum, prioritising key knowledge, understanding and skills in each Area of Learning (Department of Education, 2020a). At the same time, the guidance recommended that all schools should aim to engage with pupils on an ongoing basis through the wide range of e-learning platforms available. Further advice issued in late June for the 2020/21 academic year (when the PIRLS 2021 cohort would be in Year 6) again emphasised that schools had the flexibility and authority to make decisions that best suited the needs of their pupils (Department of Education, 2020b).

A wide range of resources, guidance materials, and case studies were produced by the DE, the Education Authority (EA) and other educational partner bodies. One such example

was the EA 'Supporting Learning' website (Education Authority, 2020) which collated, curated and shared resources, practice and programmes, in partnership with educational bodies and practitioners. In addition, the EA, Education and Training Inspectorate (ETI), and educational partners collaborated to create a Cross-Organisational Link Officer (COLO) network, which aimed to provide all schools with immediate and constant support and direction throughout the Covid-19 pandemic.

Vulnerable children, including pupils with statements of special educational needs, and children of key workers had access to schools with supervised learning during the periods of partial school closures. Rather than all schools remaining open, some schools chose to operate as members of clusters because the attendance rates during the first period of lockdown were very low (Sibieta and Cottell, 2020; Major, Eyles and Machin, 2021). Pupil participation in supervised learning in schools was higher during the second period of partial school closures (from January to March 2021). Over this second period, all special schools remained opened, instead of following the cluster system.

5.1.2. Additional resources for pupils in Northern Ireland during the Covid-19 pandemic

Plans to provide digital devices and Wi-Fi and mobile connectivity to those who needed it were announced in May and July 2020, respectively. By February 2021, 5500 pupils in priority year groups (Years 4 and 7) had benefited from the *Digital Device Scheme*, and a total of 7000 pupils (across primary and post-primary levels) had benefited from the Wi-Fi and mobile connectivity scheme (Department of Education, 2020d; Education and Training Inspectorate, 2021b). However, the PIRLS 2021 cohort in Northern Ireland was not in the priority year groups at that time and would not have directly benefited from the *Digital Device Scheme*. They may have benefited from the Wi-Fi and mobile connectivity scheme.

Supported by the recommendation from the *A Fair Start* report (Expert Panel on Educational Underachievement, 2021), and with the aim of reducing digital poverty (Education and Training Inspectorate, 2021b; Department of Education, 2022), the DE expanded the *Digital Device Scheme*, purchasing a further 4000 new devices for distribution to schools in the 2022/23 academic year (Northern Ireland Executive, 2022).

5.1.3. Programmes established in Northern Ireland in response to the Covid-19 pandemic

The *Engage Programme* was launched in September 2020 (when the PIRLS 2021 cohort was in Year 6). This formed a significant part of efforts to address the impact of Covid-19 on pupils' education. The programme, which was originally given £16 million in funding (for the 2020/21 academic year), enabled primary and post-primary schools to provide additional teaching support for pupils, particularly those from disadvantaged backgrounds. The funding was to be used to secure additional qualified teachers, enabling schools to provide child-centred one-to-one, small-group, or team-teaching support to those pupils who stood to benefit the most. Some primary and post-primary schools delayed the implementation of the programme in the autumn term due to reported difficulties sourcing a specialist teacher and/or a substitute teacher. The programme may have benefited most, if not all, participating PIRLS pupils. The *Engage Programme* continued on a larger scale in the 2021/22 academic year (Department of Education, 2021b) and entered its third year for the 2022/23 academic year, with the aim of limiting any long-term adverse impact of the Covid-19 pandemic.

The delivery of the *Engage Programme* during 2020/21 was the focus of a report by the ETI (Education and Training Inspectorate, 2021b). The findings suggested that schools had transitioned well to remote learning, key areas of the curriculum were being delivered well, and most children received well-structured learning experiences. However, all schools experienced barriers to delivering live teaching and many children were impacted adversely by digital poverty. Many parents and caregivers needed help to support their children's learning.

Summer Schemes, funded by the DE in 2020 and 2021, aimed also to offset the negative impact of Covid-19 and help pupils make a successful return to learning in the new school year. The schemes placed a focus on emotional health and wellbeing and included interactive and fun activities, as well as learning activities (Department of Education, 2021d). These schemes took place in the summer between Years 6 and 7 for the PIRLS cohort and so pupils who took part in the assessments may have benefited from them.

5.1.4. Other research on the impact of the pandemic on pupils' learning experiences in Northern Ireland

The ETI conducted a number of studies exploring remote learning and experiences of lockdowns. They explored the learning experiences of pupils during the January to March 2021 lockdown through an online questionnaire (Education and Training Inspectorate, 2021a) answered by 14,256 Year 6 and 7 pupils. (The PIRLS 2021 cohort was in Year 6 at the time.) Around 88 per cent reported that they enjoyed learning during lockdown at least

some of the time. However, nearly three-quarters (74 per cent) of the pupils reported that they had difficulty completing work *all, most, or some of the time*. Pupils reported relying mainly on parents and caregivers and their teachers/classroom assistants for help. Access to equipment was mostly *good*; less than five per cent of pupils reported they *did not have the correct equipment or resources they needed*. The pupils reported that the main difficulties they faced in completing schoolwork were: *being unsure about how to do the work* (31 per cent); *the internet connection did not always work* (29 per cent); *lack of a quiet place to work* (28 per cent); and *feeling they had too much work to complete* (21 per cent).

The experiences of parents and caregivers were surveyed by the Centre for Research in Educational Underachievement at Stranmillis University College, Belfast. Researchers highlighted the often very different experiences of children and young people, as expressed by parents, during the first six weeks of the first lockdown in 2020 (Walsh *et al.*, 2020). A follow-up survey, conducted during the second extended period of home learning from January to March 2021, found that home-schooling favoured children with better-educated parents who (as in 2020) felt more confident in their home-schooling role and were more likely to play an active role in supporting their child's learning (Purdy *et al.*, 2021). Additionally, digital accessibility at home was strongly related to household income, although there was a slight increase from 2020 in the number of digital devices available to children. Finally, most parents and caregivers were happy with both the quality and the quantity of learning resources provided by their children's schools.

Researchers from the London School of Economics and Political Science (LSE) and the University of Exeter compared the disruption to schooling between March 2020 and April 2021 across Northern Ireland, England, Scotland and Wales (Major, Eyles and Machin, 2021). The researchers defined 'learning loss' in terms of school hours, and as the percentage of normal hours of schooling lost per day compared with a six-hour school day for five days a week (also taking account of the number of hours per week pupils spent on schoolwork). Considering both learning undertaken at home and in the classroom, pupils in England, Scotland, Wales and Northern Ireland all experienced very large learning losses (or missed school learning time) over the course of the year. The maximum number of classroom days lost over one calendar year (across Years 5 and 6 for the PIRLS 2021 cohort) was 110 days in England, 119 days in Northern Ireland, 119 days in Scotland, and 124 days in Wales (Major, Eyles and Machin, 2021). On average, pupils in Northern Ireland lost 61 days of schooling, which was the same as in England. Pupils in Scotland (64 days) and Wales (66 days) had a higher number of classroom days at home.

5.1.5. Covid-19, international research and PIRLS

Whilst the impact of the pandemic on education has been the subject of much research at local and national levels, there is little internationally comparable research (Meinck, Fraillon and Strietholt, 2022). UNESCO, UNICEF and the World Bank collected data on national education responses to Covid-19 school closures (UNESCO, UNICEF and The World Bank, 2020). The aim of the survey was to capture countries' legislative policy responses and perceptions from government officials on their effectiveness. Surveys were carried out between May and June 2020, and between July and October 2020. The study found that the duration of school closures varied greatly between countries, as did how teachers monitored pupils' learning. Most countries had introduced additional support programmes to remediate learning loss and there were some differences across income groups. The funding for responding to the pandemic varied across income levels. In at least three-quarters of responding low- and lower-middle income countries, funding support was provided by external donors. In contrast, more than three-quarters of high-income countries allocated additional government funding to education.

A 2022 Eurydice Brief discussed the impact of the pandemic on the organisation of school education and reviewed key policy responses introduced by European education systems to tackle emerging difficulties in teaching and learning (European Education and Culture Executive Agency, 2022). Half of the European countries' education systems had put in place additional learning support measures and programmes, or dedicated additional resources, to tackle Covid-19 learning loss. Examples included additional opportunities for pupils to catch up on learning during or outside formal learning time, funding provided for the recruitment of additional teaching and support staff, and changes in teaching content and pupil assessment.

Additionally, the IEA and UNESCO collectively launched the *Responses to Educational Disruption Survey* (REDS), which was administered in 11, mostly low- and middle-income, countries: Burkina Faso, Denmark, Ethiopia, India, Kenya, Russian Federation, Rwanda, Slovenia, United Arab Emirates, Uruguay and Uzbekistan (Meinck, Fraillon and Strietholt, 2022). The study collected information from governments, principals and, optionally, teachers and pupils (international Grade 8, Year 10 equivalent in Northern Ireland). It explored how countries and, in particular, schools were prepared for distance learning in times of school closures and during a subsequent reopening phase, including measures implemented to provide all pupils with the opportunity to continue learning. The study found that continuity of teaching and learning varied across countries, and help and support for pupils at home varied in the availability and quality of such support. Principals, teachers and pupils perceived declines in learning progress, and vulnerable pupils were more likely to fall behind.

Finally, Moscoviz and Evans (2022) conducted a review of empirical studies related to learning loss and drop-out rates for pupils in pre-primary, primary and post-primary schools across 27 countries. This was introduced and discussed in Chapter 1.

PIRLS 2021 was disrupted by the Covid-19 pandemic (see the Introduction for further details). However, the timing of PIRLS has provided an opportunity to explore perceptions of the impact of Covid-19 on schooling, internationally and within Northern Ireland. Questions on Covid-19 were included in the PIRLS home and school questionnaires, focusing on school disruption, remote learning provision, and parents' perceptions of the effect of the pandemic on their child's learning. Additional national questions were included in Northern Ireland's home, teacher and school questionnaires to provide further context on the Covid-19 pandemic.

The remainder of this chapter looks in more detail at these questions, drawing upon all PIRLS countries in the first instance to give an overview of how each was affected by school disruption. It then focuses on the comparator countries where comparable data are available.

Interpreting the data: differences

In this section, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of the chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small, differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

A note on PIRLS context questionnaires

The Northern Ireland home, school and teacher questionnaires asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (internationally Grade 4) and were therefore comparable to other countries.

5.2. The impact of the pandemic on normal primary school operations

Principals were asked to estimate the number of weeks during which normal primary school operations were affected by the Covid-19 pandemic. Principals in Group 2 countries (which included Northern Ireland) were asked to consider the 2020/21 academic year (see Figure 5.2) to ensure the data collected were referring to the international grade equivalent to Year 6 and focused on the same academic year as most other countries. For

northern hemisphere Group 3 countries (namely England, Iran and Israel), the questionnaire covered the academic year in which they tested (2021/22) but is considered comparable as it is the year in which pupils were in the grade equivalent to Year 6.

Figure 5.2 Weeks of normal primary school operations affected by the Covid-19 pandemic

Please estimate the number of weeks during the 2020/21 academic year when normal primary school operations were affected by the COVID-19 pandemic.

*Tick **one** circle only.*

Normal primary school operations were not affected by the COVID-19 pandemic ---

Less than two weeks of teaching ---

Two weeks to four weeks of teaching ---

Five weeks to eight weeks of teaching ---

More than eight weeks of teaching ---

Source: Exhibit 3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 School Questionnaire

The findings for all PIRLS countries are presented in Table 5.1, in descending order for the percentage of pupils in the *more than eight weeks of teaching* category. All countries are included in this table to provide the overall picture of how much normal school operations were impacted by the Covid-19 pandemic. It is worth noting that *normal primary school operations were affected* could be interpreted differently by the respondents. For example, it could mean school closures, or something like the ‘bubble’ system³⁴ adopted by Northern Ireland schools, or it could mean schools were open but had a high sickness rate amongst staff and pupils. This should be considered when comparing findings.

³⁴ Where pupils could only mix with a fixed group when they were in school (e.g., a subgroup from their class, their whole class or their year group)

Table 5.1 Weeks of normal primary school operations impacted by the Covid-19 pandemic

Percentage of pupils based on principals' reports. Countries in pink delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	School operations not affected (%)	Less than 2 weeks of teaching (%)	2 to 4 weeks of teaching (%)	5 to 8 weeks of teaching (%)	More than 8 Weeks of teaching (%)
Czech Republic	0 ~	0 ~	0 ~	0 ~	100 (0.0)
Republic of Ireland	0 ~	0 ~	0 ~	0 ~	100 (0.0)
New Zealand [r]	0 ~	0 ~	0 ~	0 ~	100 (0.0)
Poland	1 ~	1 ~	0 ~	0 ~	98 (1.2)
Latvia	1 ~	1 ~	3 (1.7)	1 ~	93 (2.0)
Northern Ireland	1 ~	0 ~	0 ~	8 (2.5)	92 (2.6)
Denmark	0 ~	1 ~	1 ~	8 (2.3)	91 (2.5)
Germany [r]	0 ~	1 ~	0 ~	8 (2.0)	91 (2.0)
Lithuania [s]	2 ~	1 ~	1 ~	7 (2.3)	90 (2.7)
Slovenia [r]	3 (2.0)	4 (1.5)	2 ~	8 (2.5)	83 (3.4)
Turkey	3 (1.2)	3 (1.3)	3 (1.3)	8 (2.1)	83 (2.9)
United States	3 (1.9)	4 (2.1)	13 (3.8)	8 (3.2)	72 (5.6)
Austria	0 ~	1 ~	6 (2.3)	24 (3.7)	69 (3.9)
Brazil	19 (3.3)	6 (1.8)	6 (2.4)	3 (1.5)	65 (3.7)
Jordan	11 (2.7)	7 (1.9)	13 (3.1)	7 (2.0)	63 (4.1)
Iran	8 (2.2)	6 (1.7)	8 (1.8)	15 (3.4)	62 (4.0)
Morocco	22 (3.2)	6 (1.9)	5 (1.9)	5 (1.5)	62 (3.8)
Hungary	0 ~	0 ~	3 (1.5)	36 (4.1)	61 (4.1)
Hong Kong, SAR	5 (1.9)	8 (2.3)	17 (3.3)	13 (2.7)	57 (4.0)
Azerbaijan	17 (3.0)	11 (2.7)	10 (2.0)	6 (1.8)	55 (3.9)
Egypt	9 (1.9)	5 (1.9)	9 (2.5)	22 (3.4)	55 (3.7)

Country	School operations not affected (%)	Less than 2 weeks of teaching (%)	2 to 4 weeks of teaching (%)	5 to 8 weeks of teaching (%)	More than 8 Weeks of teaching (%)
Netherlands [r]	3 (1.7)	2 ~	7 (2.4)	35 (5.7)	53 (6.1)
Norway [Grade 5]	12 (2.6)	11 (2.6)	13 (3.0)	13 (2.9)	51 (4.1)
Australia	8 (1.5)	22 (1.8)	12 (2.1)	10 (2.0)	48 (2.4)
Slovak Republic	0 ~	3 (1.3)	12 (2.7)	37 (3.5)	48 (4.1)
Finland	17 (2.7)	11 (2.5)	10 (2.4)	14 (3.4)	47 (3.6)
Macao, SAR	36 (0.1)	3 (0.0)	3 (0.0)	11 (0.0)	46 (0.1)
England	26 (4.2)	11 (2.6)	6 (2.0)	16 (2.8)	42 (4.5)
Israel [r]	6 (2.0)	5 (1.8)	14 (2.8)	34 (3.7)	41 (4.2)
Qatar	24 (3.5)	13 (2.9)	14 (2.7)	7 (1.8)	41 (3.4)
Saudi Arabia	22 (3.7)	13 (3.1)	12 (2.8)	12 (2.6)	40 (4.6)
Georgia	14 (2.4)	17 (2.7)	15 (2.9)	16 (2.9)	38 (3.3)
Montenegro	2 ~	6 (0.9)	14 (0.3)	40 (0.7)	38 (0.5)
Portugal	6 (1.8)	4 (1.5)	8 (2.0)	44 (3.8)	37 (3.7)
Croatia	2 ~	5 (2.0)	26 (3.9)	33 (4.4)	35 (4.4)
Belgium (Flemish)	3 (1.9)	21 (4.0)	29 (4.4)	12 (2.6)	34 (4.3)
Oman	15 (2.5)	13 (2.4)	24 (3.1)	15 (2.3)	34 (3.5)
Sweden [r]	34 (4.3)	12 (3.3)	10 (2.9)	10 (2.6)	34 (5.0)
Serbia	29 (3.9)	4 (1.6)	19 (3.0)	15 (2.8)	33 (4.2)
Kazakhstan	35 (3.3)	8 (2.2)	9 (2.0)	15 (2.8)	32 (3.6)
South Africa	16 (3.0)	15 (2.6)	28 (4.0)	14 (2.6)	28 (3.3)
North Macedonia	34 (3.5)	9 (2.4)	28 (4.6)	3 (1.7)	26 (4.1)
United Arab Emirates [s]	45 (2.4)	15 (1.3)	8 (0.2)	6 (1.7)	26 (2.1)
Uzbekistan	14 (3.2)	23 (3.9)	28 (3.3)	10 (2.2)	25 (3.7)
Bahrain	52 (2.9)	13 (1.8)	9 (1.1)	5 (1.0)	23 (2.4)
Italy	6 (1.7)	6 (2.0)	44 (3.8)	21 (3.4)	23 (3.1)

Country	School operations not affected (%)	Less than 2 weeks of teaching (%)	2 to 4 weeks of teaching (%)	5 to 8 weeks of teaching (%)	More than 8 Weeks of teaching (%)
France	3 (1.4)	50 (3.9)	20 (3.2)	9 (2.5)	18 (3.1)
Spain	34 (2.9)	18 (2.4)	18 (2.4)	13 (2.2)	17 (2.1)
Albania	25 (3.8)	52 (4.3)	9 (2.8)	1 ~	13 (2.9)
Belgium (French)	4 (1.9)	14 (3.0)	58 (3.7)	13 (2.7)	10 (2.5)
Kosovo	9 (2.3)	39 (4.0)	38 (4.1)	4 (1.8)	10 (2.7)
Cyprus	2 ~	5 (1.6)	51 (3.8)	34 (4.2)	8 (2.4)
Malta	8 (4.4)	14 (4.9)	61 (7.6)	9 (3.5)	8 (3.6)
Russian Federation	61 (3.8)	14 (2.3)	20 (3.1)	2 ~	3 (1.1)
Bulgaria	23 (3.6)	4 (1.8)	40 (4.5)	30 (3.9)	3 (1.3)
Chinese Taipei	77 (3.0)	19 (2.8)	3 (1.4)	1 ~	1 ~
International average	14 (0.3)	10 (0.3)	15 (0.4)	13 (0.4)	47 (0.4)

Standard errors appear in brackets ()³⁵. Because of rounding some results may appear inconsistent.

An [r] indicates data are available for at least 70 per cent but less than 85 per cent of the pupils.

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

A tilde (~) indicates insufficient data to report result.

Data are not available for Singapore.

Source: Exhibit 3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, 92 per cent of pupils attended a school where the principal indicated *more than eight weeks of teaching* had been affected, with most other principals indicating *five to eight weeks of teaching* had been affected. This is expected, given the partial school closures in Northern Ireland, and other research findings reporting that a maximum of 119 classroom days had been lost over one calendar year due to the pandemic in Northern Ireland (Major, Eyles and Machin, 2021).

³⁵ Throughout the report, standard errors are presented when available in the PIRLS international report (Mullis *et al.*, 2023).

On average internationally, fewer than half (47 per cent) of pupils attended schools where normal operations were affected for *more than eight weeks of teaching* and 14 per cent attended schools where normal operations were *not affected*.

Table 5.1 also illustrates that participating countries had very different experiences of school disruption, which supports other international findings (e.g., UNESCO, UNICEF, and The World Bank, 2020; Meinck, Fraillon and Strietholt, 2022). For example, 77 per cent of pupils in Chinese Taipei attended a school where principals reported normal operations were *not affected*. However, for many other countries (namely Austria, Czech Republic, Denmark, Germany, Hungary, New Zealand, the Republic of Ireland and Slovak Republic) no pupils attended schools where normal operations were *not affected*.

Similarly, 100 per cent of pupils in the Republic of Ireland, Czech Republic and New Zealand attended schools where normal primary operations were affected for *more than eight weeks of teaching*, compared with one per cent in Chinese Taipei and three per cent in both Russian Federation and Bulgaria.

There is also evidence of different experiences within countries, as well as between them. Apart from the Republic of Ireland, Czech Republic and New Zealand, there are no countries where 100 per cent of pupils were in the same category, suggesting not all pupils experienced normal operations being affected for a similar amount of time. Additionally, in some countries such as Spain, Finland and Norway, at least ten per cent of pupils were in each response category, suggesting that, within countries, pupils had normal operations affected for different amounts of time. The *Responses to Educational Disruption Survey* (REDS) (Meinck, Fraillon and Strietholt, 2022) had similar findings with a smaller group of largely middle- and lower-income countries.

Covid-19 affected the education systems of all PIRLS countries in some way; there was no country where 100 per cent of pupils attended a school where school operations were *not affected*.

5.3. Provision of remote learning during the pandemic

Principals were asked whether their school provided remote teaching or distance learning resources for primary year groups when normal school operations were affected by the Covid-19 pandemic. Again, this referred to the 2020/21 academic year for Northern Ireland. Table 5.2 presents the findings from Northern Ireland, comparator countries and the international average. The data are presented in descending order of the percentage of pupils whose principals responded 'Yes'.

Table 5.2 Percentage of schools that provided remote teaching or distance learning resources during the pandemic

Percentage of pupils whose principals responded ‘Yes’ to providing remote teaching or distance learning resources for primary year groups when normal school operations were affected by the Covid-19 pandemic.

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Yes (%)
Northern Ireland	100
Poland	99
Republic of Ireland	99
England [r]	99
Australia	95
Finland	90
International average	93

An [r] indicates data are available for at least 70 per cent but less than 85 per cent of the pupils.

Data are not available for Singapore.

Source: 2021 School Context Data Almanac by Reading Achievement question ACBG20

In Northern Ireland, 100 per cent of pupils attended schools whose principals reported providing remote teaching or distance learning resources for primary year groups when normal school operations were affected by the pandemic. The international average was 93 per cent of pupils, indicating a moderate difference compared to Northern Ireland.

In all comparator countries, at least 90 per cent of pupils attended a school where the principal reported providing remote teaching or distance learning resources.

Principals were also asked what types of support their school provided for remote learning when normal operations were affected by the Covid-19 pandemic (during the 2020/21 academic year). Table 5.3 presents the findings, in alphabetical order, from Northern Ireland and comparator countries and the international average.

Table 5.3 Ways in which schools supported remote learning

Percentage of pupils whose principals responded ‘Yes’ to supporting remote learning in the following ways.

Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Delivery of printed learning materials to pupils (%)	Internet-based resources for pupils (%)	Access to digital devices for pupils (%)	Recommendations for teachers about how to provide online teaching (%)	Technical support for teachers (%)	Access to digital devices for teachers (%)
Australia	81	94	76	91	92	93
England [r]	89	98	97	97	95	98
Finland	76	88	89	87	90	90
Northern Ireland	96	99	90	96	93	97
Poland	58	94	95	98	94	94
Republic of Ireland	87	99	84	97	85	96
International average	70	87	73	88	83	80

An [r] indicates data are available for at least 70 per cent but less than 85 per cent of the pupils.

Data are not available for Singapore.

Source: 2021 School Context Data Almanac by Reading Achievement question ACBG21A, ACBG21B, ACBG21C, ACBG21D, ACBG21E and ACBG21F

Nearly all pupils in Northern Ireland were taught in schools whose principals reported supporting remote learning with *internet-based resources for pupils* and *access to digital devices for teachers* (99 and 97 per cent respectively). The vast majority of pupils in Northern Ireland also attended schools where principals reported that their schools delivered *printed learning materials to pupils*, gave *access to digital devices for pupils*, gave *recommendations for teachers about how to provide online teaching* and provided

technical support for teachers (96, 90, 96 and 93 per cent respectively). The provision of digital devices is likely to have been a response to the ‘digital poverty’ suffered by some pupils (Education and Training Inspectorate, 2021b; Purdy *et al.*, 2021). It supports the finding that, generally, pupils felt they had sufficient access to equipment and resources during the lockdown from January to March 2021 (Education and Training Inspectorate, 2021a).

For all types of remote learning support, there was a larger proportion of pupils in Northern Ireland taught in schools providing each type of support compared with what was reported on average internationally. For example, in Northern Ireland 90 per cent of pupils attended schools that had provided *access to digital devices for pupils* compared with 73 per cent of pupils on average internationally.

In Northern Ireland, comparator countries and on average internationally, more pupils attended schools that provided *internet-based resources for pupils* than provided *printed learning materials to pupils*. At least 90 per cent of pupils in each comparator country attended schools which provided *access to digital devices for teachers*.

5.4. Provision of educational resources by parents

Parents were asked whether they had provided additional educational resources for their child during the pandemic (an academic year was not specified in this question). Table 5.4 presents the findings from Northern Ireland, the international average and some comparator countries, in alphabetical order. Readers should keep in mind that 65 per cent of pupils’ parents in Northern Ireland responded to the questionnaire and therefore the data may not be representative of all pupils and all parents. Data are unavailable for England, Australia and Singapore³⁶.

³⁶ The home questionnaire was not administered in England and Australia. For Singapore, no comparable data are available for the Covid-19 related questions of the home questionnaire.

Table 5.4 Parents' provision of educational resources during the pandemic

Percentage of pupils whose parents responded 'Yes' to providing the following educational resources during the pandemic. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland).

Country	Books (%)	Digital devices (%)	Digitally-based learning activities (%)	Online teaching or tutoring (%)
Finland	72	82	64	71
Northern Ireland [s]	79	71	63	36
Poland	72	70	67	54
Republic of Ireland	82	82	70	50
International average	60	56	49	44

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

Source: Home Context Data Almanac by Reading Achievement question ASBH21A, ASBH21B, ASBH21C, ASBH21D

In Northern Ireland, larger proportions of pupils had parents who reported providing educational resources (namely *books*, *digital devices* and *digitally-based learning activities*) than was seen on average internationally. For example, 71 per cent of pupils in Northern Ireland had parents who reported providing *digital devices*, compared with 56 per cent on average internationally. In addition, 79 per cent of pupils had parents who reported that they had provided *books* during the pandemic, compared with 60 per cent on average internationally. In contrast, this was not the case for *online teaching or tutoring*, which had been provided for moderately more pupils internationally than in Northern Ireland: 44 per cent and 36 per cent respectively.

In all comparator countries, and on average internationally, more pupils had parents who provided *books* and *digital devices* than *digitally-based learning activities* and *online teaching or tutoring*. A larger proportion of pupils in Finland had parents who provided *online teaching or tutoring* during the pandemic (71 per cent), compared with Northern Ireland (36 per cent), the other comparator countries, and the international average.

5.5. Schools' preparedness and support to provide remote teaching

Principals in Northern Ireland were asked how prepared they felt their school was to provide remote teaching at three time points; the start of the 2020/21 academic year, the start of the calendar year (January 2021) and the end of the 2020/21 academic year.

Table 5.5 Schools' preparedness to provide remote teaching

Percentage of pupils whose principals reported preparedness across three time points

Time point	Very well prepared (%)	Well prepared (%)	Somewhat prepared (%)	Not prepared at all (%)
At the start of the 2020/21 academic year (September 2020)	14	34	38	14
At the start of the calendar year (January 2021)	38	49	12	1
At the end of the 2020/21 academic year (June 2021)	56	38	5	1

Source: Northern Ireland dataset, National Items ACXG22A, ACXG22B and ACXG22C

The proportion of pupils whose principals reported feeling *Very well prepared* or *Well prepared* for remote teaching increased over the 2020/21 academic year. For September 2020, 48 per cent of pupils were taught by principals who reported their school was *Well prepared* or *Very well prepared* for remote teaching. For January 2021, this percentage had increased to 87 per cent and for June 2021 to 95 per cent³⁷. This increase is likely to reflect the experiences gained in remote teaching throughout periods of partial school closures and access to more guidance or resources.

Principals in Northern Ireland were also asked how supported they felt by education authorities in providing remote teaching for their pupils.

³⁷ after taking into account the rounding of figures

Table 5.6 How supported schools felt by education authorities in providing remote teaching

Percentage of pupils whose principals reported feeling supported across three time points

Time point	Very well supported (%)	Well supported (%)	Somewhat supported (%)	Not supported at all (%)
At the start of the 2020/21 academic year (September 2020)	0	6	44	50
At the start of the calendar year (January 2021)	1	17	52	30
At the end of the 2020/21 academic year (June 2021)	0	21	50	29

Source: Northern Ireland dataset, National Items ACXG23A, ACXG23B and ACXG23C

As shown in Table 5.6, six per cent of pupils attended schools where principals felt *Well supported* and no pupils attended schools where the principal felt *Very well supported* by education authorities in providing remote teaching in September 2020.

The proportion of pupils that attended schools where principals felt *Well supported* increased to 21 per cent by June 2021 but, again, no pupils attended schools where principals felt *Very well supported*.

Additionally, the proportion of pupils with principals who reported feeling *Not supported at all* decreased across the academic year. Half of pupils (50 per cent) were taught by principals who felt *Not supported at all* in September 2020; this fell to 29 per cent for June 2021.

5.6. Teachers' perceptions of remote learning

Interpreting the data: percentages in tables related to teacher findings

The data in this section are derived from teachers' responses. Reported percentages refer to pupils and can be interpreted as the percentage of pupils whose teachers reported a particular practice or circumstance.

PIRLS pupils were sampled by class. The teacher questionnaire in Northern Ireland was distributed to pupils' Year 6 teachers who had taught them reading during the previous academic year (2020/21). (See note on context questionnaires earlier in this chapter.)

5.6.1. Teachers' reflections on their experiences during the Covid-19 pandemic

Teachers in Northern Ireland were asked to reflect on a series of statements about their experiences of the Covid-19 pandemic during the 2020/21 academic year. The findings are presented in Table 5.7 and are ordered from the highest to the lowest percentage based on the *Agree a lot* category. These questions were only asked in Northern Ireland.

Table 5.7 Teachers' reflections on remote learning during the 2020/21 academic year

Percentage of pupils based on teachers' responses

Statement	Agree a lot (%)	Agree a little (%)	Disagree a little (%)	Disagree a lot (%)
It was straightforward for me to prepare paper materials for pupils to use at home	34	37	18	11
I felt adequately trained to use software for remote learning, e.g., Microsoft Teams	22	29	23	26
I received sufficient guidance in order to provide remote learning	21	39	24	16
It was straightforward for me to prepare digital materials for remote learning	20	31	31	18
It was straightforward for me to adapt lesson and teaching plans for remote learning	16	33	30	21
I had adequate access to training in order to provide remote learning	15	32	24	28
I felt able to adequately support pupils during periods of remote learning	12	44	25	18

Source: Northern Ireland dataset, National Items ATXR25A, ATXR25B and ATXR25C, ATXR25D, ATXR25E, ATXR25F and ATXR2G

Over half of pupils (60 per cent) in Northern Ireland were taught by teachers who agreed a *little* or a *lot* that they had *received sufficient guidance in order to provide remote learning*, and 57 per cent³⁸ agreed a *little* or a *lot* that they felt *able to adequately support pupils*

³⁸ after taking into account the rounding of figures

during periods of remote learning. However, more pupils were taught by teachers who agreed *a little* or *a lot* that it was *straightforward to prepare paper materials for pupils* (71 per cent) than to *prepare digital materials* (50 per cent³⁹).

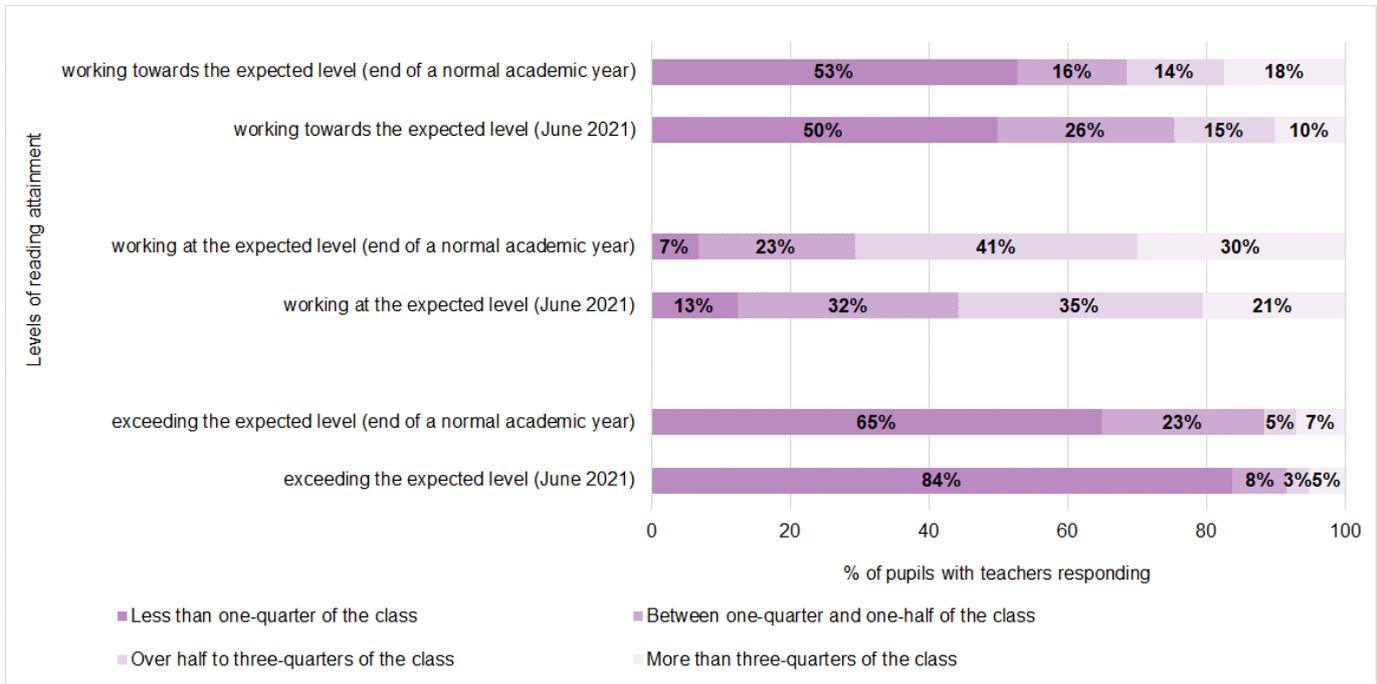
The statements about training had the highest proportion of pupils whose teachers disagreed *a lot*. Just over a quarter of pupils (28 per cent) had teachers who disagreed *a lot* with the statement *I had adequate access to training in order to provide remote learning*. A similar proportion (26 per cent) disagreed *a lot* with *I felt adequately trained to use software for remote learning, e.g., Microsoft Teams*.

5.6.2. Teachers' perception of expected levels of reading attainment

In Northern Ireland only, teachers were asked two questions about expected levels of reading attainment in Year 6. Firstly, they were asked to think back to previous years before the Covid-19 pandemic and estimate what proportion of Year 6 children would be at different levels of reading attainment by the end of the academic year (i.e., a 'normal' academic year). Secondly, teachers were asked to estimate what proportion of Year 6 children would be at different levels of reading attainment at the end of the 2020/21 academic year (June 2021) when normal school operations had been impacted by the pandemic. Findings are shown in Figure 5.3.

³⁹ after taking into account the rounding of figures

Figure 5.3 Teachers' approximations of the proportion of Year 6 children working at different levels of reading attainment



Source: Northern Ireland dataset, National Items ATXR25A, ATXR25B and ATXR25C, ATXR25D, ATXR25E, ATXR25F and ATXR2G

Figure 5.3 shows that teachers perceived that more children were *working towards the expected level* of attainment and fewer were *exceeding the expected level* at the end of the 2020/21 academic year compared with previous (non-Covid-19) years.

5.7. Parents' perception of learning progress during the pandemic

Parents were asked whether their child had stayed at home at any time because of the Covid-19 pandemic and whether they thought their child's learning progress had been adversely affected (see Figure 5.4). An academic year was not specified with this question.

Figure 5.4 Parents' perceptions of their child's learning progress during the Covid-19 pandemic

Did your child stay home at any time because of the COVID-19 pandemic?

*Tick **one** box only.*

Yes ---

No ---

(If No, go to question 23)

Do you think your child's learning progress has been adversely affected?

*Tick **one** box only.*

A lot ---

Somewhat ---

Not at all ---

Source: Exhibit 4, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 Home Questionnaire

Tables 5.8 and 5.9 present the findings from Northern Ireland, the international average and comparator countries where data are available. Countries in Table 5.8 are in descending order for proportion of pupils whose parents responded 'Yes'.

Table 5.8 Percentage of parents who reported their child stayed at home from school because of the Covid-19 pandemic

Proportion of pupils based on parents' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland).

Country	Yes, child stayed at home (%)	No, child did not stay at home (%)
Republic of Ireland	100 (0.0)	0 ~
Northern Ireland [s]	96 (0.5)	4 (0.5)
Finland	89 (0.5)	11 (0.5)
Poland	79 (0.7)	21 (0.7)
International average	87 (0.1)	13 (0.1)

Standard errors appear in brackets (). Because of rounding some results may appear inconsistent.

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

A tilde (~) indicates insufficient data to report result.

Source: Exhibit 4, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, four per cent of pupils had parents who said their child did not stay at home because of the Covid-19 pandemic; 96 per cent of pupils had parents who said their child had stayed at home. The pupils who did not stay at home because of the pandemic are likely to be vulnerable children and key worker children. On average internationally, 87 per cent of pupils had parents who said their child had stayed at home because of the pandemic, a moderate difference compared with Northern Ireland.

In the Republic of Ireland, 100 per cent of pupils had parents who indicated their child had stayed at home because of the pandemic. Poland had the lowest proportion of pupils, across comparator countries, with 79 per cent of pupils' parents reporting that their child had stayed at home.

Nearly all countries internationally had at least 50 per cent of pupils whose parents indicated they had stayed at home. The exception was Chinese Taipei, a Group 1 country, where only eight per cent of pupils had parents who responded that their child had stayed at home. These results can be found in the PIRLS international report (Mullis *et al.*, 2023).

Table 5.9 shows the percentage of pupils who stayed at home by parents' perception of learning progress. Countries are in descending order for the proportion of pupils *Adversely affected a lot*.

Table 5.9 Parents' perceptions of their child's learning progress during the Covid-19 pandemic

Pupils' results based on parents' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland).

Country	Not at all adversely affected (%)	Somewhat adversely affected (%)	Adversely affected a lot (%)
Poland	8 (0.6)	32 (0.9)	39 (1.2)
Northern Ireland [s]	11 (0.7)	54 (1.1)	31 (1.0)
Republic of Ireland	25 (1.0)	58 (10)	17 (0.6)
Finland	62 (0.8)	25 (0.8)	2 ~
International average	19 (0.1)	45 (0.2)	22 (0.1)

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

If pupils' parents indicated that their child had not stayed at home from school at any time during the Covid-19 pandemic, the question about perceptions of their child's learning progress was not asked.

Source: Exhibit 4, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, 85 per cent of pupils had parents who reported their child's learning had been adversely affected at least to some extent, compared with 11 per cent whose parents said it had been *Not at all adversely affected* during the Covid-19 pandemic. On average internationally, fewer pupils (22 per cent) had parents who reported that their child's learning had been *Adversely affected a lot*, indicating a moderate difference compared with Northern Ireland.

Of comparator countries, Finland had the lowest proportion of pupils (two per cent) whose parents said their learning had been *Adversely affected a lot* and the highest proportion of pupils (62 per cent) whose parents said their learning had been *Not at all adversely affected*. One quarter of pupils in the Republic of Ireland (25 per cent) had parents who reported their child's learning was *Not at all adversely affected* and 17 per cent who said it was *Adversely affected a lot*.

Similar to the findings around normal school operations being affected (Section 5.2), there was variation across all countries in parents' perceptions of learning being adversely affected. For example, in Norway and Denmark, just less than half of pupils were categorised as *Not at all adversely affected* (47 and 46 per cent respectively), compared with more than half (58 per cent) of pupils in Jordan categorised as *Adversely affected a lot*. Again, there was no country where 100 per cent of pupils fell into one category. These results can be found in the PIRLS international report (Mullis *et al.*, 2023).

5.8. Parents' activities with their child during the pandemic

In Northern Ireland's home questionnaire, parents were asked how often they did certain activities with their child in the academic year September 2020 to June 2021, when schools *were open for all children* and when they were *closed for most children*. The findings are presented in Table 5.10 and ordered by percentage difference of pupils between the two time points.

Table 5.10 Parents' activities with their child during the pandemic

Percentage of pupils whose parents reported they 'often' did the following activities with them during the 2020/21 academic year.

Activity	When schools were open for all children (%)	When schools were closed for most children (%)	Percentage point difference ⁴⁰	Difference bar
Measure or weigh things (e.g., when cooking)	34	46	12	
Read books	50	59	9	
Provide additional tutoring	37	46	9	
Play word games	37	46	9	
Play board or card games	53	61	8	
Tell stories	43	50	6	
Sing songs	38	42	4	
Talk about what he/she has read	61	65	4	
Help with revision and practising for tests	66	66	0	
Help with homework	85	84	-2	
Talk about things he/she has done	86	81	-5	

Source: Northern Ireland dataset, National Items ASXH23A, ASXH23B, ASXH23C, ASXH23D, ASXH23E, ASXH23F, ASXH23G, ASXH23H, ASXH23I, ASXH23J, ASXH23K and ASXH24A, ASXH24B, ASXH24C, ASXH24D, ASXH24E, ASXH24F, ASXH24G, ASXH24H, ASXH24I, ASXH24J, ASXH24K

Table 5.10 illustrates that, for almost all the activities, the proportion of parents reporting they *often* did an activity with their children when schools were *closed for most children* was higher compared with when they *were open for all children*. The largest difference came in *measure or weigh things*, with 34 per cent of pupils whose parents said they did that when schools were open and 46 per cent reporting they did it when schools were

⁴⁰ after taking into account the rounding of figures

closed. There were moderate differences in more traditional learning activities, such as *reading books, providing additional tutoring, playing word games and playing board or card games*, with more parental involvement when schools were closed.

The percentage of pupils whose parents reportedly *helped with homework* was similar whether schools were closed or open (85 per cent when open and 84 per cent when closed), as it was for *helping with revision and practising for tests* (66 per cent for both time periods). There was a small difference in the percentage of pupils whose parents said they often *talked about what their child had done* when schools were closed (81 per cent) compared with when they were open (86 per cent), which could be explained by parents and pupils spending more time together during lockdown.

5.9. Conclusion

Pupils from different countries, but also within countries, had different experiences during the Covid-19 pandemic, and countries responded in different ways. There were no pupils in any country that took part in PIRLS that were unaffected by the pandemic. However, compared to pupils on average internationally, pupils in Northern Ireland experienced substantially more disruption to the normal operation of their schools.

All pupils in Northern Ireland attended schools that provided remote teaching or distance learning during the pandemic. Almost all pupils in Northern Ireland attended schools where the principal reported providing pupils with *internet-based resources and printed learning materials* and providing teachers with *access to digital devices*.

In addition to high levels of support from schools during the pandemic, parents also provided support, most commonly by providing their children with books and digital devices. The provision by parents of *online teaching or tutoring* was less common in Northern Ireland than on average internationally.

As the Covid-19 pandemic continued during the 2020/21 academic year, principals' views about their school's preparedness to provide remote teaching became more positive, and at the end of the academic year only one per cent of pupils in Northern Ireland attended schools where the principal reported that their school was *Not at all prepared* to provide remote teaching. Similarly, over the 2020/21 academic year principals' views about how well they felt supported by education authorities in providing remote teaching became more positive.

Teachers were asked their opinion about the impact of the pandemic on learning and their perception was that more pupils were *working towards the expected level* of attainment and fewer were *exceeding the expected level* at the end of the 2020/21 academic year compared with previous (non-Covid-19) years. Parents also recognised the negative

impact on their children's learning and, in general, participated in more learning-related activities with their children when schools were closed as opposed to when they were open.

6. Socio-economic disadvantage and attainment in PIRLS 2021

Chapter outline

This chapter considers the relationship between socio-economic disadvantage and reading attainment in Northern Ireland. It summarises parent and principal reports and explores pupils' eligibility for free school meals. Outcomes for Northern Ireland are compared with comparator countries and the international average where data are available.

Key findings

- As defined by the PIRLS scale for socio-economic status, 47 per cent of pupils were categorised as having *Higher socio-economic status*, 41 per cent as *Middle socio-economic status* and 11 per cent as *Lower socio-economic status* in Northern Ireland.
- A higher proportion of pupils in Northern Ireland were categorised as having *Higher socio-economic status* compared with the international average (47 per cent and 30 per cent respectively), indicating a large difference.
- Internationally, it was Nordic countries that had the highest proportions of pupils categorised as having *Higher socio-economic status* (Norway 57 per cent, Sweden 56 per cent, Denmark 54 per cent and Finland 50 per cent).
- Twenty-seven per cent of pupils in Northern Ireland were eligible for free school meals. These pupils scored, on average, 49 points lower than those who were not eligible for free school meals. In 2016, this gap was 48 points, suggesting little change over time.
- Similarly, pupils who had been eligible for free school meals at some point in the previous six years (39 per cent of pupils) scored, on average, 49 points lower than those who had not.
- In Northern Ireland, 38 per cent of pupils were taught in schools that were defined as *More affluent*, 31 per cent were in schools in the *Neither more affluent nor more disadvantaged* category and 31 per cent were in schools in the *More disadvantaged* category.
- Compared with the international average, Northern Ireland had a smaller proportion of pupils taught in schools defined as *More affluent*, indicated by a small difference of five percentage points, and a higher proportion of pupils in schools defined as *More disadvantaged*, indicated by a small difference of six percentage points.

6.1. Background

Pupils' socio-economic background has consistently been linked to attainment both in Northern Ireland (e.g., Burns, Leitch and Hughes, 2015; Sizmur, Galvis and Kirkup, 2020; Classick *et al.*, 2021; Early *et al.*, 2022) and internationally (Mullis, Martin, Foy, *et al.*, 2017; OECD, 2019). In the 2021/22 academic year, 28.5 per cent of pupils in Northern Ireland were eligible for free school meals (Robinson, 2022), which is one way of measuring socio-economic deprivation.

6.1.1. Policies and programmes to tackle disadvantage

The following text draws on the Northern Ireland chapter in the PIRLS encyclopedia (Reynolds *et al.*, 2022).

Reducing the difference in achievement between disadvantaged pupils and their more advantaged peers is a key policy priority in Northern Ireland. There are a range of policies and programmes in place to support pupils in their learning and which aim to offset the impact of social deprivation. Some key policies which would have impacted the PIRLS 2021 cohort are summarised below.

- Sure Start is a programme targeted at parents and children under the age of four living in the most disadvantaged areas. It was first introduced in Northern Ireland during 2000/01 as part of the Northern Ireland Childcare Strategy, Children First. Sure Start projects deliver a wide variety of services which are designed to support children's learning skills, health and wellbeing, and social and emotional development.
- Count, Read: Succeed – A Strategy to Improve Outcomes in Literacy and Numeracy (Department of Education, 2011) was introduced to raise overall standards and close achievement gaps. Key areas of action included: an emphasis on literacy and numeracy, high-quality teaching, early intervention to support pupils experiencing difficulties, better links with parents and communities, and more effective sharing of best practice.
- The Delivering Social Change Literacy and Numeracy Signature Programme was launched in 2012 to improve literacy and numeracy as part of a wider government initiative to tackle poverty and social exclusion. Recently qualified teachers who were not in a permanent teaching post were recruited to provide additional support for pupils at risk of underachievement. It was an important initiative, albeit short-term, and the programme ran during the 2013-2014 and 2014-2015 school years and involved 151 primary schools. The Education and Training Inspectorate's (ETI) 2015 evaluation of the programme found that highly effective practices resulted from it (Education and Training Inspectorate, 2015) and, although the programme ended in June 2015, a

further (2016) evaluation identified evidence of its legacy (Education and Training Inspectorate, 2016).

- The Engage Programme (also introduced in Chapter 5) was launched in September 2020. This formed a significant part of efforts to address the impact of Covid-19 on pupils' education. Originally given £16 million in funding (for the 2020/21 academic year), the programme enabled primary and post-primary schools to provide additional teaching support for pupils, particularly those from disadvantaged backgrounds. The funding was to be used to secure additional qualified teachers, enabling schools to provide child-centred one-to-one, small-group, or team-teaching support to those pupils who stood to benefit the most. The Engage Programme continued on a larger scale in the 2021/22 academic year (Department of Education, 2021b) and entered its third year for the 2022/23 academic year, with the aim of limiting any long-term adverse impact of the Covid-19 pandemic.

At the time of writing, there are also programmes that target disadvantage at the area level such as the *North Belfast Primary Principals Support Programme*, the *West Belfast Sharing the Learning Programme*, and the *West Belfast Community Project*.

A broader range of policies and programmes in place in Northern Ireland which aim to support children (primarily disadvantaged children) in their learning include:

- Preschool programmes: *Early Years Pathways Fund* (previously *Early Years Fund*), *Pre-School Education Programme*, *Extended Services Funding*.
- Other support within school settings: *Extended Schools Programme*, *Nurture Groups*, *Bright Start School Age Childcare Programme*, free school meals.
- Other support for families and parents: parental engagement advertising campaigns, pupil attendance interventions, school uniform grants.

6.1.2. Northern Ireland's expert group on educational underachievement

An expert group was also established in 2020 (under the *New Decade, New Approach* agreement (The Government of the United Kingdom, 2020)) to examine the link between educational underachievement and social disadvantage. Although the group's findings and action plan were published in 2021, so would not have affected the PIRLS cohort before testing, its work provides further context for disadvantage in Northern Ireland.

In its review of research literature in the area of educational underachievement, the expert group concluded that:

Though research methodologies and conceptual frameworks have changed over the past twenty years, the overall assessment that in

Northern Ireland, socio-economic inequalities in education lead to wider disparities in educational achievement based on wealth and class remains unchanged since Gallagher and Smith's foundational report [in 2000].
(Harris *et al.*, 2021, p.32)

The report also recognised that the Impacts of Covid-19 had been wide ranging and will continue to affect children and young people well into the future.

In *A Fair Start, Final Report and Action Plan* (Expert Panel on Educational Underachievement Northern Ireland, 2021), the group set out a costed action plan across eight key areas: redirecting the focus to early years; championing emotional health and wellbeing; ensuring the relevance and appropriateness of curriculum and assessment; promoting a whole-community approach to education; maximising boys' potential; driving forward Teachers' Professional Learning (TPL); supporting the professional learning and wellbeing of school leadership; and ensuring interdepartmental collaboration and delivery. Importantly, the action plan is regarded as an 'investment in the future' rather than an 'expenditure for today' (Purdy, 2021).

In key area 4 (promoting a whole-community approach to education), one action proposed was for the Department of Education to co-design a specification for a whole-community, partnership approach entitled the *Reducing Educational Disadvantage* (RED) programme and work was reported as underway to achieve this aim in the progress report (Northern Ireland Executive, 2022).

6.1.3. Measuring socio-economic status in international studies such as PIRLS

There are many different ways of measuring socio-economic disadvantage; for example, the Multiple Deprivation Measure (NISRA, 2017) is used as the official measure of disadvantage in Northern Ireland. Pupils' eligibility for free school meals (FSME) is also routinely used within the UK to define socio-economic disadvantage. However, in a large-scale international survey such as PIRLS, the way in which disadvantage is measured has to be appropriate for a variety of national contexts in order for the findings to be comparable. When information from different sources is used to measure particular background characteristics, the findings may differ slightly – particularly if a more subjective measure is used.

International large-scale assessment studies, such as PIRLS, collect important background information which can be used to explore the relationship between disadvantage and attainment, and complement national data. Sizmur *et al.*, (2020) used

PIRLS 2016, TIMSS⁴¹ 2015 and PISA⁴² 2015 data in Northern Ireland to explore factors associated with attainment at primary and post-primary school. They found socio-economic background to be ‘the single most influential factor that impacts on educational underachievement’ (Sizmur, Galvis and Kirkup, 2020, piii).

Interpreting the data: indices and scales

In order to summarise data from a questionnaire, responses to several related items can be combined to form an index or scale. The respondents to the questionnaire items are grouped according to their responses and the way in which responses are categorised is shown for each index or scale. Respondents’ scores on an index or scale are often considered to be more reliable and valid than the scores to individual items.

Interpreting the data: differences

In this section, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of this chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small, differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

A note on the PIRLS context questionnaires

The Northern Ireland home, school and teacher questionnaires for PIRLS 2021 asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (international Grade 4) and were therefore comparable to other countries.

⁴¹ The Trends in International Mathematics and Science Study: an international study of mathematics and science at ages 9–10 (Year 6 in Northern Ireland)

⁴² The Programme for International Student Assessment: a study of reading, science and mathematics at age 15

6.2. Pupils' socio-economic background

6.2.1. Home socio-economic status

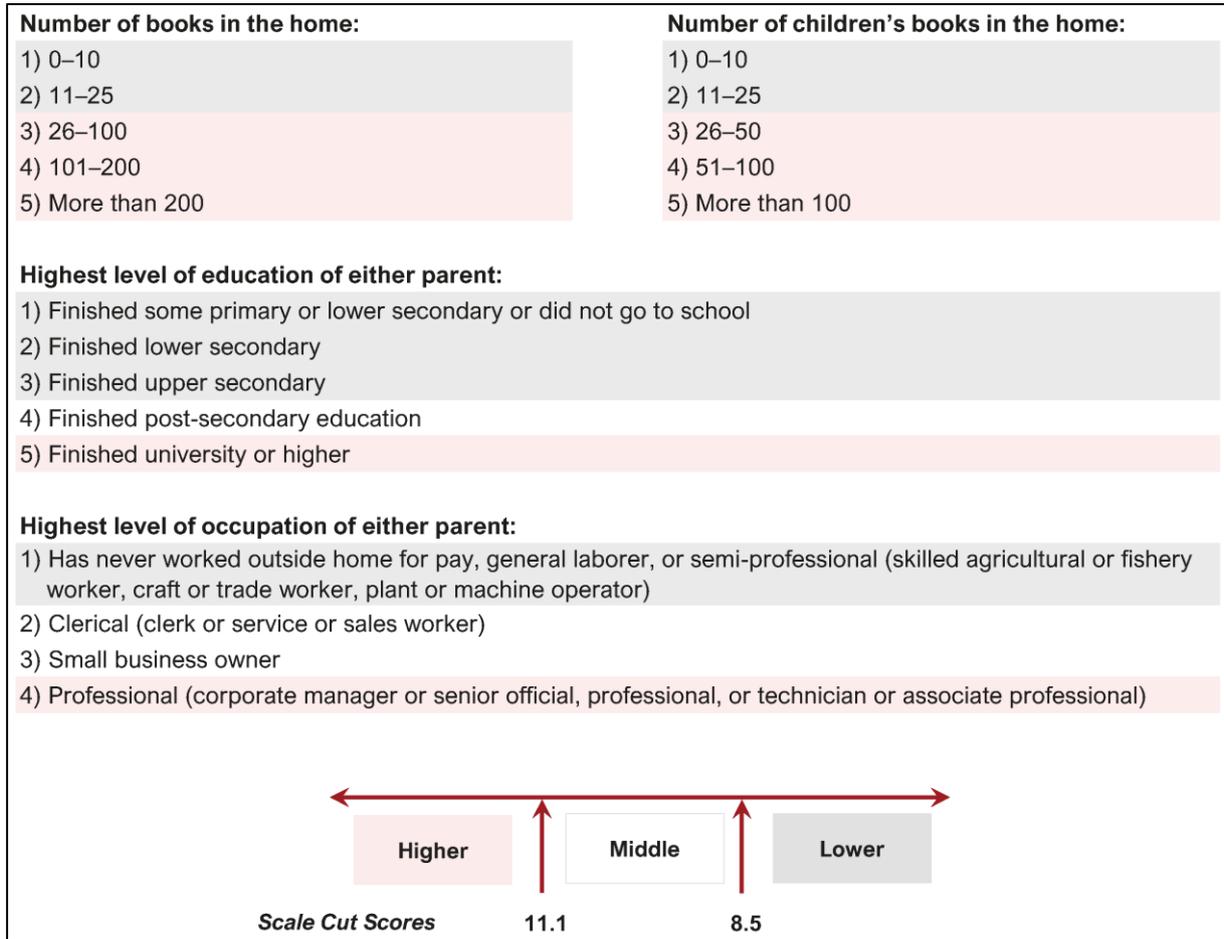
Possessions in the home, as well as indicators of socio-economic status (SES) such as parents' education level and occupation, are associated with educational attainment (Mullis, Martin, Foy, *et al.*, 2017; OECD, 2019; Sizmur, Galvis and Kirkup, 2020). PIRLS 2021 gathered information about these background factors from parents through the home questionnaire and, in the PIRLS international data, the scale is referred to as the *Home socio-economic status scale*.

The home questionnaire asked the parents of pupils involved in PIRLS 2021 to report on four home indicators highly related to attainment in school:

- parents' education
- parents' occupations
- number of books in the home
- number of children's books in the home.

Pupils were then categorised, according to the above four indicators, into three groups: *Higher socio-economic status*, *Middle socio-economic status* and *Lower socio-economic status* (See Figure 6.1).

Figure 6.1 Home socio-economic status scale



Source: Exhibit 5.1, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

About the *Home socio-economic status* scale

Pupils were scored according to their parents' reports regarding the four indicators on the *Home socio-economic status* scale. Cut scores divide the scale into three categories. Pupils with *Higher socio-economic status* had a score at or above 11.1, corresponding to their parents reporting they have more than 25 books and more than 25 children's books in their home, that at least one parent finished university, and that at least one parent had a professional occupation, on average. Pupils with *Lower socio-economic status* had a score at or below 8.5, corresponding to their parents reporting they had 25 or fewer books and 25 or fewer children's books in the home, that neither parent had gone beyond upper secondary education, and that neither parent was a small business owner nor worked in a clerical or professional occupation, on average. All other pupils were classified as having *Middle socio-economic status*.

This PIRLS context questionnaire scale was based on the combined response distribution of PIRLS 2021 participating countries. Specifically, it was based on an assessment of Year 6 pupils at the end of the school year in 2020 or 2021 (that is, Group 1 and 3 countries).

Table 6.1 presents the results for the *Home socio-economic status* scale for Northern Ireland, the international average and comparator countries. These are presented in order of the highest proportion in the *Higher* category. Data are not available for England and Australia as the home questionnaire was not administered.

The figures for Northern Ireland are based on reports from 65 per cent of the pupils' parents. Some caution, therefore, is recommended in interpreting the findings which may not be representative of the population. For example, it may be that parents in higher socio-economic status groups would be more likely to complete the questionnaire (as was found in Wheater, Galvis and Buzinin, 2020).

Table 6.1 Home socio-economic status (SES)

Percentage of pupils based on parents' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland).

Country	Higher SES (%)	Higher SES Average attainment	Middle SES (%)	Middle SES Average attainment	Lower SES (%)	Lower SES Average attainment	Average scale score
Finland	50 (1.2)	571 (2.4)	45 (1.1)	538 (2.2)	5 (0.4)	490 (6.9)	11.1 (0.04)
Republic of Ireland	49 (1.9)	608 (2.2)	42 (1.6)	564 (2.4)	9 (0.8)	520 (5.5)	11.0 (0.08)
Northern Ireland [s]	47 (1.4)	604 (3.4)	41 (1.1)	560 (3.3)	11 (0.8)	521 (5.7)	10.9 (0.06)
Singapore	45 (0.9)	624 (2.7)	49 (0.9)	572 (3.3)	6 (0.4)	515 (8.2)	10.9 (0.03)
Poland	43 (1.5)	576 (2.5)	49 (1.2)	536 (2.5)	9 (0.8)	505 (5.3)	10.8 (0.06)
International average	30 (0.2)	543 (0.8)	48 (0.2)	501 (0.5)	22 (0.2)	457 (0.8)	-

Standard errors appear in brackets ()⁴³. Because of rounding, some results may appear inconsistent.

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

Source: Exhibit 5.1, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

In Northern Ireland, a higher proportion of pupils were categorised as having *Higher socio-economic status* compared with the international average (47 per cent and 30 per cent respectively), indicating a large difference.

The Republic of Ireland had a similar proportion of pupils in each SES category as Northern Ireland, with a difference of one or two percentage points in each category. In fact, most comparator countries had a similar profile to Northern Ireland in terms of the proportion of pupils in the highest category, aside from Poland where there was a difference of four percentage points. The proportion of pupils with a *Lower socio-economic*

⁴³ Throughout the report, standard errors are presented when available in the PIRLS international report (Mullis et al., 2023)

status in Northern Ireland was higher than in Finland and Singapore; similar to Poland and the Republic of Ireland; and lower than the international average.

Internationally, Nordic countries had the highest proportion of pupils categorised as having *Higher socio-economic status* (Norway 57 per cent, Sweden 56 per cent, Denmark 54 per cent and Finland 50 per cent). These four countries were the only countries where a greater proportion of parents' reports placed pupils in the *Higher* category compared with the Republic of Ireland and Northern Ireland.

In Northern Ireland, pupils in the *Higher* category had, on average, a score of 604, higher than those in the *Middle* category (560) who, in turn, scored higher than those in the *Lower* category (521). Based on the size of the standard errors, the difference in attainment for pupils in each SES category is likely to be statistically significant, although significance tests have not been conducted for this analysis.

The 2021 international *Home socio-economic status* scale is adapted from the previous *Home resources for learning* scale which was made up of both pupils' and parents' responses. However, as the 2021 scale is made up of parents' responses only, it is not comparable over cycles of PIRLS.

The *Home resources for learning* scale, used in 2011 and 2016, and with data available for 2021, included similar responses from parents as in the *Home socio-economic status* scale, but also included responses from pupils on books in the home and the presence of resources to support study at home (such as an internet connection). Table 6.2 shows the *Home resources for learning* scale for Northern Ireland across 2011, 2016 and 2021. There have been some changes in cut scores over years but the questions that make up the scale have remained the same.

An important note on trend comparisons of context findings from the PIRLS questionnaires

PIRLS provides the opportunity to explore additional contextual factors which may impact on attainment, such as home and school learning environments. It also provides the opportunity to observe these factors within participating countries over time.

It is important to note, however, that the situation or context in which respondents (pupils, principals, teachers and parents) are answering may also have changed over that time. For example, access to the internet has increased globally between 2011 and 2021 (Petrosyan, 2023). Caution is therefore advised when considering the trends over time in relation to the questionnaires.

About the *Home resources for learning* scale in 2021

Pupils were scored according to their own and their parents' reports regarding the availability of five resources on the *Home resources for learning* scale. Cut scores divide the scale into three categories. Pupils with *Many resources* had a score at or above 11.7, corresponding to pupils reporting they had, on average, more than 100 books and both 'home study supports' (their own room and access to the internet in their home); and their parents reporting they had more than 25 children's books in their home, that at least one parent finished university, and that at least one parent had a professional occupation. Pupils with *Few resources* had a score at or below 7.6, corresponding to pupils reporting they had 25 or fewer books and neither of the home study supports in their home; and their parents reporting they had ten or fewer children's books in the home, that neither parent had gone beyond upper secondary education, and that neither parent was a small business owner nor worked in a clerical or professional occupation, on average. All other pupils were classified as having *Some resources*.

Table 6.2 Home resources for learning scale

PIRLS cycle	Many resources (%)	Many resources Average attainment	Some resources (%)	Some resources Average attainment	Few resources (%)	Few resources Average attainment
2021 [s]	35	613	63	560	2	~
2016 [x]	42	615	57	569	1	~
2011 [s]	30	607	68	560	2	~

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils. An [x] indicates data are available for less than 50 per cent of pupils – interpret with caution.

A tilde (~) indicates insufficient data to report a result.

Source: Home Context Data Almanac by Reading Achievement question variable ASDGHRL; Exhibit 4.1, PIRLS 2016 International Results in Reading (Mullis, Martin, Foy, *et al.*, 2017) and Exhibit 4.1 PIRLS 2011 International Results in Reading (Mullis, Michael. O. Martin, *et al.*, 2012).

Between 2016 and 2021 there was a decrease of seven percentage points in the proportion of pupils who were categorised as having *Many resources*. However, in 2016, there were data for less than 50 per cent of the pupils, and in both 2021 and 2011 there were data for at least 50 per cent but less than 70 per cent of the pupils.

6.2.2. Free school meal eligibility and PIRLS score

In Northern Ireland, ‘disadvantage’ can be explored further by considering those pupils that are eligible for free school meals (FSME) or who have been eligible at any given point in the previous six years (FSME ever 6). FSME is binary and divides pupils into two groups – those who are eligible and those who are not. Pupil data from PIRLS 2021 were matched to the Northern Ireland School Census database 2021/22⁴⁴ and, from this, Table 6.3 presents data on the two groups and on the difference in average attainment between them, often referred to as a ‘disadvantage gap’.

Table 6.3 Free school meal eligibility and PIRLS attainment

-	Free school meal eligibility (FSME) (%)	Free school meal eligibility (FSME) Average attainment	Free school meal ever 6 eligibility (FSME ever 6) (%)	Free school meal ever 6 eligibility (FSME ever 6) Average attainment
Not eligible	72	580	60	586
Eligible	27	531*	39	537*
Disadvantage gap	-	49	-	49

* indicates statistically significant difference at the 0.1 per cent level from the Not eligible group

Source: PIRLS 2021 school census matched database

Twenty-seven per cent of PIRLS pupils in Northern Ireland were FSME. This is similar to the 2021/22 national annual enrolment data which had 29 per cent of primary pupils FSME (Robinson, 2022). On average, these pupils scored 531, 49 points below non-FSME pupils (580).

Thirty-nine per cent of PIRLS pupils had FSME at some point in the previous six years. This is similar to the 2021/22 national annual enrolment data which had 36 per cent of primary pupils FSME at some point in the previous six years⁴⁵. Pupils can become ineligible if their family income improves and they no longer meet the eligibility criteria. Table 6.3 shows there is a significant difference of 49 score points if pupils had been FSME at any time in the last six years than if they had not (537 and 586 respectively).

⁴⁴ It was not possible to match 17 pupils from eight schools.

⁴⁵ Source: internal analysis of the School Census 2021/22 data

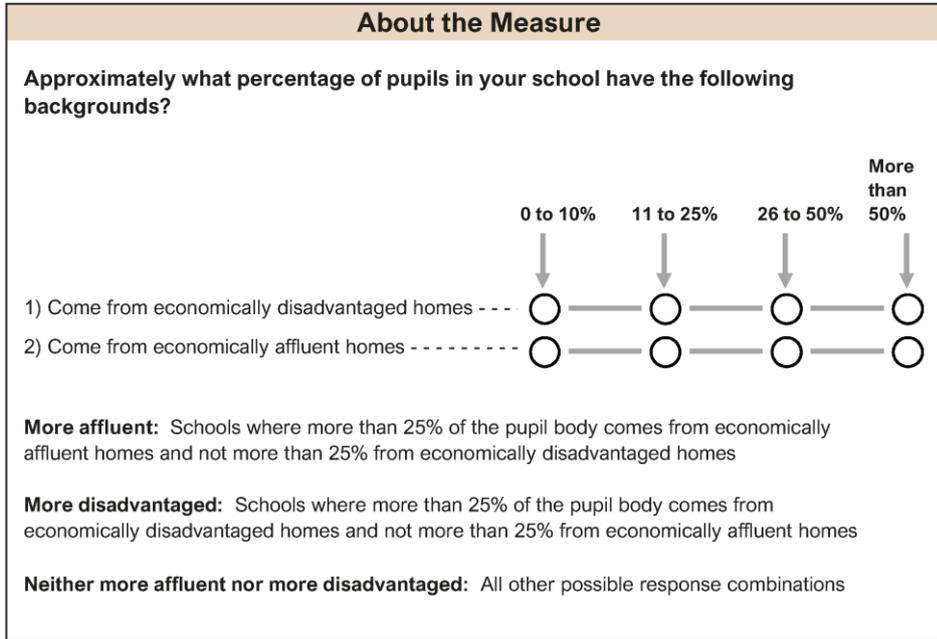
Sizmur *et al.*, (2020) reported similar findings using the PIRLS 2016 Northern Ireland data: FSME pupils scored, on average, 48 points lower than non-FSME pupils (532 and 580 respectively) (Sizmur, Galvis and Kirkup, 2020). This indicates the disadvantage gap has remained consistent over time in Northern Ireland and the scores for pupils in each group have been stable. Whilst this may be surprising because other evidence has suggested that the disadvantage gap for primary school pupils widened over the pandemic (Renaissance Learning and Education Policy Institute, 2021; Rose *et al.*, 2021; Twist, Jones and Treleaven, 2022), there is some evidence that the impact of Covid-19 was less apparent in reading than for mathematics (Twist, Jones and Treleaven, 2022; Weidmann *et al.*, 2022).

6.3. Socio-economic composition of schools

There is consistent evidence from large-scale international surveys that there is a strong relationship between a school's socio-economic profile and the performance of its pupils (Mullis, Martin, Foy, *et al.*, 2017; OECD, 2019; Sizmur, Galvis and Kirkup, 2020). Pupils in schools with higher proportions of disadvantaged pupils tend to have lower scores than those in schools with lower proportions of disadvantaged pupils.

PIRLS 2021 examined the relationship between socio-economic status (at school level) and pupil attainment through information collected from principals about the socio-economic background of the pupils within their schools (see Figure 6.2). Principals were asked to report percentages of economically disadvantaged and economically affluent pupils in their school. Subsequently, schools were then categorised into three groups: *More affluent*, *Neither more affluent nor more disadvantaged* and *More disadvantaged*. The results for Northern Ireland, comparator countries and the international average are included in Table 6.4. These are in descending order of the proportion of pupils categorised as *More affluent*.

Figure 6.2 School composition by socio-economic background of pupils



Source: Exhibit 6.1, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

About the *School composition by socio-economic background of the pupil body scale*

More affluent schools were defined as having more than 25 per cent of pupils from economically affluent homes and not more than 25 per cent from economically disadvantaged homes, while *More disadvantaged* schools had more than 25 per cent of pupils from economically disadvantaged homes and not more than 25 per cent from economically affluent homes. All other combinations were considered to be *Neither more affluent nor more disadvantaged*.

Table 6.4 School composition by socio-economic background of pupils

Percentage of pupils based on principals' responses. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	More affluent (%)	More affluent Average attainment	Neither more affluent nor more disadvantaged (%)	Neither more affluent nor more disadvantaged Average attainment	More disadvantaged (%)	More disadvantaged Average attainment
Singapore	57 (0.0)	600 (3.6)	36 (0.0)	573 (5.5)	7 (0.0)	552 (16.6)
Republic of Ireland	42 (4.8)	595 (3.3)	33 (4.3)	582 (3.9)	25 (3.2)	550 (4.9)
Australia	40 (3.8)	562 (3.0)	34 (3.6)	540 (3.4)	26 (3.1)	508 (5.6)
Northern Ireland [r]	38 (4.5)	587 (4.1)	31 (4.8)	564 (4.1)	31 (3.5)	543 (5.2)
Finland	37 (4.3)	561 (3.1)	52 (3.9)	548 (2.6)	11 (2.7)	518 (9.4)
England [r]	32 (4.1)	578 (5.0)	25 (4.3)	565 (3.8)	43 (4.4)	539 (3.7)
Poland	29 (3.9)	555 (3.7)	65 (4.2)	547 (3.0)	7 (2.3)	537 (7.3)

Country	More affluent (%)	More affluent Average attainment	Neither more affluent nor more disadvantaged (%)	Neither more affluent nor more disadvantaged Average attainment	More disadvantaged (%)	More disadvantaged Average attainment
International average	43 (0.5)	521 (0.9)	32 (0.5)	502 (0.9)	25 (0.4)	479 (1.2)

() Standard errors appear in brackets. Because of rounding some results may appear inconsistent.

An [r] indicates data are available for at least 70 per cent but less than 85 per cent of the pupils.

Source: Exhibit 6.1, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, 38 per cent of pupils were taught in schools that were defined as *More affluent*, 31 per cent were in schools in the *Neither more affluent nor more disadvantaged* category and 31 per cent were in schools in the *More disadvantaged* category. Compared with the international average, Northern Ireland had a smaller proportion of pupils taught in schools defined as *More affluent*, indicated by a small difference of five percentage points, and a higher proportion of pupils in schools defined as *More disadvantaged*, indicated by a small difference of six percentage points.

Across comparator countries, England had the largest proportion of pupils in the *More disadvantaged* category (43 per cent) followed by Northern Ireland (31 per cent). Over half of pupils (57 per cent) in Singapore were taught in schools defined as *More affluent*.

In Northern Ireland, pupils in the *More affluent* category had, on average, a score of 587, which was higher than those in both the *Neither more affluent nor more disadvantaged* category (564) and the *More disadvantaged* category (543). Based on the size of the standard errors, the difference in attainment of pupils in each SES category is likely to be statistically significant, although significance tests have not been conducted for this analysis.

6.4. Conclusion

There is consistent evidence from large-scale international surveys that there is a strong relationship between pupils' home socio-economic status and their attainment, as well as a school's socio-economic profile and the performance of its pupils. The proportion of pupils in Northern Ireland categorised as having *Higher socio-economic status* was higher than the international average and similar to most other comparator countries.

In Northern Ireland, all the comparator countries and on average internationally, pupils in the *Higher socio-economic status* category had higher average attainment than those in the *Middle* category who, in turn, had higher average attainment than those in the *Lower* category.

Pupils who were FSME continued to score significantly lower than pupils who were not FSME, and the difference has remained stable since 2016.

At school level, fewer pupils in Northern Ireland attended *More affluent* schools and more attended *More disadvantaged* schools than was seen on average internationally. There was a relationship between the proportion of economically affluent pupils in schools and reading attainment, with pupils in Northern Ireland who attended *More affluent* schools having a higher average reading score than those attending *More disadvantaged* schools. This pattern was seen in all the comparator countries and on average internationally.

Whichever measure of socio-economic disadvantage was considered in this chapter, the pattern was the same: socio-economically disadvantaged pupils had, on average, lower attainment than their non-disadvantaged peers.

7. Reading attitudes and behaviours

Chapter outline

This chapter summarises pupils' attitudes towards reading, their confidence in reading, their digital self-efficacy and their use of the internet to find and read information. It also covers parents' reading attitudes and pupils' experience of early literacy activities at home before primary school.

Outcomes for Northern Ireland are compared with the international averages and comparator countries.

Key findings

- In Northern Ireland, the proportion of pupils who *Very much like reading* (28 per cent) was lower than the international average (42 per cent) and lower than in 2016 (39 per cent).
- Pupils' confidence in reading was higher in Northern Ireland than the international average (47 and 43 per cent respectively) and similar to 2016 (50 per cent).
- Twenty per cent of pupils in Northern Ireland used a digital device for *More than 30 minutes* per day in school. This percentage was lower than the international average (25 per cent).
- Northern Ireland had a relatively high percentage of pupils with parents who *Very much like reading* (39 per cent) compared with the international average of 31 per cent, and a similar percentage to that in the Republic of Ireland (42 per cent).
- In Northern Ireland, larger percentages of girls than boys were in the highest categories across the reading attitudes scales, namely, *Very much like reading* (33 per cent of girls and 22 per cent of boys) and *Very confident* in reading (48 per cent of girls and 45 per cent of boys).
- Pupils in Northern Ireland who reported more positive attitudes towards reading (liking of and/or confidence in) and pupils who reported more positive behaviours (digital self-efficacy) had higher reading attainment. This trend is consistent across comparator countries and with the international average.
- In Northern Ireland, 51 per cent of pupils reported having a *High level of digital self-efficacy*. Across all PIRLS countries, only pupils in Poland, Finland, Norway and Bulgaria reported greater *digital self-efficacy* than those in Northern Ireland.

- Parents in Northern Ireland reported one of the highest percentages of pupils (64 per cent) who were *Often* exposed to early literacy activities at home before primary school. The international average was 42 per cent.

Interpreting the data: indices and scales

In order to summarise data from a questionnaire, responses to several related items can be combined to form an index or scale. The respondents to the questionnaire items are grouped according to their responses and the way in which responses are categorised is shown for each index or scale. Respondents' scores on an index or scale are often considered to be more reliable and valid than the scores to individual items.

Interpreting the data: differences

In this section, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of the chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small, differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

A note on the PIRLS 2021 context questionnaires

The Northern Ireland home, school and teacher questionnaires asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (international Grade 4) and were therefore comparable to other countries.

An important note on trend comparisons of context findings from questionnaires

PIRLS provides the opportunity to explore additional contextual factors which may impact on attainment, such as attitudes to reading and home and school learning environments. It also provides the opportunity to observe these factors within participating countries over time.

It is important to note, however, that the situation or context in which respondents are answering (pupils, principals, teachers and parents) may also have changed over that

time. For example, pupils in 2016 who were responding to questions about liking reading, may have largely considered printed materials such as books and magazines. In 2021, pupils responding to the same questions may now consider browsing the internet or reading online articles as 'reading'. Caution is therefore advised when considering the trends over time in relation to the questionnaires.

7.1. Pupils' attitudes towards reading

Pupils' attitudes to reading were measured by their responses to ten statements about reading (these statements can be seen in Figure 7.1). The international analysis used responses to these statements to create the *Pupils like reading scale*⁴⁶. Pupils were categorised into three bands: *Very much like reading*, *Somewhat like reading* and *Do not like reading* (details of how pupils were assigned to each band are provided below Figure 7.1).

⁴⁶ In the PIRLS International report this scale is called the *Students like reading scale*.

Figure 7.1 Pupils like reading scale

What do you think about reading? Show how much you agree with each of these statements.

Tick one box for each line.

	Agree a lot		Agree a little		Disagree a little		Disagree a lot
a) I like talking to other people about what I read	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
b) I would be happy if someone gave me a book as a present	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
c) I think reading is boring ^R	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
d) I would like to have more time for reading	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
e) I enjoy reading	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
f) I learn a lot from reading	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
g) I like to read things that make me think	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
h) I like it when a book helps me imagine other worlds	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>

^R Reverse coded

Very much like Somewhat like Do not like

10.4 8.3

How often do you do these things when you are not at school?

Tick one box for each line.

	Every day or almost every day		Once or twice a week		Once or twice a month		Never or almost never
a) I read for fun	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>
b) I read to find out about things I want to learn	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>	—	<input type="checkbox"/>

Very much like Somewhat like Do not like

10.4 8.3

Scale cut scores 10.4 8.3

The *Pupils like reading* scale in 2021 included the same questions as in 2016.

Source: Exhibit 7.1, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 Pupil Questionnaire

About the *Pupils like reading* scale

Pupils were scored on the *Pupils like reading* scale according to their degree of agreement with eight statements and how often they did two reading activities outside of school. Pupils who *Very much like reading* had a score at or above the cut score of 10.4, corresponding to *agreeing a lot* with four of the eight statements and *agreeing a little* with the other four, as well as doing one of the two reading activities outside of school *every day or almost every day*, on average. Pupils who *Do not like reading* had a score at or below 8.3, corresponding to *disagreeing a little* with four of the eight statements and *agreeing a little* with the other four, as well as doing one of the two the reading activities only *once or twice a month*, on average. All other pupils were considered to *Somewhat like reading*.

Table 7.1 shows the proportions of pupils categorised as *Very much liking*, *Somewhat liking* and *Not liking* reading for Northern Ireland and for the comparator countries, together with the mean attainment scores of pupils in each category of the scale. In this table, countries are listed in descending order of the proportion of pupils expressing the most positive attitude.

Table 7.1 Pupils like reading

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Very much like reading (%)	Very much like reading Average attainment	Somewhat like reading (%)	Somewhat like reading Average attainment	Do not like reading (%)	Do not like reading Average attainment
Singapore	33 (0.8)	607 (4.1)	47 (0.8)	586 (3.3)	20 (0.6)	560 (3.8)
Republic of Ireland	31 (1.0)	593 (3.6)	45 (0.9)	578 (2.9)	23 (0.9)	556 (3.1)
Australia	29 (0.9)	562 (3.8)	45 (1.0)	542 (2.8)	26 (0.9)	517 (3.2)
England	29 (0.8)	570 (3.7)	48 (0.9)	562 (2.8)	24 (1.1)	536 (3.4)
Northern Ireland	28 (1.0)	585 (3.7)	47 (0.9)	570 (2.8)	25 (1.0)	542 (3.2)
Finland	23 (0.8)	563 (3.9)	46 (0.8)	555 (2.6)	30 (0.9)	533 (2.5)
Poland	23 (1.1)	555 (4.0)	49 (1.2)	556 (2.5)	28 (1.0)	536 (3.3)
International average	42 (0.1)	513 (0.5)	40 (0.1)	501 (0.5)	18 (0.1)	491 (0.8)

Standard errors appear in brackets()⁴⁷. Because of rounding, some results may appear inconsistent.

Source: Exhibit 7.1, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In 2021, 28 per cent of pupils in Northern Ireland were in the highest category: those who *Very much like reading*. This was lower than the international average (42 per cent).

In Northern Ireland, the average attainment score for the 28 per cent of pupils categorised in the *Very much like reading* band was 585, higher than the international average of 513.

Three comparator countries had a similar proportion of pupils in the *Very much like reading* category to Northern Ireland (namely England, Australia and the Republic of Ireland). Finland and Poland had the lowest proportion of pupils in that category, 23 per cent for both. The proportion of pupils in Northern Ireland and in all comparator countries

⁴⁷ Throughout the report, standard errors are presented when available in the PIRLS international report (Mullis *et al.*, 2023).

who *Very much like reading* was relatively low compared to other PIRLS countries. Countries with the highest proportions included Kosovo (85 per cent), Uzbekistan (83 per cent) and Albania (81 per cent), which were relatively low-attaining countries (Mullis *et al.*, 2023).

Twenty-five per cent of pupils in Northern Ireland were in the *Do not like reading* category and, at 542, the average attainment score for these pupils was lower than for those who *Very much like reading* (585) and *Somewhat like reading* (570). The average attainment score for pupils in the *Do not like reading* category in Northern Ireland was, however, higher than the international average (491), as were all average attainment scores for Northern Ireland in the *Pupils like reading* scale.

There have been some small changes to cut scores (given in Figure 7.1) since 2016; caution should therefore be applied when interpreting trends over time⁴⁸. The items in the *Pupils like reading* scale are, however, the same used in 2016, when 39 per cent of Northern Ireland's pupils were in the *Very much like reading* category. The large decrease between 2016 and 2021 in Northern Ireland mirrors what is seen in other comparator countries such as the Republic of Ireland (46 per cent in 2016 compared with 31 per cent in 2021) and Poland (32 per cent in 2016 and 23 per cent in 2021). This might indicate an overall change in how pupils are interpreting/answering these questions. In terms of attainment, in Northern Ireland, and internationally, the data mirror that seen in PIRLS 2011 and 2016: that is, lower attainment scores are associated with low ratings of liking reading.

The difference between girls' and boys' liking of reading is explored in Table 7.2. In this table, countries are listed in ascending order of the gender difference in percentage points of pupils who *Very much like reading*.

⁴⁸ Pupils who *Very much like reading* had a score higher than 10.3 in 2016, compared with 10.4 in 2021.

Table 7.2 Pupils like reading by gender

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Very much like reading (%)	Very much like reading Average attainment	Somewhat like reading (%)	Somewhat like reading Average attainment	Do not like reading (%)	Do not like reading Average attainment
Poland – girls	25 (1.4)	563 (5.3)	53 (1.4)	565 (2.9)	22 (1.2)	547 (4.6)
Poland – boys	22 (1.4)	547 (5.3)	45 (1.5)	547 (3.1)	34 (1.4)	529 (4.0)
Republic of Ireland – girls	35 (1.4)	598 (4.8)	46 (1.2)	582 (3.4)	19 (1.2)	560 (4.4)
Republic of Ireland – boys	28 (1.3)	588 (4.7)	44 (1.4)	574 (3.5)	27 (1.4)	554 (4.0)
England – girls	32 (1.1)	574 (4.7)	48 (1.1)	567 (3.1)	19 (1.1)	538 (4.9)
England – boys	25 (1.1)	566 (5.0)	47 (1.3)	556 (4.1)	28 (1.5)	535 (4.2)
Singapore – girls	37 (1.1)	613 (4.1)	47 (1.0)	594 (3.0)	16 (0.7)	564 (4.5)
Singapore – boys	29 (0.9)	598 (5.0)	47 (0.8)	577 (4.2)	25 (0.8)	558 (4.5)
Finland – girls	28 (1.1)	569 (4.0)	46 (1.2)	561 (3.1)	26 (1.3)	543 (3.6)
Finland – boys	19 (0.9)	554 (5.6)	46 (1.1)	548 (3.4)	34 (1.2)	525 (2.9)
Australia – girls	34 (1.4)	569 (4.4)	45 (1.4)	547 (3.2)	21 (1.1)	527 (4.0)

Country	Very much like reading (%)	Very much like reading Average attainment	Somewhat like reading (%)	Somewhat like reading Average attainment	Do not like reading (%)	Do not like reading Average attainment
Australia – boys	24 (1.1)	552 (5.5)	45 (1.3)	538 (3.8)	31 (1.3)	510 (4.1)
Northern Ireland – girls	33 (1.2)	590 (4.4)	48 (1.2)	578 (3.0)	19 (1.2)	557 (4.8)
Northern Ireland – boys	22 (1.4)	576 (5.3)	45 (1.2)	559 (4.6)	32 (1.4)	532 (4.2)
International average – girls	46 (0.2)	521 (0.6)	39 (0.2)	508 (0.7)	15 (0.1)	496 (1.1)
International average – boys	37 (0.2)	504 (0.7)	42 (0.2)	494 (0.6)	21(0.1)	484 (1.0)

Standard errors appear in brackets(). Because of rounding, some results may appear inconsistent.

Source: Exhibit 7.2, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, 11 per cent more girls were categorised as *Very much like reading* than boys (33 and 22 per cent respectively). This was similar in Australia. The international average for the proportion of girls who *Very much like reading* was 46 per cent, compared with 37 per cent for boys. Across all PIRLS countries, a higher proportion of girls than boys *Very much like reading*.

Girls in all three categories of the *Pupils like reading* scale also had a higher average attainment score than boys in the equivalent category. This was true for Northern Ireland and on average internationally, and reflects the differences in attainment by gender outlined in Chapter 2.

7.2. Pupils' confidence in reading

Pupils' confidence in reading was measured by their responses to a set of six statements about reading. Pupils were then categorised into one of three bands. (Details of the statements used and how pupils were assigned to each band are provided in Figure 7.2 and in the note below the Figure.) The 2021 scale is the same as was used in 2016⁴⁹, but different from 2011. As the construction of the scale has changed since 2011, it is necessary to exercise caution when interpreting trends between the three cycles.

Figure 7.2 Pupils' confidence in reading scale

How well do you read? Show how much you agree with each of these statements.

Tick one box for each line.

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I usually do well in reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Reading is easy for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I have trouble reading stories with difficult words ^R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Reading is harder for me than for many of the children in my class ^R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Reading is harder for me than any other subject ^R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I am just not good at reading ^R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

^R Reverse coded

Scale cut scores: 10.2, 8.2

Confidence bands: Very confident, Somewhat confident, Not confident

Source: Exhibit 7.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 Pupil Questionnaire

⁴⁹ Although the cut score for *Very confident* in reading was 10.3 in 2016 and 10.2 in 2021.

About the *Pupils' confidence in reading* scale

Pupils were scored according to their responses to six statements on the *Pupils' confidence in reading* scale. Cut scores divided the scale into three categories. Pupils *Very confident* in reading had a score at or above 10.2, corresponding to *agreeing a lot* with three of the six statements and *agreeing a little* with the other three, on average. Pupils who were *Not confident* in reading had a score at or below 8.2, corresponding to *disagreeing a little* with three of the six statements and *agreeing a little* with the other three, on average. All other pupils were *Somewhat confident* in reading.

The proportions of pupils for each level of confidence in reading in Northern Ireland and comparator countries can be seen in Table 7.3. In this table, countries are listed in descending order of the proportion of pupils expressing the most positive attitude.

Table 7.3 Pupils' confidence in reading

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Very confident (%)	Very confident Average attainment	Somewhat confident (%)	Somewhat confident Average attainment	Not confident (%)	Not confident Average attainment
Finland	57 (0.8)	574 (2.3)	30 (0.6)	534 (2.5)	13 (0.6)	488 (4.8)
Poland	55 (1.2)	572 (2.1)	34 (1.2)	539 (2.7)	11 (0.7)	482 (5.3)
Singapore	51 (0.9)	622 (2.6)	33 (0.7)	574 (3.1)	16 (0.7)	514 (4.8)
Republic of Ireland	49 (1.2)	609 (2.6)	34 (1.0)	564 (3.0)	17 (0.7)	516 (3.6)
Northern Ireland	47 (1.1)	603 (3.0)	37 (1.0)	550 (2.8)	16 (0.6)	501 (4.4)
England	45 (1.2)	594 (2.6)	34 (1.0)	544 (3.2)	21 (0.7)	504 (3.7)
Australia	43 (1.0)	582 (2.2)	38 (0.8)	528 (2.5)	19 (0.8)	477 (4.5)
International average	43 (0.1)	541 (0.4)	35 (0.1)	498 (0.5)	22 (0.1)	449 (0.6)

The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

Source: Exhibit 7.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, 47 per cent of pupils were in the *Very confident* category for reading, higher than the international average and Australia (both 43 per cent) and similar to both England (45 per cent) and the Republic of Ireland (49 per cent). Despite having one of the lowest proportions of pupils who like reading (Table 7.1), over half (57 per cent) of pupils in Finland were *Very confident* in reading.

As with pupil attitudes, the findings show that, within each country, higher pupil confidence in reading is associated with higher attainment; pupil attainment in reading is higher among those pupils classified as having a higher level of confidence in the subject. In Northern Ireland, among the pupils who were classified as being *Very confident* in reading in PIRLS 2021 (47 per cent), the average attainment score was 603. This average attainment score for pupils in Northern Ireland who were *Very confident* in reading was

higher than the international average and among comparator countries, except the Republic of Ireland (609) and Singapore (622).

Among the pupils in Northern Ireland who were classified as *Somewhat confident* in reading (37 per cent), the average attainment score was 550. While for those categorised as *Not confident* in reading (16 per cent), the average attainment score was lower, at 501. This was higher than the international average for *Not confident* pupils of 449. Pupils in Northern Ireland are categorised in similar proportions across the three bands to pupils in the Republic of Ireland.

Although no significance tests have been carried out internationally, the standard errors suggest that the differences in attainment data are likely to be statistically significant in Northern Ireland across the three *Confidence* categories. However, as with previous scales, the data cannot identify the direction of causality. It could be that pupils who are confident in reading become better at it, or it may be that being better at reading leads to more confidence in the subject.

The *Pupils' confidence in reading* scale has changed slightly since 2011 but is the same as in 2016⁵⁰. The proportion of pupils in Northern Ireland categorised as *Very confident* in 2021 was similar to 2016 (50 per cent). *Pupils' confidence in reading* scores for Northern Ireland and the international average have remained similar between 2016 and 2021.

The difference between girls' and boys' confidence in reading is explored in Table 7.4. In this table, countries are listed in ascending order of the gender difference in percentage points of pupils who are *Very confident* in reading.

⁵⁰ The cut score for *Very confident* in reading was 10.3 in 2016 and 10.2 in 2021.

Table 7.4 Pupils' confidence in reading by gender

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland)

Country	Very confident (%)	Very confident Average attainment	Somewhat confident (%)	Somewhat confident Average attainment	Not confident (%)	Not confident Average attainment
Republic of Ireland – girls	50 (1.6)	615 (3.4)	32 (1.3)	568 (4.2)	18 (1.1)	523 (4.7)
Republic of Ireland – boys	48 (1.6)	603 (2.9)	36 (1.4)	561 (3.8)	16 (0.9)	508 (5.1)
England – girls	46 (1.4)	598 (3.6)	34 (1.3)	546 (3.5)	20 (1.0)	513 (4.5)
England – boys	44 (1.6)	589 (3.4)	34 (1.4)	543 (4.3)	22 (1.1)	496 (5.0)
Poland – girls	57 (1.6)	582 (2.9)	34 (1.5)	545 (3.4)	9 (0.8)	488 (7.4)
Poland – boys	54 (1.5)	563 (2.7)	34 (1.5)	533 (3.5)	12 (0.9)	479 (6.6)
Northern Ireland – girls	48 (1.2)	610 (3.4)	38 (1.1)	561 (3.0)	14 (0.9)	514 (5.9)
Northern Ireland – boys	45 (1.6)	595 (3.8)	36 (1.5)	538 (3.9)	19 (0.9)	491 (5.8)
Singapore – girls	54 (1.1)	626 (2.6)	32 (1.0)	579 (3.7)	14 (0.7)	526 (5.3)
Singapore – boys	48 (1.1)	617 (3.3)	33 (0.9)	569 (3.4)	18 (0.9)	506 (6.1)

Country	Very confident (%)	Very confident Average attainment	Somewhat confident (%)	Somewhat confident Average attainment	Not confident (%)	Not confident Average attainment
Australia – girls	46 (1.3)	585 (3.1)	38 (1.2)	535 (3.4)	16 (1.2)	489 (4.9)
Australia – boys	40 (1.3)	578 (3.5)	38 (1.1)	522 (3.4)	22 (1.1)	468 (6.0)
Finland – girls	60 (1.0)	579 (2.5)	27 (0.9)	542 (3.6)	12 (0.8)	498 (4.9)
Finland – boys	53 (1.0)	568 (2.8)	33 (0.8)	527 (2.9)	13 (0.8)	478 (6.6)
International average – girls	46 (0.2)	545 (0.5)	34 (0.2)	504 (0.6)	19 (0.1)	457 (0.8)
International average – boys	40 (0.2)	535 (0.5)	35 (0.2)	492 (0.6)	25 (0.2)	444 (0.8)

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

Source: Exhibit 7.4, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

In Northern Ireland, three per cent more girls were categorised as *Very confident* in reading than boys (48 and 45 per cent respectively). This pattern was similar to that in the Republic of Ireland (50 and 48 per cent respectively) and, in both countries, the gender difference was less apparent than on average internationally (46 per cent of girls compared with 40 per cent of boys were categorised as *Very confident*, an average gender difference internationally of six percentage points).

Across nearly all PIRLS countries (54 out of 57), a higher proportion of girls than boys were in this top band. However, there was considerable variation in the size of the difference between the percentage of girls and boys who were *Very confident* in reading (Mullis *et al.*, 2023). Again, following a consistent gender trend, the patterns in attainment for girls across each of the bands tended to be higher than for boys.

7.3. Pupils' digital self-efficacy

Pupils' digital self-efficacy was measured by their responses to a set of eight statements about the use of computers, tablets and smartphones. Pupils were then categorised into

one of three bands *High*, *Medium* and *Low*. (Details of the statements used and how pupils were assigned to each band are provided in Figure 7.3 and the note which follows.) This is a new measurement that has not been used in previous PIRLS cycles.

Figure 7.3 Pupils' digital self-efficacy

How much do you agree with these statements about using computers, tablets and smartphones?

Tick one box for each line.

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I am good at using a computer or tablet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I am good at typing.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) It is easy for me to find information on the internet.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I know how to create written stories or non-fiction texts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I know how to create presentations.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I can recognise a website that is useful to me.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) I can tell if a website is trustworthy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) I know how to make and share a video	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scale cut scores 10.5 8.4

Source: Adapted from the international version of the PIRLS 2021 Pupil Questionnaire

About the *Pupils' digital self-efficacy* scale

Pupils were scored according to their responses to eight statements on the *Pupils' digital self-efficacy* scale. Cut scores divide the scale into three categories. Pupils with *High digital self-efficacy* had a score at or above 10.5, corresponding to *agreeing a lot* with four of the eight statements and *agreeing a little* with the other four, on average. Pupils with *Low digital self-efficacy* had a score at or below 8.4, corresponding to *disagreeing a little* with four of the eight statements and *agreeing a little* with the other four, on average. All other pupils had *Medium digital self-efficacy*.

Pupils' *digital self-efficacy* in Northern Ireland and comparator countries can be seen in Table 7.5. In this table, countries are listed in descending order of the proportion of pupils expressing the most positive attitude.

Table 7.5 Pupils' digital self-efficacy

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	High digital self-efficacy (%)	High digital self-efficacy Average attainment	Medium digital self-efficacy (%)	Medium digital self-efficacy Average attainment	Low digital self-efficacy (%)	Low digital self-efficacy Average attainment
Poland	66	553	32	548	2	504
Finland	55	553	41	548	5	522
Northern Ireland	51	580	40	558	8	529
England	43	574	47	551	10	521
Republic of Ireland	43	586	45	574	12	563
Australia	41	562	47	536	12	492
Singapore	36	603	49	585	15	557
International average	38	515	46	503	17	480

Source: Student Context Data Almanac by Reading Achievement, variable ASDGSEC

Just over one half (51 per cent) of the pupils in Northern Ireland were categorised as having *High digital self-efficacy*, 40 per cent *Medium* and eight per cent *Low*. On average internationally, 38 per cent of pupils were in the *High* category, 46 per cent in the *Medium* category and 17 per cent in the *Low* category. Out of all PIRLS countries, only pupils in Poland, Finland, Norway⁵¹ and Bulgaria reported greater digital self-efficacy than Northern Ireland (see Mullis *et al.*, 2023).

As with pupil confidence, the findings show that, within each country, pupil attainment in reading is greater among those pupils classified as having a *High* level of digital self-efficacy than those pupils classified as *Medium* or *Low*.

7.4. Pupils’ use of digital devices to find and read information

Pupils’ digital device usage to find and read information was measured by their responses to one statement about reading. Pupils had three answer options (see Figure 7.4). This question is new and was not asked in previous PIRLS cycles.

Figure 7.4 Pupils’ use of digital devices to find and read information scale

How much time do you spend using a computer, tablet or smartphone to do these activities for your school work on a normal school day?

Tick one box for each line.

	No time		30 minutes or less		More than 30 minutes
a) Finding and reading information	↓ <input type="checkbox"/>	—	↓ <input type="checkbox"/>	—	↓ <input type="checkbox"/>

Source: Exhibit 7.5, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 Pupil Questionnaire

Pupils’ use of digital devices to find and read information across Northern Ireland and comparator countries can be seen in Table 7.6. In this table, countries are listed in alphabetical order.

⁵¹ Norway tested pupils in Grade 5

Table 7.6 Pupils' use of digital devices to find and read information

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	More than 30 minutes per school day (%)	More than 30 minutes per school day Average attainment	30 minutes or less per school day (%)	30 minutes or less per school day Average attainment	No time per school day (%)	No time per school day Average attainment
Australia	27 (1.1)	545 (2.9)	57 (1.1)	547 (2.3)	17 (1.0)	516 (5.2)
England	23 (1.1)	554 (3.8)	61 (1.1)	565 (2.7)	17 (1.0)	543 (4.2)
Finland	18 (0.8)	538 (4.3)	60 (0.9)	556 (2.3)	22 (0.9)	544 (3.8)
Northern Ireland	20 (0.9)	562 (3.7)	66 (1.0)	572 (2.2)	13 (0.9)	547 (6.3)
Republic of Ireland	16 (0.8)	565 (4.1)	57 (1.4)	580 (2.9)	27 (1.6)	582 (3.5)
Poland	30 (0.9)	537 (2.9)	59 (0.9)	559 (2.5)	11 (0.6)	535 (4.6)
Singapore	28 (0.6)	594 (3.4)	57 (0.7)	592 (3.2)	15 (0.5)	561 (5.0)
International average	25 (0.1)	502 (0.5)	52 (0.1)	512 (0.5)	23 (0.1)	486 (0.7)

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

Source: Exhibit 7.5, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

One fifth (20 per cent) of the pupils in Northern Ireland responded that they use a digital device to find and read information for *More than 30 minutes per school day*. Among the comparator countries, Northern Ireland had the third lowest percentage of pupils that use a digital device for *More than 30 minutes per school day* to find and read information; the Republic of Ireland had 16 per cent and Finland had 18 per cent. Both countries had a lower percentage of pupils in this category compared with the international average (25 per cent).

Pupils in Northern Ireland who use a digital device to find and read information for *30 minutes or less per school day* had the highest attainment (572), followed by those who use a digital device for *More than 30 minutes per school day* (562), and pupils who spend

No time per school day using digital devices to find and read information (547). This trend is similar in some comparator countries, such as Australia and England, and for the international average. It could indicate a number of situations, such as pupils with lower attainment being given extra practice work with digital devices, or they might spend more time getting distracted (Mullis *et al.*, 2023)

Table 7.7 provides information about gender differences in pupils' use of digital devices to find and read information. In this table, countries are listed in descending order of the gender difference in per cent of pupils who spend *More than 30 minutes per school day* using digital devices to find and read information.

Table 7.7 Pupils' use of digital devices to find and read information by gender

Percentage of pupils. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	More than 30 minutes per school day (%)	More than 30 minutes per school day Average attainment	30 minutes or less per school day (%)	30 minutes or less per school day Average attainment	No time per school day (%)	No time per school day Average attainment
Poland – girls	24 (1.3)	553 (4.4)	65 (1.3)	565 (3.2)	10 (0.9)	546 (6.0)
Poland – boys	35 (1.2)	527 (3.6)	53 (1.4)	553 (3.2)	12 (0.8)	527 (5.7)
Australia – girls	24 (1.3)	551 (4.6)	61 (1.3)	554 (3.2)	16 (1.2)	531 (6.4)
Australia – boys	30 (1.4)	541 (3.9)	53 (1.4)	538 (3.0)	17 (1.3)	502 (6.3)
Republic of Ireland – girls	13 (1.0)	572 (5.9)	63 (1.7)	584 (3.6)	24 (1.8)	588 (5.7)
Republic of Ireland – boys	19 (1.1)	559 (4.9)	51 (1.7)	574 (3.7)	30 (1.9)	578 (3.7)
Finland – girls	16 (0.8)	545 (4.8)	66 (1.2)	564 (2.6)	18 (1.0)	554 (4.6)

Country	More than 30 minutes per school day (%)	More than 30 minutes per school day Average attainment	30 minutes or less per school day (%)	30 minutes or less per school day Average attainment	No time per school day (%)	No time per school day Average attainment
Finland – boys	21 (1.0)	534 (5.4)	54 (1.2)	547 (2.7)	26 (1.3)	538 (4.7)
England – girls	22 (1.3)	559 (4.8)	65 (1.2)	569 (3.4)	14 (1.0)	547 (6.5)
England – boys	24 (1.3)	549 (5.7)	56 (1.5)	560 (3.7)	20 (1.3)	540 (4.9)
Singapore – girls	28 (0.8)	601 (3.6)	60 (0.8)	599 (3.2)	12 (0.6)	573 (5.9)
Singapore – boys	29 (0.9)	588 (4.5)	53 (1.0)	585 (3.8)	18 (0.7)	553 (6.1)
Northern Ireland – girls	21 (1.1)	569 (4.6)	70 (1.2)	582 (2.9)	9 (0.8)	569 (8.5)
Northern Ireland – boys	20 (1.2)	552 (5.1)	62 (1.4)	560 (3.1)	18 (1.3)	535 (7.9)
International average – girls	24 (0.2)	510 (0.7)	56 (0.2)	520 (0.5)	21 (0.2)	494 (0.9)
International average – boys	27 (0.2)	494 (0.7)	49 (0.2)	503 (0.6)	25 (0.2)	479 (0.9)

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

Source: Exhibit 7.6, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

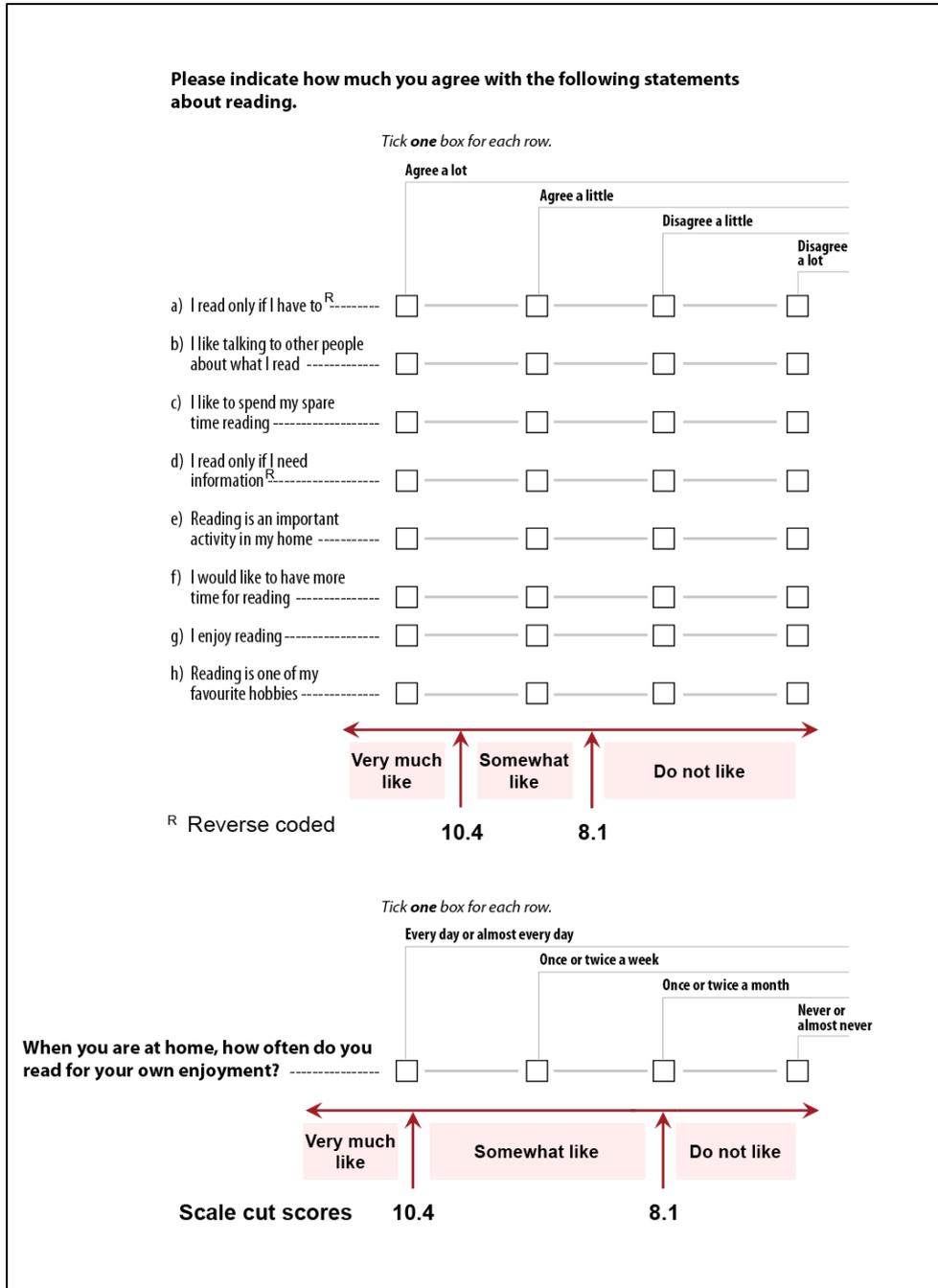
Eighteen per cent of boys in Northern Ireland responded that *No time per school day* was spent using digital devices to find and read information, compared with nine per cent of girls. Additionally, 70 per cent of girls reported using a digital device for *30 Minutes or less per school day*, compared with 62 per cent of boys. Following a consistent pattern across

comparator countries and the international average, the average attainment for girls across all categories tended to be higher than for boys.

7.5. Parental attitudes towards reading

In PIRLS 2021, parents' attitudes to reading were measured by their responses to eight statements about reading, as well as how often they read for enjoyment. The statements are provided in Figure 7.5. The international analysis uses the parents' responses to create the *Parents like reading* scale. It categorises pupils into one of three bands: those whose parents *Very much like*, *Somewhat like* or *Do not like reading*.

Figure 7.5 Parents like reading scale



Source: Exhibit 5.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 Home Questionnaire

About the *Parents like reading* scale

Cut scores divide the scale into three categories. Pupils whose parents *Very much like reading* had a score at or above 10.4, corresponding to their parents *agreeing a lot* with four of the eight statements and *agreeing a little* with the other four, as well as reading for enjoyment *every day or almost every day* on average. Pupils whose parents *Do not like reading* had a score at or below 8.1, corresponding to their parents *disagreeing a little* with four of the eight statements and *agreeing a little* with the other four, as well as reading for enjoyment *once or twice a month* on average. All other pupils had parents who were considered to *Somewhat like reading*.

Not all parents chose to complete a home questionnaire. The results for Northern Ireland are based on data collected from 65 per cent of pupils' parents and therefore may not be representative of all parents of PIRLS-aged children in the population.

Table 7.8 presents the results for the *Parents like reading* scale for Northern Ireland and comparator countries. Data are not available for England and Australia as they did not administer the home questionnaire. In this table, countries are listed in descending order of the proportion of pupils' parents expressing the most positive attitude.

Table 7.8 Parents' liking of reading

Percentage of pupils based on parents' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland).

Country	Very much like reading (%)	Very much like reading Average attainment	Somewhat like reading (%)	Somewhat like reading Average attainment	Do not like reading (%)	Do not like reading Average attainment
Republic of Ireland	42 (1.2)	599 (2.7)	42 (1.1)	574 (2.8)	16 (0.7)	555 (3.8)
Northern Ireland [s]	39 (1.1)	595 (3.9)	42 (1.2)	569 (4.0)	19 (0.9)	556 (5.0)
Finland	38 (0.8)	573 (2.6)	44 (0.8)	547 (2.6)	18 (0.8)	522 (3.2)
Poland	36 (1.1)	566 (3.1)	47 (1.0)	546 (2.2)	17 (0.9)	529 (4.8)
Singapore	21 (0.6)	622 (3.4)	57 (0.7)	589 (3.2)	23 (0.6)	571 (3.8)
International average	31 (0.1)	526 (0.5)	52 (0.1)	498 (0.5)	17 (0.1)	479 (0.8)

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

Source: Exhibit 5.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

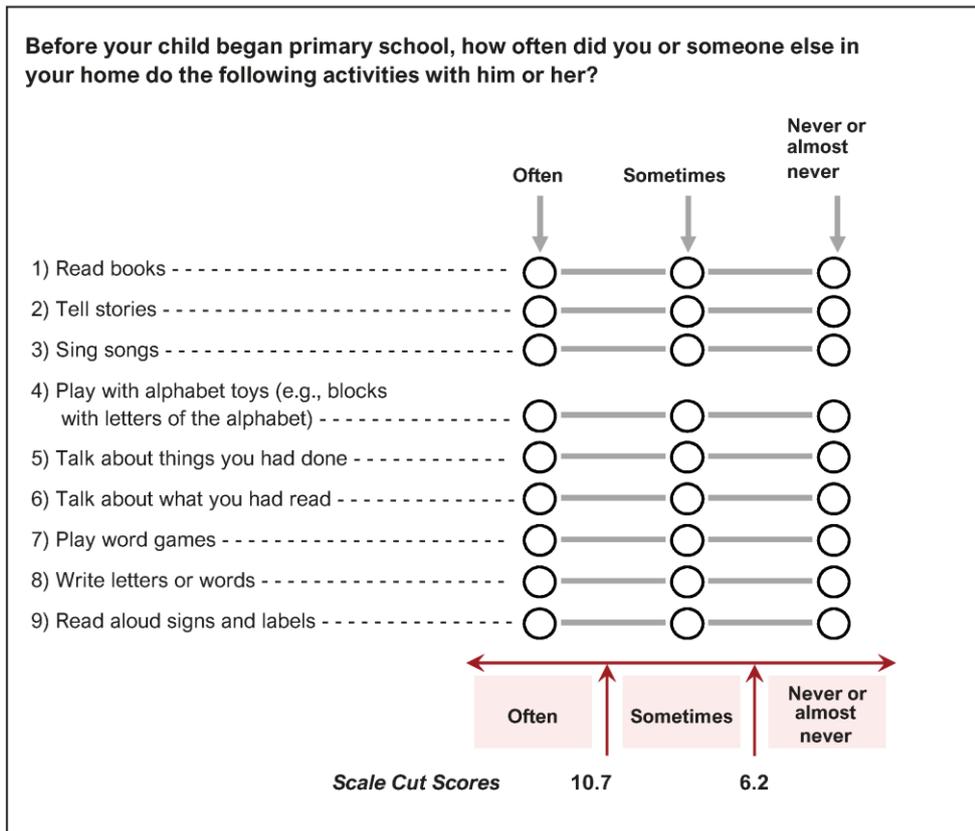
In Northern Ireland, 39 per cent of pupils whose parents completed the questionnaire were categorised as having parents who *Very much like reading*. In the Republic of Ireland 42 per cent of pupils had parents who *Very much like reading*, which was similar to Northern Ireland. The international average was 31 per cent, indicating a moderate difference. Of the comparator countries, Singapore had the lowest proportion of pupils with parents who *Very much like reading*.

Across all countries, there were similar patterns of attainment across the categories. Pupils whose parents *Very much like reading* scored higher in reading than those in the *Somewhat like reading* category who, in turn, scored higher than those in the *Do not like reading* category. Differences in attainment have not been tested for statistical significance but, based on the size of the standard errors, are likely to be significant.

7.6. Home early literacy activities before primary school

Pupils' home literacy was measured by their parents' reports regarding the frequency that someone in the home (including themselves) engaged their children in the nine activities on the *Early literacy activities* scale.

Figure 7.6 Pupils' home early literacy activities before primary school scale



Source: Exhibit 5.2, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS 2021 Home Questionnaire

About the *Pupils' home early literacy activities before primary school* scale

Cut scores divide the scale into three categories. Pupils who *Often* engaged in early literacy activities before primary school had a score at or above 10.7, corresponding to their parents reporting they *Often* did five of the nine activities and *Sometimes* did the other four, on average. Pupils who *Never or almost never* engaged in early literacy activities before primary school had a score at or below 6.2, corresponding to their parents reporting they *Never or almost never* did five of the nine activities and sometimes did the other four, on average. All other pupils were considered to have *Sometimes* engaged in early literacy activities before primary school.

As with parental attitudes to reading, it should be borne in mind that the results for Northern Ireland are based on data collected from 65 per cent of pupils' parents and may not be representative of the parent population of PIRLS pupils as a whole.

Table 7.9 presents the *Pupils' home early literacy activities before primary school* scale. Data are not available for England and Australia as they did not administer the home questionnaire. In this table, countries are listed in descending order of the proportion of pupils expressing the most positive attitude.

Table 7.9 Pupils' home early literacy activities before primary school scale

Percentage of pupils based on parents' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland).

Country	Often (%)	Often Average attainment	Sometimes (%)	Sometimes Average attainment	Never or almost never (%)	Never or almost never Average attainment
Northern Ireland [s]	64 (0.9)	584 (3.2)	35 (0.9)	565 (3.9)	1 ~	~ ~
Republic of Ireland	56 (1.1)	592 (2.6)	43 (1.0)	569 (2.8)	1 ~	~ ~
Poland	53 (0.9)	559 (2.5)	47 (1.0)	541 (2.8)	0 ~	~ ~
Singapore	35 (0.8)	613 (2.8)	62 (0.8)	582 (3.5)	4 (0.3)	553 (7.3)
Finland	33 (0.7)	565 (2.4)	66 (0.7)	547 (2.5)	1 ~	~ ~
International average	42 (0.1)	518 (0.5)	55 (0.1)	495 (0.5)	3 (0.1)	418 (3.4)

Standard errors appear in brackets (). Because of rounding, some results may appear inconsistent.

An [s] indicates data are available for at least 50 per cent but less than 70 per cent of the pupils.

A tilde (~) indicates insufficient data to report a result.

Source: Exhibit 5.2, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Nearly two-thirds (64 per cent) of the pupils in Northern Ireland were exposed to home early literacy activities before primary school *Often*. This was the highest percentage among comparator countries. Internationally, 42 per cent of pupils were *Often* exposed to early literacy activities in the home before primary school.

As with parental attitudes towards reading, the findings show that, within each country, as pupils' home early literacy activities increases, so does attainment; pupil attainment in reading is highest among those pupils whose parents answered that they were *Often* exposed to home early literacy activities. In Northern Ireland, among the pupils who were *Often* exposed to home early literacy activities, the average attainment score was 584, while pupils in the *Sometimes* category had an average attainment score of 565.

7.7. Conclusion

Just over one quarter of pupils (28 per cent) in Northern Ireland *Very much like reading* and just under one half (47 per cent) were *Very confident* in reading. Whilst the proportion of pupils feeling confident in reading remained similar between 2016 and 2021, the proportion of pupils liking reading decreased. This mirrors what was seen internationally and in some comparator countries such as the Republic of Ireland, and could be a reflection of how pupils are interpreting the questionnaire.

Pupils in Northern Ireland who had more positive attitudes, liking reading and/or being confident readers, tended to have higher attainment than those who did not. This pattern was also consistent internationally. PIRLS data alone cannot show whether there is any causality between attainment and confidence and between attainment and liking reading. For example, it could be that pupils who are confident in reading become better at it, or it may be that pupils who are better at reading become more confident in reading. The data does suggest, however, that pupils have an accurate self-assessment of their own level of reading (Mullis *et al.*, 2023).

Reflecting general gender differences seen at the overall attainment level (see Chapter 2), girls tended to be more positive in their self-reporting of liking reading and feeling confident in reading in Northern Ireland and internationally.

Around one half of pupils (51 per cent) in Northern Ireland had *High digital self-efficacy* and, again, there appears to be a relationship with attainment. Pupils also tended to use digital devices to find and read information for around 30 minutes or less per school day.

Finally, higher attainment also appears to be linked to positive parental attitudes to reading and to home early literacy.

8. School resources

Chapter outline

This chapter summarises principal and teacher reports concerning the resources available in their school for teaching reading to Year 6 pupils.

The availability of resources in Northern Ireland is compared with the international average and comparator countries.

Key findings

- In Northern Ireland, 81 per cent of pupils attended schools where the principal reported that teaching reading was *Somewhat affected* by shortages in resources, a larger proportion than the international average (61 per cent). However, only one per cent of pupils attended schools that were *Affected a lot* by shortages in reading resources, moderately lower than the international average (8 per cent).
- In Northern Ireland, the majority of pupils were taught in schools with a school library (70 per cent); this was lower than the international average (84 per cent). Of pupils with access to a school library, approximately one quarter were in schools with a library with more than 2000 books (24 per cent), lower than the international average (47 per cent). While the findings from the question about school libraries were lower than the international average, most pupils in Northern Ireland had access to a class library (83 per cent).

Interpreting the data: indices and scales

In order to summarise data from a questionnaire, responses to several related items can be combined to form an index or scale. The respondents to the questionnaire items are grouped according to their responses and the way in which responses are categorised is shown for each index or scale. Respondents' scores on an index or scale are often considered to be more reliable and valid than scores for individual items.

A note on the context questionnaires for PIRLS 2021

The Northern Ireland home, school and teacher questionnaires asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (international Grade 4) and were therefore comparable to other countries.

Interpreting the data: percentages in tables related to teacher findings

The data in this section are derived from teachers' responses. Reported percentages refer to pupils and can be interpreted as the percentage of pupils whose teachers reported a particular practice or circumstance.

PIRLS pupils were sampled by class. The teacher questionnaire in Northern Ireland was distributed to pupils' Year 6 teacher who had taught them reading in the 2020/21 academic year. (See the note on context questionnaires above.)

Interpreting the data: differences

In this chapter, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of the chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small, differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

An important note on trend comparisons of findings from the context questionnaires

PIRLS provides the opportunity to explore additional contextual factors which may impact on attainment, such as attitudes to reading and home and school learning environments. It also provides the opportunity to observe these factors within participating countries over time.

It is important to note, however, that the situation or context in which respondents are answering (pupils, principals, teachers and parents) may also have changed over that time. For example, pupils in 2016 who were responding to questions about liking reading, may have largely considered printed materials such as books and magazines. In 2021,

pupils responding to the same questions may now consider browsing the internet or reading online articles as 'reading'. Caution is therefore advised when considering the trends over time in relation to the questionnaires.

8.1. Resources and conditions for teaching reading in schools

Principals were asked to rate how much their school's capacity to provide the teaching of reading was affected by a shortage or inadequacy in a range of 13 school and classroom resources, including general school resources (e.g., school buildings and textbooks) and resources for teaching reading (e.g., specialist teachers and libraries).

Pupils were grouped according to their principals' responses to areas of questioning on the *Reading resource shortages* scale (see Figure 8.1). Principals were asked to rate the impact of any shortage. The results are presented in Table 8.1, in descending order by country of the proportion of pupils *Not affected* by resource shortages.

Figure 8.1 Teaching affected by resource shortages



Source: Exhibit 6.3 PIRLS 2021 International Results in Reading and adapted from the international version of the PIRLS School Questionnaire

About the *Instruction affected by reading resource shortages* scale

Pupils were scored according to their principals' responses regarding 13 school and classroom resources on the *Instruction affected by reading resource shortages* scale. Cut scores divide the scale into three categories. Pupils in schools where instruction was *Not affected* by resource shortages had a score at or above 11.0. This score corresponds, on average, to their principals' indicating that shortages of seven of the 13 resources affected instruction *Not at all*, and that shortages of the other six resources affected instruction *A little*. Pupils in schools where instruction was *Affected a lot* had a score at or below 7.0, corresponding to their principals' reporting that shortages affected instruction *A lot* for seven of the 13 resources and *Some* for the other six, on average. All other pupils attended schools where instruction was *Somewhat affected* by resource shortages.

Table 8.1 Extent of teaching affected by resource shortages

Pupils' results based on principals' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Not affected (%)	Not affected Average attainment	Somewhat affected (%)	Somewhat affected Average attainment	Affected a lot (%)	Affected a lot Average attainment
Australia	65 (3.8)	545 (3.1)	33 (3.6)	532 (4.6)	1 (~)	~ (~)
Poland	57 (4.2)	553 (3.0)	42 (4.2)	544 (3.4)	1 (~)	~ (~)
Singapore	56 (0.0)	586 (4.2)	31 (0.0)	589 (5.5)	13 (0.0)	589 (8.7)
Finland	50 (4.1)	559 (2.5)	49 (4.2)	539 (3.5)	1 (~)	~ (~)
England	42 (4.2)	563 (4.1)	58 (4.2)	556 (3.5)	1 (~)	~ (~)
Republic of Ireland	27 (3.9)	586 (5.0)	72 (4.0)	574 (3.0)	1 (~)	~ (~)
Northern Ireland	18 (3.4)	558 (5.7)	81 (3.4)	568 (3.4)	1 (~)	~ (~)
International average	31 (0.5)	519 (1.0)	61 (0.5)	498 (0.6)	8 (0.3)	472 (2.7)

Standard errors are listed in brackets ()⁵². The standard error refers to uncertainty in estimates resulting from random fluctuations in samples. The smaller the standard error, the better the score is as an estimate of the population's score.

A tilde (~) indicates insufficient data to report a result.

Source: Exhibit 6.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023).

⁵² Throughout this report, standard errors are presented when available in the PIRLS international report (Mullis *et al.*, 2023).

In Northern Ireland, 18 per cent of pupils were taught in schools where principals' responses indicated that they were *Not affected* by shortages in resources. This was lower than the international average of 31 per cent, by a large amount. Most pupils (81 per cent) were in schools where the responses indicated that they were *Somewhat affected* by resource shortages, and only one per cent of pupils attended schools where principals reported they were *Affected a lot*.

Scores on the *Reading resource shortages* scale are not directly comparable with previous PIRLS cycles, as different items are included in the scale and cut scores have changed.⁵³ However, in 2021, the proportion of pupils in Northern Ireland in schools that were *Not affected* by shortages or inadequacies of resources overall was lower (at 18 per cent) than in 2016, when it was 44 per cent of pupils. This may reflect disruption and additional equipment needs resulting from the Covid-19 pandemic (see Chapter 5).

Overall, 11 countries were classified on the *Reading resource shortages* scale as *Not affected* by resource shortages.⁵⁴ This categorisation was based on an average scale score of 11.0 or above. The average scale score for Northern Ireland was 10.0, placing it in the category of *Somewhat affected* by shortages overall.

Internationally, associations are apparent between the degree of shortage in reading resources and attainment. Pupils in schools where teachers reported that they were *Not affected* by shortages appeared, on average, to have higher scores than those that were *Somewhat affected*. These scores were, in turn, higher than for those who were *Affected a lot*. On average internationally, the greater the reported extent of shortages, the lower the level of attainment. However, in Northern Ireland this was not the case. The mean score of pupils in schools categorised as *Not affected* was slightly lower (at 558) than that of pupils in *Somewhat affected* schools (568). However, the standard errors suggest that the difference between these groups could be non-significant.

Only one per cent of pupils were in schools in Northern Ireland which reported that they were *Affected a lot* by shortages, and, because of the low numbers, no average attainment score was available. On average internationally, attainment for pupils in schools which were *Not affected* was lower than for pupils in *Somewhat affected* schools. Singapore was the only comparator country where a substantial proportion of pupils were in schools where principals reported that they were *Affected a lot* by shortages. However, in Singapore, there appears to be almost no difference in attainment for this group of pupils

⁵³ In 2016, statements 1-6 and 10-13 formed part of the equivalent scale; the remaining statements included in 2021 were either new or adapted. Cut scores in 2016 were 10.8 (*Not affected*) and 7.1 (*Affected a lot*).

⁵⁴ Australia, Bulgaria, Czech Republic, Denmark, Finland, Netherlands, New Zealand, Norway, Poland, Sweden and the US (see (Mullis *et al.*, 2023))

compared to pupils in schools in which principals reported they were *Not affected* or *Somewhat affected* by reading resource shortages.

8.2. Access to a school or class library

Principals were asked whether pupils had access to a school library. The results for Northern Ireland, comparator countries and the international average are shown, in descending order, in Table 8.2.

Table 8.2 Percentage of pupils attending a school with a school library

Reported by principals. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Pupils with access to a school library (%)
Poland	100
Singapore	100
Australia	99
England	95
Northern Ireland	70
Finland	68
Republic of Ireland	54
International average	84

Source: 2021 School Context Data Almanac by Reading Achievement, question ACBG07A

In Northern Ireland, 70 per cent of pupils had access to a school library, lower than the international average of 84 per cent. The figure is also lower, by a small difference, than that in 2016 (74 per cent), but similar to 2011 (69 per cent). Among comparator countries, Northern Ireland, Finland and the Republic of Ireland had a percentage of pupils attending a school with a library that was below the international average. This difference was large when compared to Poland, Singapore, Australia and England, where all, or very nearly all, pupils had access to a school library.

This finding should, however, be interpreted in the context of the high prevalence of class libraries in Northern Ireland. Teachers reported that 83 per cent of pupils had access to a

class library. For these pupils, 48 per cent had access to a large class library with over 100 books, 60 per cent were given time every day to use the library and 63 per cent could borrow books to take home. While most pupils still had access to a class library in Northern Ireland in 2021, the proportion has decreased by a large amount over the last decade (93 per cent in 2016, 97 per cent in 2011).

Where principals reported that there was a library in the school, they were asked to indicate the number of printed books with different titles available in the library (excluding magazines and periodicals). Table 8.3 shows the responses from principals in descending order.

Table 8.3 Availability of books in school libraries

Reported by principals. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Of pupils with access to a school library: More than 2000 books with different titles (%)
Singapore	89
Poland	80
Australia	73
England	49
Northern Ireland	24
Republic of Ireland	22
Finland	18
International average	47

Source: 2021 School Context Data Almanac by Reading Achievement, question ACBG07B

Principals in Northern Ireland indicated that, of those pupils who had access to a library, 24 per cent had a library with more than 2000 printed books. This was lower than the international average (47 per cent). Among comparator countries, Northern Ireland, the Republic of Ireland and Finland were all lower than the international average for the percentage of pupils with a school library that has more than 2000 printed books.

Principals were also asked whether their schools provided access to digital resources including books. The results are presented in Chapter 10.

8.3. Conclusion

In general, schools in Northern Ireland were perceived to be relatively well resourced. Resource shortages appeared to *Somewhat affect* the teaching of reading but very few pupils were *Affected a lot*.

Access to a school library appeared to be less common for pupils in Northern Ireland than in other countries. However, this was likely to be because pupils often had access to class libraries, rather than whole-school libraries.

9. School learning environment

Chapter outline

This chapter summarises pupils' engagement in lessons, and principal and teacher reports concerning the working conditions and learning environment in their schools for teaching reading to Year 6 pupils.

Outcomes for Northern Ireland are compared with the international average and, in some cases, comparator countries.

Key findings

- In Northern Ireland, the majority of pupils were *Very engaged* in their reading lessons (59 per cent). This was similar to the international average (61 per cent) and the highest proportion of the comparator countries. Approximately four-fifths of pupils *Agreed a lot* that their teacher did a variety of things to help them learn (84 per cent) and told them how to do better when they make a mistake (82 per cent). Less than half of pupils *Agreed a lot* that they liked what they read in school (43 per cent), and that their teacher gave them interesting things to read (48 per cent).
- Less than half of pupils in Northern Ireland had teachers who were *Very satisfied* with their job (46 per cent). This was lower than the international average (61 per cent) and lower than in 2016 (62 per cent). The decrease appears to be because more teachers are responding less positively, with *Often* to the statements which make up the scale, rather than with *Very often*.
- The vast majority of pupils had teachers who reported they were *Very often* or *Often* proud of their work (92 per cent) and found it *Full of meaning and purpose* (90 per cent). Pupils were less likely to have teachers who reported feeling *Appreciated* as teachers, with just over half (54 per cent) of pupils' teachers experiencing this *Very often* or *Often*.
- Teachers had engaged in a wide range of professional development activities related to teaching reading over the past two years, but less so than teachers internationally. *Differentiation of teaching for pupils' needs and interests* and *integrating technology in teaching reading* were reported as common areas of professional development in the last two years (43 per cent and 40 per cent of pupils were taught by teachers who had undertaken the professional development activity respectively). These two activities continue to be priorities for teachers' future professional development.
- Overall, Northern Ireland schools were categorised as having a *High emphasis* on *Academic success* and *Hardly any problems* on the *School discipline* scale.

- Around one in five pupils had teachers who reported that their teaching had been substantially limited by *pupils needing additional support with reading, pupils lacking pre-requisite knowledge and skills, and pupils absent from class*. Teaching for around a fifth of pupils was limited *A lot* by these factors (20 per cent, 19 per cent and 16 per cent respectively). The latter two issues have increased by a large amount since 2016. In contrast, one quarter of pupils (25 per cent) had classroom teaching limited *Very little* by *Pupils not ready for instruction*.
- Two-thirds of pupils (66 per cent) in Northern Ireland reported being bullied *Never or almost never*. This was similar to the international average (63 per cent). Around a fifth of pupils (18 to 23 per cent) reported experiencing specific bullying behaviours such as name-calling, hitting and being left out, at least once a month. Other bullying behaviours such as being threatened, stealing and cyberbullying were less commonly reported (less than 10 per cent of pupils reported experiencing these behaviours at least *Once a month*).

Interpreting the data: indices and scales

In order to summarise data from a questionnaire, responses to several related items can be combined to form an index or scale. The respondents to the questionnaire items are grouped according to their responses and the way in which responses are categorised is shown for each index or scale. Respondents' scores on an index or scale are often considered to be more reliable and valid than scores for individual items.

A note on the PIRLS 2021 context questionnaires

The Northern Ireland home, school and teacher questionnaires asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (international Grade 4) and were therefore comparable to other countries.

Interpreting the data: differences

In this chapter, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of the chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small,

differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

An important note on trend comparisons of findings from context questionnaires

PIRLS provides the opportunity to explore additional contextual factors which may impact on attainment, such as attitudes to reading and home and school learning environments. It also provides the opportunity to observe these factors over time.

It is important to note, however, that the situation or context in which respondents (pupils, principals, teachers and parents) are answering may also have changed over that time. For example, pupils in 2016 who were responding to questions about liking reading, may only have considered printed materials such as books and magazines. In 2021, pupils responding to the same questions may now consider browsing the internet or reading online articles as 'reading'. Caution is therefore advised when considering the trends over time in relation to the questionnaires.

9.1. Engaging pupils in reading lessons

Pupils were asked about their teachers' practices in reading lessons in a set of items that comprise the *Pupils engaged in reading lessons* scale (see Figure 9.1).

Figure 9.1 Pupils engaged in reading lessons

Think about the reading you do for school. How much do you agree with these statements about your reading lessons?

Tick one box for each line.

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I like what I read about in school -	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) My teacher gives me interesting things to read	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I know what my teacher expects me to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) My teacher is easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I am interested in what my teacher says	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) My teacher likes to hear what I think about what I have read	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) My teacher lets me show what I have learned.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) My teacher does different things to help us learn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) My teacher tells me how to do better when I make a mistake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) The things my teacher asks me to read are difficult*.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

***National option, did not contribute to the international scale**

Scale Cut Scores: 9.5 (Very engaged), 7.1 (Less than engaged)

Option j) was a national option and only included in the Northern Ireland questionnaire.

Source: Adapted from international version of the PIRLS Pupil Questionnaire

About the *Pupils engaged in reading lessons* scale

Pupils were scored according to their responses to nine statements in the *Pupils engaged in reading lessons* scale. Cut scores divide the scale into three categories. Pupils who were *Very engaged* in reading lessons had a score at or above 9.5, corresponding to *Agreeing a lot* with five of the nine statements and *Agreeing a little* with the other four, on average. Pupils who were *Less than engaged* in reading lessons had a score at or below 7.1, corresponding to *Disagreeing a little* with five of the nine statements and *Agreeing a little* with the other four, on average. All other pupils were *Somewhat engaged* in reading lessons.

Findings from the *Pupils engaged in reading lessons* scale are presented in Table 9.1 for Northern Ireland, the comparator countries and the international average. Countries are presented in descending order based on the proportion of pupils in the highest category (*Very engaged*).

Table 9.1 Pupils engaged in reading lessons

Pupils' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Very engaged (%)	Very engaged Average attainment	Somewhat engaged (%)	Somewhat engaged Average attainment	Less than engaged (%)	Less than engaged Average attainment
Northern Ireland	59	572	37	561	4	534
England	54	562	41	556	5	528
Republic of Ireland	53	580	42	578	5	561
Australia	52	547	42	539	7	512
Singapore	48	593	45	585	7	558
Finland	46	554	47	549	7	530
Poland	46	548	47	554	7	541
International average	61	510	34	494	5	465

Source: 2021 Student Context Data Almanac by Reading Achievement, variable ASDGERL

Fifty-nine per cent of pupils in Northern Ireland participating in PIRLS 2021 were categorised as *Very engaged* in reading, 37 per cent as *Somewhat engaged* in reading and four per cent *Less than engaged* in reading. Compared with the international average (61 per cent), Northern Ireland had a similar proportion of pupils categorised as *Very engaged*.

Of the comparator countries, Australia, the Republic of Ireland and England all had over half of pupils in the *Very engaged* category, and Poland and Finland had the lowest proportion of pupils in this top category (46 per cent each).

Internationally, there appeared to be a relationship between engagement in lessons and average attainment, with higher average attainment for pupils in the *Very engaged*

category compared with *Somewhat engaged*. This pattern was also reflected in the attainment of pupils in Northern Ireland across the three categories.

In PIRLS 2016, 61 per cent of pupils in Northern Ireland were categorised as *Very engaged* in reading (with a cut score of 9.5 on the equivalent scale). It is noteworthy that, in both Northern Ireland and the Republic of Ireland, pupils in PIRLS 2021 would have been answering the questions in relation to their current teacher, that is, the teacher they had at the start of Year 7. Pupils would only have been taught by this teacher for up to two months and so trend comparisons should be interpreted with caution.

Findings from the pupils' responses which make up the scale are presented in Table 9.2 for Northern Ireland and the international average.

Table 9.2 How teachers engage pupils in reading lessons

Reported by pupils

	Northern Ireland Agree a lot (%)	International average Agree a lot (%)
-		
My teacher does a variety of things to help us learn	84	80
My teacher tells me how to do better when I make a mistake	82	77
I know what my teacher expects me to do	69	61
My teacher is easy to understand	68	65
My teacher lets me show what I have learned	54	66
I am interested in what my teacher says	53	63
My teacher encourages me to say what I think about what I have read	53	60
My teacher gives me interesting things to read	48	59
I like what I read about in school	43	57

Source: 2021 Student Context Data Almanac by Reading Achievement, questions ASBR01A, ASBR01B, ASBR01C, ASBR01D, ASBR01E, ASBR01F, ASBR01G, ASBR01H, ASBR01I

The extent to which pupils in Northern Ireland *Agree a lot* with these statements varied from 43 per cent to 84 per cent. Pupils were most likely to *Agree a lot* that their teacher does a variety of things to help them learn (84 per cent) and tells them how to do better when they make a mistake (82 per cent).

However, less than half of pupils *Agree a lot* that they like what they read in school (43 per cent), and that their teacher gives them interesting things to read (48 per cent), suggesting that over half are not engaged by their reading material. This is in line with teacher reports that teaching for most pupils is limited to at least *Some* extent by uninterested pupils (Section 9.6). Teachers also reported that differentiation for pupils' needs and interests is their highest priority for professional development, as well as the most common area of for future professional development (Section 9.3).

The response patterns across items for Northern Ireland were broadly mirrored internationally. Compared with the international average, pupils in Northern Ireland were less likely to *Agree a lot* that their teacher gave them interesting things to read or that they liked what they read at school (Northern Ireland 48 and 43 per cent; international average 59 and 57 per cent). There were also large differences in response to the statements *My*

teacher lets me show what I have learned (Northern Ireland 54 per cent; international average 66 per cent) and *I am interested in what my teacher says* (Northern Ireland 53 per cent; international average 63 per cent).

For most statements, the proportion of pupils who *Agree a lot* is similar to the 2016 results. Since 2016, there has been a small decrease in the proportion of pupils who *Agree a lot* with the statements *I know what my teacher expects me to do*, *I am interested in what my teacher says*, *My teacher encourages me to say what I think about what I have read*, and *I like what I read about in school*. This suggests a small decline in some aspects of engaging pupils with reading since 2016.

9.2. Teachers' job satisfaction

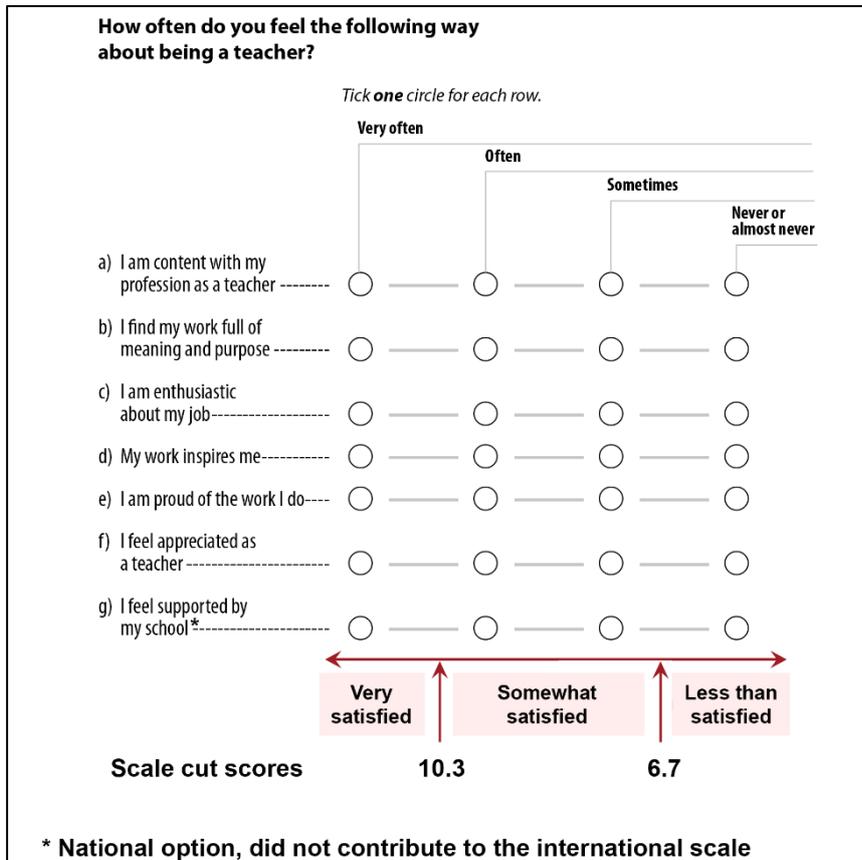
Teachers were asked to indicate the extent to which they were satisfied with their profession as a teacher based on a series of statements which comprise the *Teachers' job satisfaction* scale. The statements and details of the scaling are shown in Figure 9.2 and the results for teachers in Northern Ireland and the international average are shown in Table 9.3.

Interpreting the data: percentages in tables related to teacher findings

The data in this section are derived from teachers' responses. Reported percentages refer to pupils and can be interpreted as the percentage of pupils whose teachers reported a particular practice or circumstance.

PIRLS pupils were sampled by class. The teacher questionnaire in Northern Ireland was distributed to the Year 6 teacher who had taught pupils reading during the 2020/21 academic year. (See note on context questionnaires at the beginning of this chapter.)

Figure 9.2 Teachers' job satisfaction



Option g) was a national option and only included in the Northern Ireland questionnaire.

Source: Adapted from the international version of the PIRLS Teacher Questionnaire

About the Teachers' job satisfaction scale

Pupils were scored according to their teachers' responses to six statements on the *Teachers' job satisfaction* scale. Cut scores divide the scale into three categories. Pupils with *Very satisfied teachers* had a score at or above 10.3, corresponding to their teachers responding *Very often* to three of the six statements and *Often* to the other three, on average. Pupils with *Less than satisfied teachers* had a score at or below 6.7, corresponding to their teachers responding *Sometimes* to three of the six statements and *Often* to the other three, on average. All other pupils had *Somewhat satisfied teachers*.

Table 9.3 Reading teachers' job satisfaction

Proportion of pupils based on teachers' reports

Country	Very satisfied (%)	Very satisfied Average attainment	Somewhat satisfied (%)	Somewhat satisfied Average attainment	Less than satisfied (%)	Less than satisfied Average attainment
Northern Ireland	46	566	38	569	16	560
International average	61	502	32	501	7	498

Source: 2021 Teacher Context Data Almanac by Reading Achievement, variable ATDGTJS

Forty-six per cent of pupils in Northern Ireland had teachers who reported being *Very satisfied* with their jobs, 38 per cent had teachers who were *Somewhat satisfied* and 16 per cent had teachers who reported being *Less than satisfied*. There were fewer pupils of teachers in the top category, *Very satisfied*, than the international average (46 and 61 per cent respectively) and more in the *Less than satisfied* category (16 and seven per cent respectively). There does not appear to be a relationship between job satisfaction and average attainment, with pupils of teachers in the *Very satisfied* category having similar overall average attainment to those with teachers who are *Somewhat satisfied* in Northern Ireland and, on average, internationally.

In 2016, 62 per cent of pupils in Northern Ireland had teachers who reported being *Very satisfied* which is a large difference of 16 percentage points compared with 2021. However, there were some differences in what made up the scale⁵⁵.

With a large drop over the cycles, it is useful to consider the differences in the individual statements between 2016 and 2021. These are shown in Tables 9.4 and 9.6. Also shown in Table 9.5 are the international averages for 2021. The statements are ordered from highest percentage to lowest percentage for 2021 for Northern Ireland in Table 9.4 and this order is retained for Tables 9.5 and 9.6.

⁵⁵ In 2016, the cut score for the highest category, *Very satisfied* was 10.2 and the cut score for the lowest category, *Less than satisfied* was 6.2. The 2021 scale included the additional statement *I feel appreciated as a teacher* which was not included in 2016.

Table 9.4 Reading teachers' job satisfaction – Northern Ireland 2021

Proportion of pupils based on teachers' reports

Northern Ireland	Very often (%)	Often (%)	Sometimes (%)	Never or almost never (%)
I am proud of the work I do	65	27	8	0
I am enthusiastic about my job	53	34	13	0
I find my work full of meaning and purpose	51	40	10	0
I am content with my profession as a teacher	50	36	14	1
My work inspires me	44	36	19	1
I feel appreciated as a teacher	23	31	43	3

Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBG12A, ATBG12B, ATBG12C, ATBG12D, ATBG12E, ATBG12F

Table 9.5 Reading teachers' job satisfaction – International average 2021

Proportion of pupils based on teachers' reports

International average	Very often (%)	Often (%)	Sometimes (%)	Never or almost never (%)
I am proud of the work I do	66	27	7	0
I am enthusiastic about my job	60	33	7	0
I find my work full of meaning and purpose	69	26	4	0
I am content with my profession as a teacher	59	33	7	0
My work inspires me	57	33	10	0
I feel appreciated as a teacher	40	33	24	4

Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBG12A, ATBG12B, ATBG12C, ATBG12D, ATBG12E, ATBG12F

In 2021, almost all pupils in Northern Ireland were taught by teachers who reported *Very often* or *Often* feeling proud of the work they do (92 per cent). Eighty-seven per cent of pupils were taught by teachers who reported *Very often* or *Often* feeling enthusiastic about their job. Teachers also felt their work was *full of meaning and purpose*, with 90 per cent⁵⁶ of pupils taught by teachers who reported *Very often* or *Often* experiencing such feelings. Additionally, levels of contentment with teaching were relatively high, with 85 per cent of pupils⁵⁷ taught by teachers who reported *Very often* or *Often* feeling content with their profession as a teacher.

Less common among teachers in Northern Ireland was being inspired by their work and feeling *appreciated as a teacher*. Only 54 per cent of pupils were taught by teachers who reported *Very often* or *Often* feeling *appreciated as a teacher*. This was a large difference compared to the international average (73 per cent).

⁵⁶ after taking into account the rounding of figures

⁵⁷ after taking into account the rounding of figures

Table 9.6 Reading teachers' job satisfaction – Northern Ireland 2016

Proportion of pupils based on teachers' reports

Northern Ireland	Very often (%)	Often (%)	Sometimes (%)	Never or almost never (%)
I am proud of the work I do	73	19	8	0
I am enthusiastic about my job	66	28	6	0
I find my work full of meaning and purpose	57	34	9	0
I am content with my profession as a teacher	63	26	11	0
My work inspires me	54	32	14	0
I feel appreciated as a teacher	N/A	N/A	N/A	N/A

Source: 2016 Teacher Context Data Almanac by Reading Achievement, questions ATBG10A, ATBG10B, ATBG10C, ATBG10D, ATBG10E

Since 2016, there has been a small decrease in the proportion of pupils whose teachers reported their work inspires them *Very often* or *Often*, from 86 per cent in 2016 to 80 per cent in 2021. There has been a moderate decrease in the proportion of pupils whose teachers reported *Very often* or *Often* being *enthusiastic about* their job (87 per cent in 2021, 94 per cent in 2016). For the remaining statements, findings in 2021 were similar to 2016.

Over time there has been a decrease in the proportion of pupils whose teachers have responded *Very often* to the statements, but an increase in the proportion in the *Often* response category, and only small differences, if any, in the *Sometimes* and *Never or almost never* categories. This suggests that, although satisfaction has decreased over time, teachers are not necessarily dissatisfied generally.

9.3. Teachers' participation in professional development

Teachers were asked to indicate what professional development activities in reading they had been involved in during the last two years. They could indicate participating in more

than one area of professional development. Analysis of the data showed, in Northern Ireland, 68 per cent of pupils had teachers who had engaged in at least one professional development activity in reading in the last two years. The areas in which teachers received professional development in Northern Ireland are shown in Table 9.7. Teachers were also asked about their future priorities for professional development. The results for Northern Ireland are shown in Table 9.8⁵⁸.

Table 9.7 Reading teachers' professional development

Proportion of pupils based on teachers' reports

Professional development areas	Northern Ireland (%)	International average (%)
Addressing differentiation of teaching for pupils' needs and interests	43	56
Integrating technology into teaching reading	40	47
Teaching reading comprehension skills or strategies	37	61
Assessing pupils' reading	35	51
Teaching related to digital literacies	33	44
Integrating literacies across the curriculum	32	48
Addressing pupils' language needs in teaching reading	28	45

Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBG07AA, ATBG07AB, ATBG07AC, ATBG07AD, ATBG07AE, ATBG07AF, ATBG07AG

Teachers of between 28 and 43 per cent of pupils had taken part in each area of reading professional development in the last two years.

The most common area of professional development was *addressing differentiation of teaching for pupils' needs and interests*; 43 per cent of pupils were taught by teachers who had attended professional development in this area. Forty per cent of pupils were also taught by teachers who had received professional development related to *integrating technology into teaching reading*, and teachers of around a third of pupils in Northern Ireland had attended professional development in *teaching reading comprehension skills or strategies* (37 per cent), *assessing pupils' reading* (35 per cent), *digital literacies* (33 per cent), and *integrating literacies across the curriculum* (32 per cent). Twenty-eight per cent

⁵⁸ Data about teachers' engagement with particular areas of professional development and future development priorities was not collected in 2016.

of pupils had teachers who had received development on *addressing pupils' language needs in teaching reading*.

Across all areas of professional development, fewer pupils in Northern Ireland were taught by teachers who had participated in formal professional development compared to the international average. This difference was largest for the area of *teaching reading comprehension skills or strategies* where, internationally, 61 per cent of pupils were taught by teachers who had attended professional development in this area, compared to 37 per cent of pupils taught by teachers in Northern Ireland.

Research evidence suggests teacher involvement in professional development has a positive effect on pupils' achievement (Yoon *et al.*, 2007; Paige, Smith and Magpuri-Lavell, 2019).

Table 9.8 Reading teachers' priorities for future professional development – Northern Ireland

Proportion of pupils based on teachers' reports

Northern Ireland	High priority (%)	Medium priority (%)	Low priority (%)
Addressing differentiation of teaching for pupils' needs and interests	41	38	22
Assessing pupils' reading	37	45	18
Addressing pupils' language needs in teaching reading	37	45	18
Integrating technology into reading instruction	36	51	13
Teaching related to digital literacies	31	55	15
Teaching reading comprehension skills or strategies	26	53	21
Integrating literacies across the curriculum	18	55	27

Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBG07BA, ATBG07BB, ATBG07BC, ATBG07BD, ATBG07BE, ATBG07BF, ATBG07BG

In terms of future professional development priorities in Northern Ireland, the highest rated priority area was *differentiation of teaching for pupils needs and interests* (rated as a *High priority* by teachers of 41 per cent of pupils). This remains an important area for teachers, despite having the highest proportion of teachers engaging with this area in the last two years. This may be related to the common practice of same-ability grouping in Northern Ireland (see Chapter 11), and/or teachers' increased reports of pupils lacking pre-requisite

knowledge and skills and needing extra support with reading (see Section 9.6). It may also relate to some pupils' reports that they do not like their reading material in school or find it interesting (See Section 9.1).

Addressing pupils' language needs in teaching reading was identified as a *High priority* need for future professional development by teachers of 37 per cent of pupils, while *Integrating technology* was a *High priority* for teachers of 36 per cent of pupils. This continues to be regarded as an important professional development area as it has been for the last two years. It seems likely that the increased use of online teaching, particularly during the Covid-19 pandemic, may have highlighted this need, as might the increased use and availability of digital devices in schools (see Chapter 10). *Assessing pupils' reading* (37 per cent) and teaching *digital literacies* (31 per cent) remain *High priority* areas going forward.

Teaching reading comprehension skills or strategies was a *High priority* for teachers of 26 per cent of pupils as was *integrating literacies across the curriculum* for teachers of 18 per cent of pupils. The fact that high proportions of pupils had teachers who rated these areas as at least *Medium priority* show these are still important areas of professional development for many teachers.

Table 9.9 Reading teachers’ priorities for future professional development – international average

Proportion of pupils based on teachers’ reports

International average	High priority (%)	Medium priority (%)	Low priority (%)
Addressing differentiation of teaching for pupils’ needs and interests	52	39	9
Assessing pupils’ reading	51	39	10
Addressing pupils’ language needs in teaching reading	49	42	9
Integrating technology into reading instruction	43	46	11
Teaching related to digital literacies	42	46	12
Teaching reading comprehension skills or strategies	51	39	10
Integrating literacies across the curriculum	43	45	13

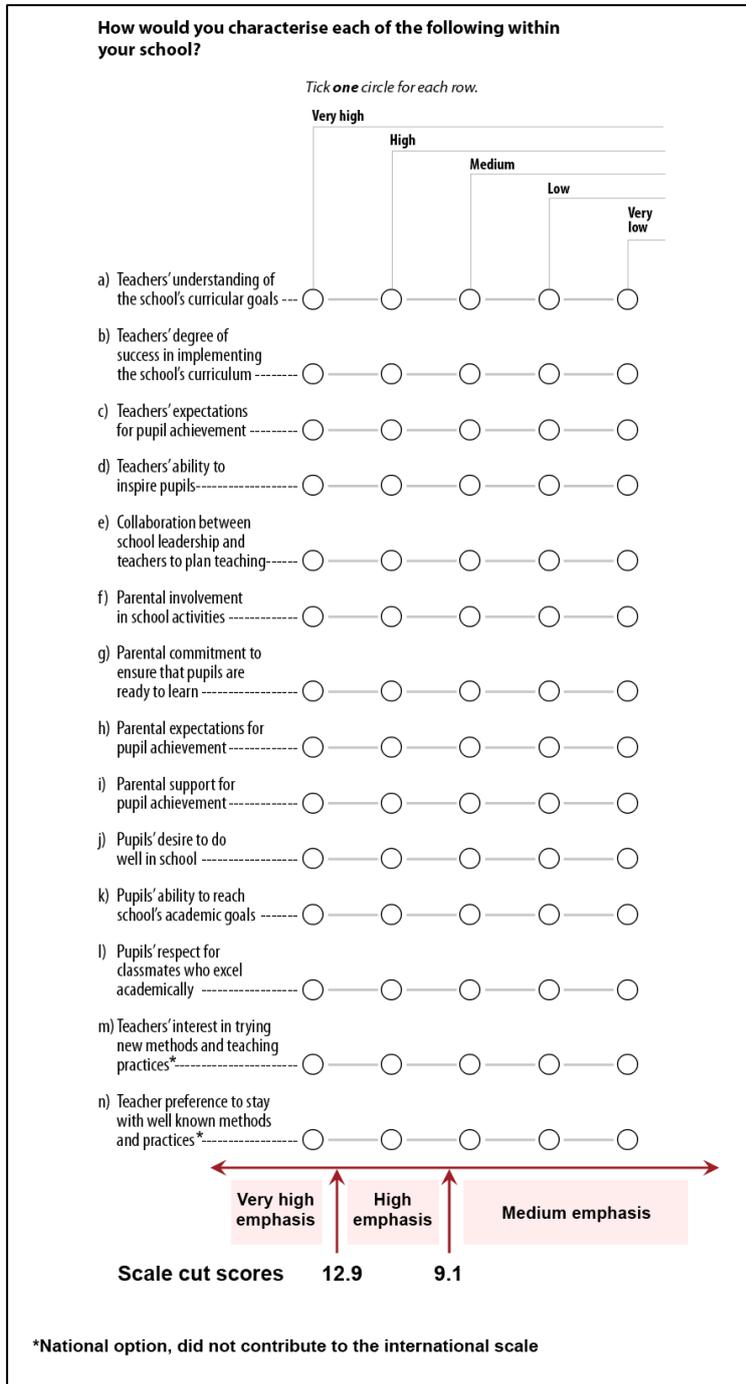
Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBG07BA, ATBG07BB, ATBG07BC, ATBG07BD, ATBG07BE, ATBG07BF, ATBG07BG

Across all professional development areas, fewer pupils in Northern Ireland were taught by teachers that identified these development areas as a *High priority* compared to the international average, and more pupils were taught by teachers that identified these development areas as a *Low priority* compared to the international average. The biggest differences for *High priority* were in *teaching reading comprehension skills or strategies* (26 per cent in Northern Ireland, 51 per cent internationally) and *integrating literacies across the curriculum* (18 per cent in Northern Ireland and 43 per cent internationally).

9.4. Schools’ emphasis on academic success

Principals were asked to rate the emphasis placed on academic success within their school by teachers, parents and pupils, by responding to the set of 12 questions shown in Figure 9.3. Their responses were analysed to form a *Schools’ emphasis on academic success* scale. The scale is summarised below the questions. Data for Northern Ireland, the comparator countries and the international average is presented in Table 9.10 in descending order of pupils in the highest category.

Figure 9.3 Schools' emphasis on academic success – questions for school principals



Statements m) and n) were national items and not included in the international questionnaire.

Source: Exhibit 6.4 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS School Questionnaire.

About the *Schools' emphasis on academic success – Principals' reports scale*

Pupils were scored according to their principals' responses to 12 items on the *Schools' emphasis on academic success* scale. Cut scores divide the scale into three categories. Pupils in schools with a *Very high emphasis* on academic success had a score at or above 12.9, corresponding to their principals indicating that six of the 12 aspects were *Very high* and the other six *High*, on average. Pupils in schools with a *Medium emphasis* on academic success had a score at or below 9.1, corresponding to principals characterising six of the 12 aspects as *Medium* and the other six as *High*, on average. All other pupils attended schools with a *High emphasis* on academic success.

Table 9.10 Schools’ emphasis on academic success

Pupils’ results based on principals’ reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Very high emphasis (%)	Very high emphasis Average attainment	High emphasis (%)	High emphasis Average attainment	Medium emphasis (%)	Medium emphasis Average attainment	Average scale score
Republic of Ireland	20 (3.3)	593 (4.7)	59 (4.0)	581 (3.5)	21 (2.7)	551 (4.6)	11.2 (0.17)
Northern Ireland	16 (3.4)	585 (5.7)	70 (4.5)	568 (3.2)	14 (3.1)	538 (7.8)	11.0 (0.16)
Australia	13 (2.6)	566 (4.5)	58 (3.9)	545 (3.2)	29 (3.1)	520 (4.3)	10.6 (0.14)
England	12 (2.6)	580 (7.0)	61 (4.0)	563 (3.4)	26 (3.4)	539 (4.0)	10.6 (0.15)
Singapore	11 (0.0)	615 (6.1)	73 (0.0)	589 (3.7)	16 (0.0)	559 (8.3)	10.9 (0.00)
Poland	9 (2.4)	558 (4.9)	56 (4.1)	553 (2.8)	35 (3.9)	540 (3.6)	10.2 (0.16)
Finland	7 (2.3)	569 (8.5)	70 (3.5)	552 (2.5)	23 (3.2)	536 (4.4)	10.4 (0.14)
International average	10 (0.3)	525 (1.8)	58 (0.5)	509 (0.6)	32 (0.5)	486 (1.0)	-

Standard errors are listed in brackets (⁵⁹). The standard error refers to uncertainty in estimates resulting from random fluctuations in samples. The smaller the standard error, the better the score is as an estimate of the population’s score.

Source: Exhibit 6.4, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

⁵⁹ Throughout this report, standard errors are presented when available in the PIRLS international report (Mullis et al., 2023).

In Northern Ireland, principals of 86 per cent of pupils participating in PIRLS 2021 reported that their schools placed a *High* or *Very high emphasis* on academic success. This was higher than the international average (68 per cent): a large difference. Northern Ireland was similar to Singapore (84 per cent), greater than the Republic of Ireland (79 per cent) by a moderate difference and greater than England (73 per cent) by a large difference.

Only nine countries had a larger proportion of pupils than Northern Ireland in the top category, *Very high emphasis*, and these were mostly Middle Eastern countries (Mullis *et al.*, 2023). Whilst a greater share of pupils of principals in schools that placed a *High* or *Very high emphasis* on academic success were in Northern Ireland than the Republic of Ireland, a greater share of pupils were in schools that placed a *Very high emphasis* on academic success in the Republic of Ireland (20 per cent) than in Northern Ireland (16 per cent). The international average for this category was ten per cent.

On the *Schools' emphasis on academic success* scale, principals in Northern Ireland had an average scale score of 11.0, which is within the *High emphasis* category. This was similar to other developed countries, slightly lower than the Republic of Ireland (11.2) and slightly greater than Singapore (10.9).

Caution should be exercised when comparing results from 2021 and 2016 because the scale cut scores (defined in Figure 9.3) have changed.⁶⁰ For Northern Ireland, in 2016, principals of 90 per cent of pupils reported that their school had either a *High* or *Very high* emphasis on academic success.

On average, across all countries, pupil attainment in reading tended to be higher in schools where principals reported a greater emphasis on academic success. This was also the case in Northern Ireland.

Teachers were also asked about their schools' emphasis on academic success. Results for Northern Ireland and the international average are shown in Table 9.11.

⁶⁰ In 2016, principals were asked about the same 12 statements as 2021. However, the cut scores were slightly different. Schools with a *Low Emphasis* on academic success had a score no higher than 9.2.

About the *Schools' emphasis on academic success – teachers' reports scale*

Pupils were scored according to their teachers' responses to the 12 items comprising the *Schools' emphasis on academic success* scale. Cut scores divide the scale into three categories. Pupils in schools where their teachers reported a *Very high emphasis* on academic success had a score at or above 12.9, corresponding to their teachers characterising six of the 12 aspects as *Very high* and the other six as *High*, on average. Pupils in schools where their teachers reported a *Medium emphasis* on academic success had a score at or below 9.1, corresponding to their teachers characterising six of the 12 aspects as *Medium* and the other six as *High*, on average. All other pupils attended schools where teachers reported a *High emphasis* on academic success.

Table 9.11 Teachers' emphasis on academic success

Proportion of pupils based on teachers' reports

Country	Very high emphasis (%)	Very high emphasis Average attainment	High emphasis (%)	High emphasis Average attainment	Medium emphasis (%)	Medium emphasis Average attainment
Northern Ireland	16	586	54	572	30	546
International average	12	516	54	507	34	488

Source: 2021 Teacher Context Data Almanac by Reading Achievement, variable ATDGEAS

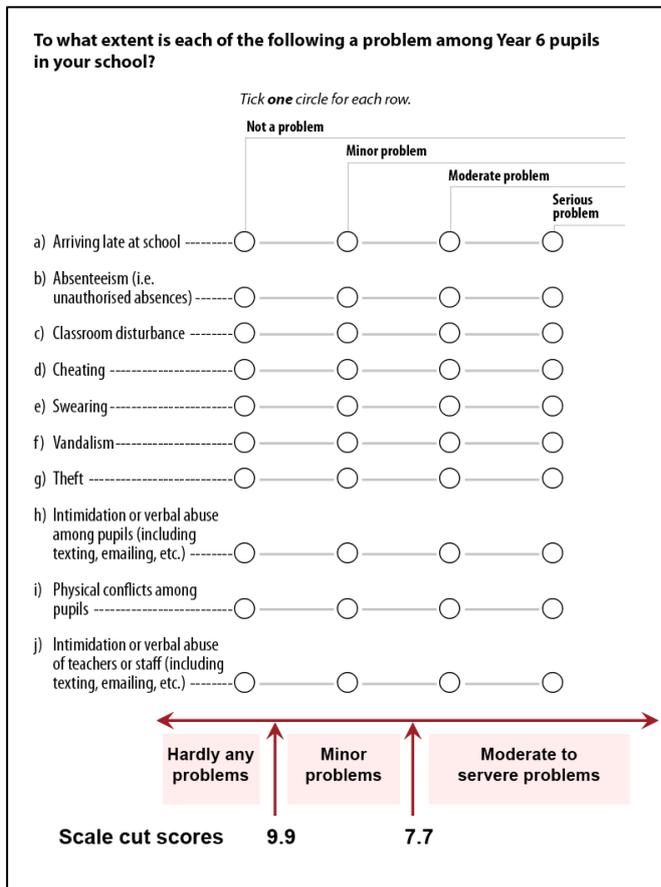
Teacher responses were less favourable than those of principals in Northern Ireland, with 70 per cent of pupils in schools whose teachers reported a *High* or *Very high* emphasis on academic success compared with 86 per cent for principals' reports. The pattern across the three categories for teacher reports was broadly similar to the international average. Schools' emphasis on academic success appears to be related to attainment, with pupils in the *Very high emphasis* group having a higher average attainment than the other two categories, both for Northern Ireland and the international average.

9.5. Principals' views of school discipline problems

Principals were asked about the degree to which a number of discipline issues were a problem in their schools. Based on their responses, pupils were categorised as attending schools with *Hardly any problems*, *Minor problems* or *Moderate to severe problems* (see Figure 9.4). The results for Northern Ireland, the comparator countries and the

international average are shown in Table 9.12 in descending order of pupils in the top category.

Figure 9.4 Principals' views of school discipline problems



Source: Exhibit 6.5 PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023) and adapted from the international version of the PIRLS School Questionnaire

About the *School discipline* scale

Pupils were scored according to their principals' reports regarding ten potential problems on the *School discipline* scale. Cut scores divide the scale into three categories. Pupils in schools with *Hardly any problems* had a score at or above 9.9, corresponding to their principals reporting that five of the ten issues are *Not a problem* and the other five are a *Minor problem*, on average. Pupils in schools with *Moderate to severe problems* had a score at or below 7.7, corresponding to their principals reporting that five of the ten issues are a *Moderate problem* and the other five are a *Minor problem*, on average. All other pupils were in schools with *Minor problems*.

Table 9.12 School discipline

Pupils’ results based on principals’ reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Hardly any problems (%)	Hardly any problems Average attainment	Minor problems (%)	Minor problems Average attainment	Moderate to severe problems (%)	Moderate to severe problems Average attainment	Average scale score
Northern Ireland	84 (3.3)	571 (3.1)	15 (3.2)	540 (6.6)	1 ~	~ ~	11.1 (0.11)
Singapore	81 (0.0)	589 (3.5)	19 (0.0)	580 (8.1)	0 ~	~ ~	11.1 (0.00)
Republic of Ireland	79 (3.0)	584 (2.8)	20 (3.2)	552 (6.7)	2 ~	~ ~	10.9 (0.10)
England	76 (3.2)	564 (3.0)	22 (3.1)	542 (4.8)	2 ~	~ ~	10.5 (0.11)
Australia	69 (3.6)	548 (2.8)	29 (3.6)	525 (4.2)	2 ~	~ ~	10.4 (0.10)
Finland	68 (3.5)	554 (2.5)	30 (3.4)	541 (4.6)	2 ~	~ ~	10.3 (0.10)
Poland	61 (3.8)	551 (2.7)	37 (3.8)	546 (3.9)	2 ~	~ ~	10.1 (0.10)
International average	64 (0.5)	512 (0.6)	27 (0.5)	493 (1.0)	9 (0.3)	465 (2.3)	-

A tilde (~) indicates insufficient data to report results.

Standard errors are listed in parentheses (). The standard error refers to uncertainty in estimates resulting from random fluctuations in samples. The smaller the standard error, the better the score is as an estimate of the population’s score.

Source: Exhibit 6.5, PIRLS 2021 International Results in Reading (Mullis et al., 2023)

Principals indicated that the vast majority of pupils in Northern Ireland (84 per cent) were taught in schools with *Hardly any problems* with discipline or safety. This was above the international average of 64 per cent, indicating a large difference. Across all participating countries, only three reported fewer problems than Northern Ireland (Hong Kong at 93 per cent, Malta at 87 per cent, Bahrain at 85 per cent) and one was similar (Qatar at 84 per cent) (see (Mullis *et al.*, 2023).

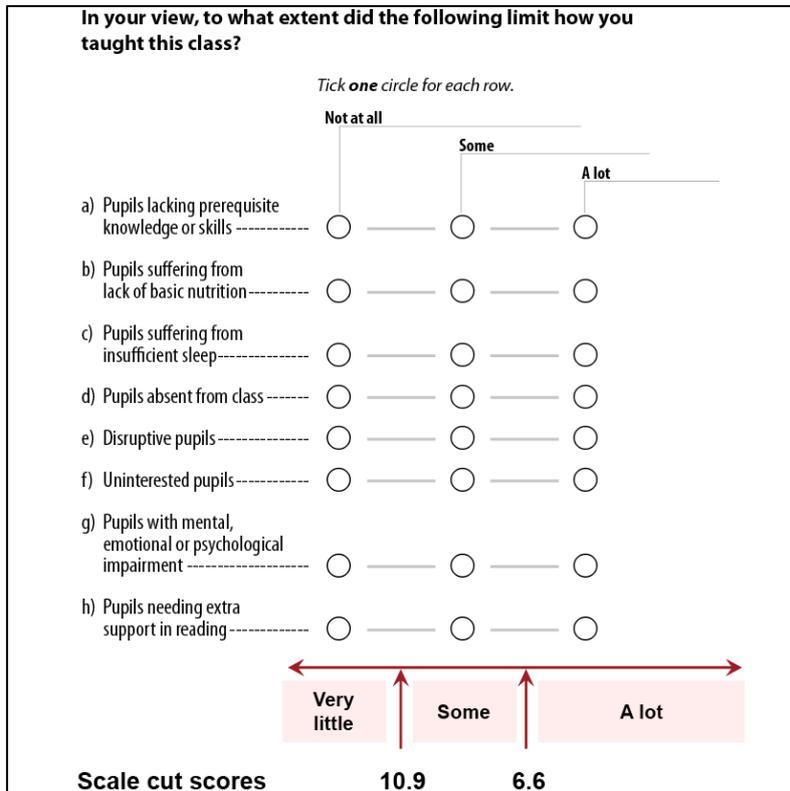
In Northern Ireland, the percentages of pupils in each category (*Hardly any*, *Minor* and *Moderate to severe* problems with school discipline) were similar in 2021 and 2016. On the *School discipline* scale, the average score for Northern Ireland in 2021 was 11.1 putting it in joint fifth place internationally. This score placed Northern Ireland in the category of having *Hardly any problems*; all comparator countries were also in the category of *Hardly any problems*. The average scale score for Northern Ireland in 2016 was 11.2, when it also ranked within the top five countries internationally.

On average internationally, pupils in schools with lower problem ratings for school discipline scored higher in PIRLS than those in schools with more problems. Northern Ireland followed this pattern: pupils in schools judged to have *Hardly any problems* had higher average attainment scores than those in schools judged to have *Minor problems*.

9.6. Pupils' readiness for lessons

Teachers were asked to what extent specific factors limited how they taught the PIRLS class. This made up the *Classroom teaching limited by pupils not ready for instruction* scale. Figure 9.5 explains the scale, and the results for Northern Ireland and the international average are shown in Table 9.13.

Figure 9.5 Classroom teaching limited by pupils not ready for instruction



Source: Adapted from the international version of the PIRLS Teacher Questionnaire

About the *Classroom teaching limited by pupils not ready for instruction* scale

Pupils were scored according to their teachers' reports regarding eight pupil attributes on the *Classroom teaching limited by pupils not ready for instruction* scale. Cut scores divide the scale into three categories. Pupils with teachers who felt their teaching was limited *Very little* had a score at or above 10.9, corresponding to indicating that they were *Not at all* limited by four of the eight pupil attributes and were limited *Some* by the other four, on average. Pupils with teachers who felt their teaching was limited *A lot* had a score at or below 6.6, corresponding to their teachers reporting they were limited *A lot* by four of the eight attributes and *Some* by the other four, on average. All other pupils had teachers who felt their teaching was limited *Some*.

Table 9.13 Classroom teaching limited by pupils not ready for instruction

Proportion of pupils based on teachers' reports

Country	Very little (%)	Very little Average attainment	Some (%)	Some Average attainment	A lot (%)	A lot Average attainment
Northern Ireland	25	583	73	563	2	484
International average	38	514	56	496	6	481

Source: 2021 Teacher Context Data Almanac by Reading Achievement, variable ATDGSLI

Teachers of a quarter of pupils (25 per cent) reported classroom teaching was limited *Very little* by pupils who were not ready for instruction, while 73 per cent reported *Some* and two per cent *A lot*. Internationally, more pupils were in the top category of *Very little* (38 per cent).

Tables 9.14 and 9.15 break down this scale further by looking at the individual pupil attributes included in the scale. In Table 9.14 the attributes are in ascending order of pupils whose teachers reported that teaching is *Not at all* limited by these factors in Northern Ireland. This order is then replicated for Table 9.15 (the international average).

Table 9.14 Pupils' readiness for lessons – Northern Ireland
Proportion of pupils based on teachers' reports

Northern Ireland	Not at all 2021 (%)	Not at all 2016 (%)	Some 2021 (%)	Some 2016 (%)	A lot 2021 (%)	A lot 2016 (%)
Pupils needing extra support in reading	12	-	68	-	20	-
Pupils lacking prerequisite knowledge and skills	14	26	67	67	19	7
Pupils absent from class	19	38	65	61	16	2
Uninterested pupils	29	41	66	57	5	2
Pupils suffering from not enough sleep	35	41	58	55	7	4
Pupils with mental, emotional, or psychological impairment	38	55	59	42	4	3
Disruptive pupils	48	64	42	33	10	3
Pupils suffering from lack of basic nutrition	78	76	22	22	0	2

Pupils needing extra support in reading was not asked in the 2016 cycle.

Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBR03A, ATBR03B, ATBR03C, ATBR03D, ATBR03E, ATBR03F, ATBR03G, ATBR03H and 2016 Teacher Context Data Almanac by Reading Achievement questions ATBR05A, ATBR05B, ATBR05C, ATBR05D, ATBR05E, ATBR05F, ATBR05G

Table 9.15 Pupils' readiness for lessons – International average
Proportion of pupils based on teachers' reports

International average	Not at all 2021 (%)	Not at all 2016 (%)	Some 2021 (%)	Some 2016 (%)	A lot 2021 (%)	A lot 2016 (%)
Pupils needing extra support in reading	21	-	60	-	19	-
Pupils lacking prerequisite knowledge and skills	22	22	61	64	17	15
Pupils absent from class	42	44	45	47	13	9
Uninterested pupils	29	28	58	60	13	12
Pupils suffering from not enough sleep	45	46	46	47	9	7
Pupils with mental, emotional, or psychological impairment	46	45	44	46	10	9
Disruptive pupils	42	37	45	49	13	14
Pupils suffering from lack of basic nutrition	71	71	24	25	5	4

Pupils needing extra support in reading was not asked in the 2016 cycle.

Source: 2021 Teacher Context Data Almanac by Reading Achievement, questions ATBR03A, ATBR03B, ATBR03C, ATBR03D, ATBR03E, ATBR03F, ATBR03G, ATBR03H and 2016 Teacher Context Data Almanac by Reading Achievement questions ATBR05A, ATBR05B, ATBR05C, ATBR05D, ATBR05E, ATBR05F, ATBR05G

The three factors which most limited teaching in Northern Ireland in 2021 were: *pupils needing extra support in reading*; *pupils lacking prerequisite knowledge and skills*; and *pupils absent from class*. For each of these factors, teaching for most pupils had been limited to *Some* extent (between 65 and 68 per cent), while teaching for almost a fifth of pupils had been limited *A lot* (between 16 and 20 per cent). Some issues have become more prominent since 2016. There have, for example, been large increases compared to 2016 in pupils whose teaching was affected *A lot* by *pupils absent from class* (an increase of 14 percentage points) and by *pupils lacking prerequisite knowledge and skills* (an increase of 12 percentage points). These changes may relate to missed learning and pupil absence due to the Covid-19 pandemic (see Chapter 5).

For between a quarter and a half of pupils, teaching was *Not at all* affected by *disruptive pupils* (48 per cent), *pupils with mental, emotional, or psychological impairment* (38 per cent), *pupils suffering from not enough sleep* (35 per cent) and *uninterested pupils* (29 per cent) in 2021. A smaller minority of pupils had teaching limited *A lot* by these factors (between four and ten per cent). The factors that affected teaching were either similar or less of an issue for Northern Ireland compared to the international average.

For most pupils in Northern Ireland, teaching was *Not at all* limited by *pupils suffering from lack of basic nutrition* (78 per cent), while no pupils experienced teaching limited *A Lot* by this (0 per cent). These findings are similar to 2016.

9.7. Pupil reports of bullying in school

Pupils were asked about the extent to which they had experienced a range of behaviours which were considered to demonstrate bullying at school, within the current year. This made up the *Pupil bullying* scale (Figure 9.6). The results are shown in Table 9.16 for Northern Ireland, comparator countries and the international average. Countries are in descending order for the *Never or almost never* category. It is worth reiterating caution for comparisons with other countries, as the data were collected at different points and across different academic years.

Figure 9.6 Pupil reports of bullying in school

This year, how often have other children from your school done any of the following things to you, including by texting or the internet?

Tick one box for each line.

	At least once a week	Once or twice a month	A few times a year	Never
a) Made fun of me or called me names	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Left me out of their games or activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Spread lies about me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Stole something from me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Damaged something of mine on purpose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Hit or hurt me (e.g. shoving, hitting, kicking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Made me do things I didn't want to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Sent me nasty or hurtful messages online	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Shared nasty or hurtful information about me online	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Threatened me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scale Cut Scores 9.2 7.7

Source: Adapted from the international version of the PIRLS Pupil Questionnaire

About the *Pupil bullying* scale

Pupils were scored according to their reports regarding ten bullying behaviours on the *Pupil Bullying* scale. Cut scores divide the scale into three categories. Pupils bullied *Never or almost never* had a score at or above 9.2, corresponding to reporting that they *Never* experienced five of the ten bullying behaviours and experienced the other five *A few times a year*, on average. Pupils bullied *About weekly* had a score at or below 7.7, corresponding to reporting that they experienced five of the ten behaviours *Once or twice a month* and the other five *A few times a year* on average. All other pupils were bullied *About monthly*.

Table 9.16 Pupil reports of bullying in school scale

Pupils' results based on pupils' reports. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	Never or almost never (%)	Never or almost never Average attainment	About monthly (%)	About monthly Average attainment	About weekly (%)	About weekly Average attainment
Poland	75	559	20	534	6	493
Finland	75	557	20	539	5	496
Republic of Ireland	74	585	20	566	6	526
Northern Ireland	66	578	27	552	7	516
Singapore	59	602	29	579	12	537
England	54	568	35	555	11	518
Australia	52	553	35	537	13	508
International average	63	519	25	495	12	451

Source: 2021 Student Context Data Almanac by Reading Achievement, variable ASDGSB

Two-thirds of pupils (66 per cent) in Northern Ireland reported being bullied *Never or almost never*, 27 per cent *About monthly* and seven per cent *About weekly*. This was similar to the international average for *Never or almost never* and *About monthly* (63 per cent and 25 per cent respectively) and there was a small difference for *About weekly* (12 per cent internationally, on average).

Amongst comparator countries, Poland and Finland had the highest proportion of pupils reporting being bullied *Never or almost never* (75 per cent in both countries).

In 2016, 59 per cent of pupils reported they were *Almost never* bullied in Northern Ireland, compared with 66 per cent in 2021. The findings may not be directly comparable with

2016, due to the data being collected at a different point in the school year and differences in the scales⁶¹.

Frequency of bullying and attainment appear to have a relationship, with pupils reportedly being bullied *Never or almost never* having a higher average attainment than those in the *About monthly* and *About weekly* categories. This was the case in Northern Ireland, across all comparator countries and for the international average.

Findings for each of the behaviours which make up the *Pupil bullying* scale are presented for Northern Ireland in Table 9.17, in descending order for *At least once a week*.

⁶¹ In 2016, pupils were scored according to eight behaviours. The cut score for the highest category in 2016, *Almost never*, was 9.5. It was 7.9 for *Almost weekly*. Two behaviours were added to the 2021 PIRLS pupil questionnaire: e) *Damaged something of mine on purpose* and h) *Sent me nasty or hurtful messages online*. In item i) 'online' was inserted for the 2021 cycle.

Table 9.17 Pupils bullied at school in Northern Ireland

Pupils' results based on pupils' reports.

Northern Ireland	At least once a week (%)	Once or twice a month (%)	A few times a year (%)	Never (%)
Made fun of me or called me names	11	12	26	51
Hit or hurt me	9	11	24	56
Left me out of their games or activities	7	12	26	55
Spread lies about me	7	11	22	60
Stole something from me	4	6	16	74
Made me do things I didn't want to do	4	7	15	73
Damaged something of mine on purpose	3	5	15	77
Sent me nasty or hurtful messages online	3	5	11	81
Threatened me	3	6	12	79
Shared nasty or hurtful information about me online	2	3	6	89

Statements e) Damaged something of mine on purpose and h) Sent me nasty or hurtful messages online were new to 2021. Statement i) Shared nasty or hurtful information about me online was reworded from a similar item in 2016.

Source: 2021 Student Context Data Almanac by Reading Achievement, questions ASBG11A, ASBG11B, ASBG11C, ASBG11D, ASBG11E, ASBG11F, ASBG11G, ASBG11H, ASBG11I and ASBG11J

In Northern Ireland, the most common behaviours experienced by pupils at least once or twice a month were other children making fun of them or calling them names (23 per cent), hitting or hurting them (20 per cent), leaving them out of games or activities (19 per cent) and spreading lies about them (18 per cent). The other behaviours listed were experienced by about one in ten pupils at least once or twice a month (between 5 and 11 per cent). However, for each one of the bullying behaviours listed, at least half of pupils reported they had never experienced it. This ranged from 51 per cent for being made fun of or called names, to 89 per cent for sharing nasty or hurtful messages online. All of these behaviours

were either similar or less of an issue for Northern Ireland compared to the international average.

For statements used in both 2021 and 2016, the proportions of pupils experiencing each of these behaviours at least once a month were similar. This suggests the scale and frequency of bullying behaviours experienced by pupils has not changed since 2016.

9.8. Conclusion

In general, principals in Northern Ireland reported *High* emphasis on academic success, which appears to be associated with higher reading attainment. The vast majority of pupils in Northern Ireland attend schools with *Hardly any problems* with discipline and such pupils have higher attainment than the minority of pupils who attend schools with *Minor problems* with discipline.

There are some areas of concern, which have risen since 2016, such as pupils reporting that they did not like the things they were given to read and they know what their teacher expects.

Also of concern is the proportion of teachers feeling unappreciated and reporting increased limitations on their teaching, particularly from pupils needing additional support in reading, pupils with a lack of pre-requisite knowledge and skills, and pupil absence. These increased limitations may indicate the impact of the Covid-19 pandemic on schools.

Whilst fewer pupils in Northern Ireland were taught by teachers that identified development areas as a *High priority* compared to other countries, teachers reported that their highest priority for professional development was in *differentiating for pupils' needs and interests*, which may reflect the increase in pupils requiring additional support.

10. Digital learning environment

Chapter outline

This chapter summarises Northern Ireland pupils' access to digital resources in the home as well as access to and use of digital devices in school. This chapter also explores principals' reports of limitations to teaching caused by shortages or inadequacies of digital resources. Findings for Northern Ireland are compared with those of other countries where relevant.

Key findings

- There was good access to and use of digital resources at home and in schools for the majority of pupils in Northern Ireland compared to the international average.
- Almost all pupils in Northern Ireland had an internet connection (98 per cent) at home and over four-fifths (82 per cent) had their own computer or tablet at home. These were both higher for pupils in Northern Ireland than the international averages of 88 per cent and 61 per cent respectively. This suggests that the majority of pupils in Northern Ireland had a means of accessing education material online.
- Northern Ireland had better in-school computer access for Year 6 pupils (1.5 pupils per computer) than the international average (2.0 pupils per computer).
- Most pupils in Northern Ireland (70 per cent) had access to digital devices for use during reading lessons. This was most commonly in the form of shared devices designated for the class, or school shared devices which the class could sometimes use.
- A high proportion of pupils in Northern Ireland (87 per cent) had access to digital learning resources, such as books or videos, through school. This was moderately higher than the international average (80 per cent).
- Principals were asked the extent to which teaching in their school was limited by a shortage or inadequacy of specific digital resources. In Northern Ireland, the biggest issue was *A shortage or inadequacy of internet connection*; one in six pupils (16 per cent) in Northern Ireland were taught in schools affected *A lot* by issues with their internet connection. This may have been related to school closures during the Covid-19 pandemic, when pupils and teachers were accessing the internet from home.

Interpreting the data: differences

In this section, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of the chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small, differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

A note on the PIRLS 2021 context questionnaires

The Northern Ireland home, school and teacher questionnaires asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (internationally Grade 4) and were therefore comparable to other countries.

An important note on trend comparisons of context findings from questionnaires

PIRLS provides the opportunity to explore additional contextual factors which may impact attainment, such as attitudes to reading and home and school learning environments. It also provides the opportunity to observe these factors within participating countries over time.

It is important to note, however, that the situation or context in which respondents are answering (pupils, principals, teachers and parents) may also have changed over that time. For example, pupils in 2016 who were responding to questions about liking reading, may have largely considered printed materials such as books and magazines. In 2021, pupils responding to the same questions may now consider browsing the internet or reading online articles as 'reading'. Caution is therefore advised when considering the trends over time in relation to the questionnaires.

10.1. Digital resources at home

As discussed in Chapter 6, pupils with *Many resources* at home had a higher average achievement score than pupils with *Some resources* at home. One question about home resources asked pupils to indicate which key digital study supports they had at home: their own computer or tablet, and an internet connection. These digital supports were particularly important during periods of school closure during the Covid-19 pandemic, when most pupils were learning remotely via the internet. Research from the Education

and Training Inspectorate (2021) found that 86 per cent of pupils in Years 6 to 14 in Northern Ireland reported that their information and communication technology (ICT) skills improved during lockdown. Tables 10.1 and 10.2 present the proportion of pupils in Northern Ireland who reported having these resources, along with comparator countries and the international average. Countries are presented in alphabetical order.

Table 10.1 Pupils' access to a computer or tablet

Pupils' reports. For PIRLS 2021, countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland) and countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	2021: Access to own computer or tablet (%)	2021: Access to shared computer or tablet (%)	2016: Access to computer or tablet (unspecified) (%)	2011: Access to computer (%)
Australia	78	67	97	98
England	80	59	98	98
Finland	55	81	97	99
Northern Ireland	82	66	98	97
Poland	81	72	99	97
Republic of Ireland	74	67	97	96
Singapore	60	75	96	97
International average	61	71	92	86

Source: 2021 Student Context Data Almanac by Reading Achievement questions ASBG05F and ASBG05A, 2016 Student Context Data Almanac by Reading Achievement question ASBG05A, 2011 Student Context Data Almanac by Reading Achievement question ASBG05A

In 2021, most pupils in Northern Ireland had their own computer or tablet at home (82 per cent). This was moderately higher than the Republic of Ireland (74 per cent), and a large difference from the international average (61 per cent). In 2021, pupils were asked separately about access to their own computer or tablet, and access to a shared computer or tablet. In 2016, pupils were only asked whether they had access to a computer or tablet,

and in 2011 whether they had access to a computer. Therefore, these data are not directly comparable across cycles.

Table 10.2 Pupils' access to an internet connection

Based on pupils' reports. In PIRLS 2021, countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland) and countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	2021 (%)	2016 (%)	2011 (%)
Australia	95	93	92
England	97	97	94
Finland	98	98	96
Northern Ireland	98	98	93
Poland	98	97	84
Republic of Ireland	97	95	90
Singapore	93	96	93
International average	88	87	77

Source: 2021 Student Context Data Almanac by Reading Achievement question ASBG05D, 2016 Student Context Data Almanac by Reading Achievement question ASBG05D, 2011 Student Context Data Almanac by Reading Achievement question ASBG05E

In 2021, the vast majority of pupils in Northern Ireland had an internet connection at home (98 per cent). This was a large difference compared to the international average (88 per cent). These results are almost identical to the situation in 2016 (98 per cent for Northern Ireland and 87 per cent internationally) and similar to most comparator countries. Access to the internet was limited in some developing countries, for example in three countries (Morocco, South Africa and Uzbekistan) less than half of pupils had an internet connection in their home.

10.2. Digital resources at school – Availability of computers

Principals were asked about the availability of computers, including tablets, in their schools during the school year⁶². Table 10.3 shows the average number of computers available for Year 6 pupils⁶³ in Northern Ireland, comparator countries and the international average in 2021 and 2016⁶⁴, in alphabetical order. This table also presents the average number of Year 6 pupils enrolled in June 2021 and in 2016, to contextualise the number of computers available for Year 6 pupils. It is important to note that in Northern Ireland, small schools with fewer than six Year 6 pupils were not included in the PIRLS sample.

⁶² For most countries this was the 2020/21 school year. As England tested in 2022, this was the 2021/22 academic year. In the 2020/21 school year in Northern Ireland, there were school closures because of the Covid-19 pandemic.

⁶³ Grade 4 internationally

⁶⁴ question not asked in PIRLS 2011

Table 10.3 Availability of computers for reading lessons in Northern Ireland

Percentage of pupils based on principals' responses. In PIRLS 2021, countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland) and countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	2021: Average number of computers available for Year 6	2021: Average number of Year 6 pupils enrolled	2021: Average pupils per computer	2016: Average number of computers available for Year 6	2016: Average number of Year 6 pupils enrolled	2016: Average pupils per computer
Australia	57	70	1.2	51	67	1.3
England	62	60	1.0	47	56	1.2
Finland	47	55	1.1	33	47	1.4
Northern Ireland	34	53	1.5	30	40	1.4
Poland	35	50	1.4	24	52	2.2
Republic of Ireland	24	47	1.9	20	43	2.2
Singapore	259	221	0.9	206	238	1.2
International average	44	89	2.0	38	80	2.1

Source: 2021 School Context Data Almanac by Reading Achievement questions ACBG09 and ACBG02, 2016 School Context Data Almanac by Reading Achievement questions ACBG11 and ACBG02

The availability of resources cannot tell us about the use of computers by pupils in terms of frequency of use, competency among pupils and usefulness of resources used by pupils, rather, how many are available for use.

Internationally, access to computers averaged to 2.0 pupils per computer compared with 1.5 pupils per computer in Northern Ireland. Of the comparator countries, only the Republic of Ireland (1.9 pupils per computer) reported lower availability than Northern Ireland. All other comparator countries had greater access to computers, with Singapore having the greatest access (0.9 pupils per computer).

Of all PIRLS countries, the four with the highest availability of computers all had no more than one pupil per computer. The countries with the greatest access to computers were Singapore, the United States, Sweden and Hong Kong, SAR (all with 0.9 pupils per computer).

Since 2016, changes in computer availability have varied. Access in Northern Ireland in 2021 (1.5 pupils per computer) was similar to 2016 (1.4 pupils per computer). Of the comparator countries, only Poland increased computer access since 2016 (from 2.2 to 1.4 pupils per computer). Of all PIRLS countries, Kazakhstan, Latvia and Saudi Arabia have noticeably increased computer access since 2016, more than halving the average number of pupils per computer. In contrast, Morocco, Georgia and Bahrain reported less computer access in 2021 than in 2016.

10.3. Access to digital devices for reading

Interpreting the data: percentages in tables related to teacher findings

The data in this section are derived from teachers' responses. Reported percentages refer to pupils and can be interpreted as the percentage of pupils whose teachers reported a particular practice or circumstance.

PIRLS pupils were sampled by class. The teacher questionnaire in Northern Ireland was distributed to the Year 6 teacher who had taught pupils reading during the 2020/21 academic year. (See note on context questionnaires at the beginning of this chapter.)

Teachers were asked whether digital devices (computers, laptops or tablets) were available during the 2020/21 academic year for pupils to use during reading lessons and which of the following types of access pupils had:

- The school provided each pupil with a digital device.
- The class had digital devices that pupils could share.
- The school had digital devices that the class could sometimes share.
- Pupils brought their own digital devices.

Teachers could indicate more than one type of access. The results for Northern Ireland and the international average are shown in Table 10.4.

Table 10.4 Access to digital devices for reading lessons

Percentage of pupils based on teachers' responses

-	Overall access to digital devices for reading instruction (%)	Of pupils with access: The school provides each pupil with a digital device (%)	Of pupils with access: The class has digital devices that pupils can share (%)	Of pupils with access: The school has digital devices that the class can use sometimes (%)	Of pupils with access: Pupils bring their own digital devices (%)
Northern Ireland	70	16	89	83	4
International average	55	39	52	79	25

Teachers could indicate more than one type of access.

Source: 2021 Teacher Context Data Almanac questions ATBR12A, ATBR12BA, ATBR12BB, ATBR12BC, ATBR12BD

In Northern Ireland, 70 per cent of pupils could access digital devices during reading lessons. This was greater than the international average (55 per cent), indicated by a large difference. For this subset of pupils, teachers were asked about the way in which they accessed these devices. The majority of this group of pupils had digital devices for the class⁶⁵ that pupils could share for reading lessons (89 per cent) or their class could sometimes use the school's digital devices (83 per cent). A minority of these pupils (16 per cent) had teachers who reported that *each pupil* had access to a digital device for use in reading lessons (i.e., each pupil had access to an individual device). Only four per cent of pupils had teachers who reported that pupils brought *their own digital devices*. Internationally, more pupils had teachers who reported that *each pupil* had access to an individual digital device (39 per cent) and that pupils brought *their own digital devices* (25 per cent) than in Northern Ireland.

⁶⁵ This question does not determine how many digital devices are within this class set. It may be a small number which pupils take turns accessing or it may be a larger set which can be shared more widely amongst pupils (e.g., two pupils per device).

10.3.1. Access to digital learning resources

As well as pupils' access to school library facilities and printed books (see Chapter 8), principals were asked whether their school provided pupils with access to digital learning resources. In 2021, they were asked about access to digital learning resources (e.g., books, videos). In 2016, they were asked about access to digital books specifically. Table 10.5 **Error! Reference source not found.** shows the percentages of pupils whose principal responded *Yes* to this question in 2021 and in 2016 for Northern Ireland, comparator countries and the international average⁶⁶. Countries are in alphabetical order.

Table 10.5 Access to digital resources

Percentage of pupils based on principals' responses. In PIRLS 2021, countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland) and countries in green (Australia and England) assessed one year later than originally scheduled with pupils towards the end of Grade 4 (Year 6 in Northern Ireland).

Country	2021: Access to digital learning resources (%)	2016: Access to digital books (%)
Australia	94	59
England	82	46
Finland	90	48
Northern Ireland	87	53
Poland	86	43
Republic of Ireland	79	19
Singapore	93	52
International average	80	41

Source: 2021 School Context Data Almanac by Reading Achievement question ACBG08, 2016 School Context Data Almanac by Reading Achievement question ACBG10

In 2021, in Northern Ireland, 87 per cent of pupils had principals who reported access to digital learning resources (e.g., books and videos) in their school. This was moderately higher than the international average (80 per cent). For most comparator countries, the majority of pupils attended schools where their principals indicated that pupils had access

⁶⁶ question not asked in PIRLS 2011

to digital learning resources; this ranged from 79 per cent in the Republic of Ireland to 94 per cent in Australia.

Both in Northern Ireland and internationally it appears that access to digital learning resources increased considerably between 2016 and 2021. The international average almost doubled, from 41 per cent to 80 per cent. However, it is important to note that the 2021 question was more inclusive, asking about digital learning resources such as books and videos, while the question in 2016 asked specifically about digital books.

10.4. Limitations on teaching – availability of technological resources

Principals reported the extent to which their school's capacity to provide teaching was affected by shortages or inadequacies of digital resources (limitations on teaching caused by resourcing issues is discussed in Chapter 8). Table 10.6 shows the percentages of pupils in schools where the principals reported that teaching was affected *A lot* by shortages of these specific technological resources for Northern Ireland, comparator countries and the international average. Countries are listed in alphabetical order.

Table 10.6 Limitations on teaching – availability of technological resources

Percentage of pupils whose principals reported teaching being affected *A lot* by shortages or inadequacies. Countries in pink (Northern Ireland and the Republic of Ireland) delayed assessment until the beginning of Grade 5 (Year 7 in Northern Ireland). Countries in green (Australia and England) assessed one year later than originally scheduled.

Country	Techno- logically competent staff (%)	Technology and media resources to support teaching (%)	Technology and media resources to support pupil learning and expression (%)	Internet connection (%)	Computer software/ applications for reading instruction (%)
Australia	6	5	8	8	4
England	3	7	7	7	5
Finland	1	2	1	4	1
Northern Ireland	3	6	5	16	5
Poland	2	4	4	4	6
Republic of Ireland	3	7	8	13	8
Singapore	14	17	16	23	5
International average	13	14	13	20	12

Source: 2021 School Context Data Almanac by Reading Achievement questions ACBG10AF, ACBG10AG, ACBG10AH, ACBG10AJ, ACBG10BB

In Northern Ireland, the biggest issue in terms of digital resources was *A shortage or inadequacy of internet connection*; 16 per cent of pupils were taught in schools affected *A lot* by internet shortages or inadequacies. This is lower than the international average of 20 per cent, indicating a small difference. This was an issue for a similar proportion of pupils in the Republic of Ireland (13 per cent) and less of an issue than for pupils in Singapore (23 per cent), the difference being moderate. Data about difficulties with internet connection were not collected in 2016.

Across all other PIRLS 2021 countries, difficulties with internet connectivity were mixed. In five countries, more than half of pupils were taught in schools affected *A lot* by challenges

surrounding internet connectivity (Hong Kong SAR, Macao SAR, North Macedonia, Saudi Arabia and Turkey). However, in Belgium (Flemish), Denmark, Norway, Czech Republic and Slovenia, less than two per cent of pupils were taught in schools affected *A lot* by challenges surrounding internet connectivity.

For the other digital resources listed in Table 10.6, between three and six per cent of pupils in Northern Ireland were taught in schools where principals indicated that the capacity to provide teaching was affected *A lot* by a shortage or inadequacy of each resource. This is similar to 2016, when shortages or inadequacies of each digital resource were reported by principals for three to seven per cent of pupils. Of the comparator countries, a larger share of pupils in Singapore were taught in schools where principals indicated that teaching was affected by most shortages or inadequacy of these digital resources *A lot*. The figures for Northern Ireland overall were lower than the international average, indicated by moderate to large differences.

10.5. Conclusion

The majority of pupils in Northern Ireland had good access to computers and digital resources both at home and in school. At home, almost all pupils had an internet connection, while most had their own computer or tablet, both at higher rates than the international average. This suggests that most pupils had a way of accessing educational material online. At school, access to digital resources was also good.

Northern Ireland had better computer availability than the international average, with 1.5 pupils per computer. However, in several countries, availability levels were higher.

Overall, access to digital devices for reading instruction was higher for pupils in Northern Ireland than on average internationally. However, access to one device per pupil, either provided by the school or brought by the pupil, was lower in Northern Ireland than on average internationally.

Pupils in most schools had good access to digital devices for reading lessons, digital learning resources for pupils, technology for teaching and learning (including teaching reading), and technologically competent staff. However, one in six pupils (16 per cent) were taught in schools where principals reported that issues with internet connectivity significantly affected teaching. This may have been related to an increased use of the internet for remote learning, such as high bandwidth synchronous teaching during school closures. Caution should be applied in comparing trends over time, due to changes in questions which reflect changes in technology (such as the increased use of tablets), but digital access in Northern Ireland has broadly remained good since 2016.

11. The curriculum and learning activities

Chapter outline

This chapter presents findings from PIRLS 2021 relating to teaching practices and the curriculum for reading in Year 6 in Northern Ireland, as reported by teachers and principals.

Key findings

- Teachers in Northern Ireland spent 27 per cent of teaching time on English language teaching, and 15 per cent on teaching reading specifically (including reading across the curriculum). These figures are similar to those in 2016 (27 per cent and 14 per cent respectively) and 2011 (28 per cent and 16 per cent respectively).
- Of the 14 identified skills and strategies for reading, seven were emphasised one grade (year group) earlier in Northern Ireland than on average internationally.
- In Northern Ireland, two of the skills and strategies for reading (*Evaluating and critiquing the style or structure of a text* and *Determining the author's perspective or intention*) were introduced in Year 5; the remaining 12 were introduced earlier.
- Pupils in Northern Ireland are required to practise a wide range of comprehension skills and strategies. All or almost all pupils are asked to *Locate information* in a text (100 per cent), *Explain or support their understanding with text evidence* (99 per cent) and *Identify the main ideas of what they have read* (97 per cent) at least weekly. The least frequently taught comprehension skills and strategies in Northern Ireland relate to *Determining the purpose* and *Evaluating the credibility of websites*, with only a minority of pupils (33 per cent and 24 per cent respectively) practising these skills weekly.
- Same-ability grouping is most commonly used to arrange pupils in reading lessons in Northern Ireland, with four-fifths (85 per cent) being taught this way *Always* or *Often*. Around half of pupils frequently engaged with whole-class teaching and independent work in reading lessons (57 and 49 per cent respectively) and two-fifths (40 per cent) had individualised instruction. Approximately one fifth of pupils in Northern Ireland (22 per cent) are frequently taught reading in mixed-ability groups.

Interpreting the data: percentages in tables related to teacher findings

The data in this section are derived from teachers' responses. Reported percentages refer to pupils and can be interpreted as the percentage of pupils whose teachers reported a particular practice or circumstance.

PIRLS pupils were sampled by class. The teacher questionnaire in Northern Ireland was distributed to the Year 6 teacher who taught pupils reading during the 2020/21 academic year. (See the below note on context questionnaires.)

Interpreting the data: differences

In this section, we do not report whether differences are statistically significant as, due to the large sample sizes, small differences can be statistically significant but not meaningful from a policy or practice perspective. Instead, we report on the size of differences. Throughout the remainder of the chapter, differences of three percentage points or less may be described as similar, differences of four to six percentage points as small, differences of seven to nine percentage points as moderate, and differences of ten or more percentage points as large.

A note on the PIRLS 2021 context questionnaires

The Northern Ireland home, school and teacher questionnaires asked respondents to consider the 2020/21 academic year where questions referred specifically to periods in time. This meant the questionnaires captured details about pupils in Year 6 (international Grade 4) and were therefore comparable to other countries.

An important note on trend comparisons of findings from the context questionnaires

PIRLS provides the opportunity to explore additional contextual factors which may impact on attainment, such as attitudes to reading and home and school learning environments. It also provides the opportunity to observe these factors within participating countries over time.

It is important to note, however, that the situation or context in which respondents are answering (pupils, principals, teachers and parents) may also have changed over that time. For example, pupils in 2016 who were responding to questions about liking reading, may have largely considered printed materials such as books and magazines. In 2021,

pupils responding to the same questions may now consider browsing the internet or reading online articles as ‘reading’. Caution is therefore advised when considering the trends over time in relation to the questionnaires.

11.1. Teaching time

Total teaching time⁶⁷ for reading and English⁶⁸, as reported by principals and teachers, was calculated using the formula shown in Figure 11.1.

Figure 11.1 Formula for calculation of teaching time

Total Instruction Hours per Year	=	Principal Reports of School Days per Year	x	Principal Reports of Instruction Hours per Day
Language Instruction Hours per Year	=	$\frac{\text{Teacher Reports of Weekly Language Instruction Hours, Including Reading, Writing, Speaking, Literature, and Other Language Skills}}{\text{Principal Reports of School Days per Week}}$	x	Principal Reports of School Days per Year
Reading Instruction Hours per Year	=	$\frac{\text{Teacher Reports of Weekly Reading Instruction Hours, Including Reading Across the Curriculum}}{\text{Principal Reports of School Days per Week}}$	x	Principal Reports of School Days per Year

Source: Adapted from Exhibit 9.1, PIRLS 2016 International Results in Reading (Mullis, Martin, Foy, et al., 2017)

Table 11.1 shows the total teaching hours per year and total teaching time for reading and English teaching reported by principals and teachers in Northern Ireland in 2021, 2016 and 2011. Table 11.2 shows the international average.

⁶⁷ Teaching time is referred to as ‘instructional time’ in the international data.

⁶⁸ English is referred to as ‘Language’ in the international data.

Table 11.1 Teaching time in Year 6 – Northern Ireland

Northern Ireland	Total teaching hours per year All subjects	English teaching Hours per year	English teaching Total teaching time (%)	Reading teaching Hours per year	Reading teaching Total teaching time (%)
2021	969	264	27	141	15
2016	958	257	27	137	14
2011	970	274	28	155	16

Source: 2021 School Context Data Almanac by Reading Achievement variable ACDGTIHY; 2021 Teacher Context Data Almanac by Reading Achievement questions variable ATDGLIHY and ATDGRIHY; Exhibit 9.1, PIRLS 2016 International results in Reading (Mullis, Martin, Foy, *et al.*, 2017) and Exhibit 8.4 PIRLS 2011 International results in Reading (Mullis, Martin, *et al.*, 2012)

On average, 27 per cent of teaching time was spent on English⁶⁹ teaching (including reading, writing, speaking, literature and other language skills) for Year 6 pupils in Northern Ireland in 2021. The proportion of English teaching has remained similar over the last decade, with 27 per cent of teaching time spent on English teaching in 2016, and 28 per cent in 2011. The proportion of time spent on English teaching in Northern Ireland was similar to the international average (26 per cent in 2021) (Table 11.2).

⁶⁹ Communication in English in the Northern Ireland Curriculum

Table 11.2 Teaching time in Year 6 – international average

International average	Total teaching hours per year All subjects	Language teaching Hours per year	Language teaching Total teaching time (%)	Reading teaching Hours per year	Reading teaching Total teaching time (%)
2021	869	227	26	139	16
2016	898	242	27	156	18
2011	905	232	26	146	16

Source: 2021 School Context Data Almanac by Reading Achievement questions ACBG06A, ACBG06B, ACBH06C; 2021 Teacher Context Data Almanac by Reading Achievement questions ATBR04, ATBR05; Exhibit 9.1, PIRLS 2016 International reading report (Mullis, Martin, Foy, *et al.*, 2017), Exhibit 8.4 PIRLS 2011 international reading report (Mullis, Martin, *et al.*, 2012).

Teachers were also asked how much time they spent specifically teaching reading, including reading across the curriculum. Teachers in Northern Ireland spent an average of 15 per cent of the total number of hours available doing this and this has remained similar over the last decade (14 per cent in 2016 and 16 per cent in 2011). The proportion of time spent on teaching reading in Northern Ireland was also similar to the international average (16 per cent in 2021).

11.2. Emphasis in early years on reading skills and strategies

In order to investigate the teaching of early reading skills and strategies, principals were asked to report the grade at which the teaching of a range of specific skills was emphasised. The equivalent Northern Ireland year groups are shown for each grade in Table 11.3⁷⁰.

⁷⁰ The questionnaires were adapted for use in Northern Ireland and showed the Northern Ireland equivalent year group as in Table 11.3.

Table 11.3 International grade equivalents in Northern Ireland

Grade	Equivalent year group in Northern Ireland
Grade 1 or earlier	Year 3 or earlier
Grade 2	Year 4
Grade 3	Year 5
Grade 4	Year 6

Source: NFER

Table 11.4 shows the grade reported in Northern Ireland, comparator countries and the international average in which each skill or strategy is emphasised for at least 50 per cent of pupils. Where the proportion of pupils spans multiple grades, it is the grade by which at least 50 per cent of pupils would have covered that skill or strategy. For ease of interpreting, Northern Ireland is presented in the first column, followed by the comparator countries

Table 11.4 Emphasis in early years on reading skills and strategies

Reported by principals. Grades indicated by principals in which each skill or strategy is emphasised for at least 50 per cent of pupils.

	Northern Ireland	Australia	England	Finland	Poland	Republic of Ireland	Singapore	International average
Knowing letters of the alphabet	1	1	1	1	1	1	1	1
Knowing letter-sound relationships	1	1	1	1	1	1	1	1
Reading words	1	1	1	1	1	1	1	1
Reading isolated sentences	1	1	1	1	1	1	1	1
Reading connected text	1	1	1	2	1	1	1	1
Locating information within the text	1	1	1	2	2	2	1	2
Identifying the main idea of a text	1	1	1	2	2	2	2	2
Explaining or supporting understanding of a text	2	1	2	3	2	2	2	2
Comparing a text with personal experience	2	1	1	3	2	2	1	2
Comparing different texts	2	1	2	3	3	3	3	3

-	Northern Ireland	Australia	England	Finland	Poland	Republic of Ireland	Singapore	International average
Making predictions about what will happen next in a text	1	1	1	3	2	1	1	2
Making generalisations and drawing inferences based on a text	2	1	2	4	3	3	3	3
Evaluating and critiquing the style or structure of a text	3	2	3	4	4	3	4	4
Determining the author's perspective or intention	3	2	3	[N]	4	3	4	4

[N] = 'Not in these grades'. The options presented to principals ranged from grades 1 to 4 plus the option of 'Not in these grades'.

Source: 2021 School Context Data Almanac by Reading Achievement questions ACBG14A, ACBG14B, ACBG14C, ACBG14D, ACBG14E, ACBG14F, ACBG14G, ACBG14H, ACBG14I, ACBG14J, ACBG14K, ACBG14L, ACBG14M, ACBG14N

Principals' responses in Northern Ireland in 2021 and internationally were identical to the findings from 2016⁷¹. This suggests that the approach to teaching reading has remained consistent with that used in 2016.

Principals in Northern Ireland reported that eight of the 14 skills and strategies were emphasised by Grade 1 or earlier (Year 3 or earlier). This was in line with the international pattern, on average, except for three reading skills (*Locating information within the text*, *Identifying the main idea in a text* and *Making predictions about what will happen next in a text*) which were more often emphasised in Grade 1 (Year 3) in Northern Ireland but a grade later internationally.

Northern Ireland also differed from the comparator countries across these three skills and strategies. In Northern Ireland, they were emphasised in Grade 1 or earlier. Principals in the Republic of Ireland, Finland and Poland identified that the skill *Locating information within the text* was emphasised more often in Grade 2; principals in the Republic of Ireland, Finland, Poland and Singapore identified that the skill *Identifying the main idea of a text* was emphasised more often in Grade 2; and principals in Finland identified that *Making predictions about what will happen next in a text* was emphasised more often in Grade 3.

Four skills and strategies were emphasised most often for at least 50 per cent of the pupils in Grade 2 (Year 4) in Northern Ireland, two of which, *Comparing different texts* and *Making generalisations and drawing inferences based on a text*, were, again, generally emphasised one grade later internationally. For *Comparing different texts*, principals in the Republic of Ireland, Finland, Poland and Singapore reported that this strategy was emphasised in Grade 3, in line with the international average and a grade later than in Northern Ireland. Principals in Australia, however, indicated this strategy was emphasised more often in Grade 1, a grade earlier than in Northern Ireland. For the skill *Making generalisations and drawing inferences based on a text*, emphasis ranged from Grades 1 to 4 across comparator countries.

The skills *Evaluating and critiquing the style or structure of a text* and *Determining the author's perspective or intention* were emphasised most often in Grade 3 (Year 5) in Northern Ireland. Across comparator countries these skills differed in the grade in which they were most often taught. Compared to Northern Ireland, these skills were emphasised earlier in Australia, but emphasised later in Finland, Poland and Singapore, and on average internationally.

⁷¹ The wording for one item has slightly changed in 2021 '*Evaluating and critiquing the style or structure of a text*' compared with 2016 '*Describing the style or structure of a text*'. This did not change the grade/year group in which principals reported this skill as being first emphasised in the curriculum.

11.3. Teachers' focus on specific comprehension skills and strategies

In order to assess how teachers develop pupils' reading comprehension skills, they were asked to specify the frequency with which pupils in their Year 6 classes were asked to practise a range of 12 reading skills. These skills ranged from the ability to locate and retrieve information to those requiring comparisons and analysis. Table 11.5 shows the proportion of pupils who were given these tasks at least once a week by their teachers in Northern Ireland and Table 11.6 shows the international average. Table 11.5 is in descending order, based on the proportion of pupils in each skill or category for 2021. This order is replicated for Table 11.6.

Table 11.5 Teachers' development of pupils' reading comprehension skills and strategies – Northern Ireland

Reported by teachers

Northern Ireland	Asked at least once a week 2021 (% pupils)	Asked at least once a week 2016 (% pupils)	Asked at least once a week 2011 (% pupils)
Locate information within the text	100	99	99
Explain or support their understanding with text evidence	99	98	98
Identify the main ideas of what they have read	97	96	94
Make predictions about what will happen next in the text they are reading	94	93	84
Make generalisations and draw inferences based on what they have read	92	86	82
Compare what they have read with experiences they have had	77	78	67
Self-monitor their reading (e.g., recognise when they don't understand)	71	-	-
Compare what they have read with other things they have read	70	78	59
Determine the author's perspective or intention	65	67	50
Evaluate and critique the style or structure of the text they have read [C]	54	73	64

Northern Ireland	Asked at least once a week 2021 (% pupils)	Asked at least once a week 2016 (% pupils)	Asked at least once a week 2011 (% pupils)
Determine if a website is useful for a specific purpose	33	-	-
Evaluate the credibility of a website	24	-	-

Three items were not asked in previous cycles.

[C] = Caution should be taken in comparing these responses due to a change in wording for the 2021 cycle. In 2016 and 2011, the statement was worded as 'Describe the style or structure of the text'. In 2021 'Describe' was replaced with 'Evaluate and critique'.

Source: 2021 Teacher Context Data Almanac by Reading Achievement questions ATBR10A, ATBR10B, ATBR10C, ATBR10D, ATBR10E, ATBR10F, ATBR10G, ATBR10H, ATBR10I, ATBR10J, ATBR10K, ATBR10L; 2016 Teacher Context Data Almanac by Reading Achievement questions ATBR12A, ATBR12B, ATBR12C, ATBR12D, ATBR12E, ATBR12F, ATBR12G, ATBR12H, ATBR12I; 2011 Teacher Context Data Almanac by Reading Achievement questions ATBR09A, ATBR09B, ATBR09C, ATBR09D, ATBR09E, ATBR09F, ATBR09G, ATBR09H, ATBR09I

For pupils in Northern Ireland, *Locate information within the text* and *Explain or support their understanding with text evidence* were the aspects taught most to Year 6 pupils at least once a week (100 per cent and 99 per cent of pupils, respectively). These aspects were also amongst the most commonly taught to pupils internationally (97 and 94 per cent respectively).

The skills and strategies taught least in Year 6 in Northern Ireland (at least once a week) were website evaluation: *Determine if a website is useful for a specific purpose* (33 per cent) and *Evaluate the credibility of a website* (24 per cent). These strategies were also the least commonly taught internationally (43 per cent and 34 per cent respectively).

Other skills and strategies were taught to a greater or lesser extent in Northern Ireland compared to the international average. *Make predictions about what will happen next in the text they are reading* was taught in Northern Ireland at least once a week to 94 per cent of pupils compared to 80 per cent internationally, representing a large difference. Only 71 per cent of pupils were taught weekly to *Self-monitor their reading* in Northern Ireland, compared to 80 per cent internationally and indicating a moderate to large difference.

Table 11.6 Teachers development of pupils' reading comprehension skills and strategies – international average

International average	Asked at least once a week 2021 (% pupils)	Asked at least once a week 2016 (% pupils)	Asked at least once a week 2011 (% pupils)
Locate information within the text	97	96	96
Explain or support their understanding with text evidence	94	95	95
Identify the main ideas of what they have read	95	94	95
Make predictions about what will happen next in the text they are reading	80	77	74
Make generalisations and draw inferences based on what they have read	85	82	80
Compare what they have read with experiences they have had	85	83	82
Self-monitor their reading (e.g., recognise when they don't understand)	80	-	-
Compare what they have read with other things they have read	76	74	70
Determine the author's perspective or intention	69	65	63
Evaluate and critique the style or structure of the text they have read [C]	65	68	66
Determine if a website is useful for a specific purpose	43	-	-
Evaluate the credibility of a website	34	-	-

[C] = Caution should be taken in comparing these responses due to a change in wording for the 2021 cycle. In 2016 and 2011, the statement was worded as 'Describe the style or structure of the text'. In 2021 'Describe' was replaced with 'Evaluate and critique'.

Three items were not asked in previous cycles.

Source: 2021 Teacher Context Data Almanac by Reading Achievement questions ATBR10A, ATBR10B, ATBR10C, ATBR10D, ATBR10E, ATBR10F, ATBR10G, ATBR10H, ATBR10I, ATBR10J, ATBR10K, ATBR10L; 2016 Teacher Context Data Almanac by Reading Achievement questions ATBR12A, ATBR12B, ATBR12C, ATBR12D, ATBR12E, ATBR12F, ATBR12G, ATBR12H, ATBR12I; 2011 Teacher Context Data Almanac by Reading Achievement questions ATBR09A, ATBR09B, ATBR09C, ATBR09D, ATBR09E, ATBR09F, ATBR09G, ATBR09H, ATBR09I

For six of the nine skills and strategies reported across cycles, findings in Northern Ireland in 2021 were similar to those from 2016. Over the last decade, there has been a moderate to large increase in pupils who were asked weekly to *Make generalisations and draw inferences based on what they have read* (82 per cent in 2011, 86 per cent in 2016 and 92 per cent in 2021). Between 2016 and 2021, there was a moderate decrease in pupils who were asked to *Compare what they have read with other things they have read* (78 per cent in 2016 and 70 per cent in 2021). However, the 2021 proportions were still higher than those in 2011 (59 per cent).

11.4. Classroom practices for teaching reading

Information was gathered regarding some practices used for teaching reading. This included ways in which pupils were organised for reading lessons and the types of texts teachers used with their classes.

11.4.1. Organising pupils for teaching reading

To provide insights into the organisational classroom practices for teaching reading, teachers were asked how frequently they *Teach reading as a whole-class activity*, *Create same-ability groups*, *Create mixed-ability groups*, *Use individualised instruction* and *Have pupils work independently on an assigned plan or goal*. Table 11.7 shows the findings from Northern Ireland ordered from the most common ways of organising pupils to the least common. Table 11.8 presents the average responses by teachers internationally.

Table 11.7 Organising pupils for reading lessons – Northern Ireland

Reported by teachers

Northern Ireland	Always /almost always 2021 (%)	Always/ almost always 2016 (%)	Often 2021 (%)	Often 2016 (%)	Some-times 2021 (%)	Some-times 2016 (%)	Never 2021 (%)	Never 2016 (%)
Create same-ability groups	44	55	41	37	13	7	3	1
Pupils work independently	12	10	37	54	48	30	3	6
Whole class activity	10	7	48	40	40	45	3	9
Individualised instruction	10	13	30	27	58	59	3	2
Create mixed-ability groups	4	1	17	25	64	63	14	12

Source: 2021 Teacher Context Data Almanac by Reading Achievement questions ATBR06A, ATBR06B, ATBR06C, ATBR06D, ATBR06E. 2016 Teacher Context Data Almanac by Reading Achievement questions ATBR08A, ATBR08B, ATBR08C, ATBR08D, ATBR08E

Table 11.8 Organising pupils for reading lessons – international average

International average	Always /almost always 2021 (%)	Always/ almost always 2016 (%)	Often 2021 (%s)	Often 2016 (%s)	Some-times 2021 (%)	Some-times 2016 (%)	Never 2021 (%s)	Never 2016 (%)
Create same-ability groups	11	10	29	29	44	45	17	15
Pupils work independently	19	14	43	46	33	35	6	5
Whole class activity	41	31	40	44	17	22	2	3
Individualised instruction	19	13	34	32	39	47	8	8
Create mixed-ability groups	14	12	35	36	42	44	10	8

Source: 2021 Teacher Context Data Almanac by Reading Achievement questions ATBR06A, ATBR06B, ATBR06C, ATBR06D, ATBR06E. 2016 Teacher Context Data Almanac by Reading Achievement questions ATBR08A, ATBR08B, ATBR08C, ATBR08D, ATBR08E

In Northern Ireland in 2021, reading was most commonly taught in same-ability groups. This grouping was used *Always or almost always* to teach 44 per cent of pupils, and at least *Often* to teach 85 per cent of pupils. In 2016, 55 per cent of pupils were *Always or almost always* taught in same-ability groups and 92 per cent were at least *Often* taught in same-ability groups. Pupils in Northern Ireland have been consistently more likely to be taught reading in same-ability groups compared to pupils on average internationally. In 2021, only 40 per cent of pupils were *Always* or *Often* taught in same-ability groups internationally, a large difference compared to 85 per cent in Northern Ireland.

In Northern Ireland about half of pupils *Always* or *Often* had whole-class teaching (57 per cent⁷²) and independent work (49 per cent), and two-fifths (40 per cent) had individualised instruction. Internationally, whole-class teaching was the most common method used to organise pupils, with teachers of 81 per cent of pupils using this *Always* or *Often*. The least common arrangement in Northern Ireland was mixed-ability groups, which teachers of only 22 per cent⁷³ of pupils used *Always* or *Often*, while teachers of 14 per cent of pupils *Never*

⁷² after taking into account the rounding of figures

⁷³ after taking into account the rounding of figures

used it. This is much lower than the international average of 49 per cent of pupils taught in mixed-ability groups *Always* or *Often*, indicated by a large difference.

11.5. Conclusion

The proportion of teaching time spent on English teaching has remained similar across the last three cycles of PIRLS in Northern Ireland (2021, 2016, 2011). This is also the case for the proportion of teaching time spent specifically on reading, including reading across the curriculum.

The sequencing, across grades, of the reading skills and strategies within the primary curriculum in Northern Ireland is broadly similar to comparator countries and the average internationally. At least half of the reading skills and strategies are taught in the same grade in Northern Ireland and in similar countries such as the Republic of Ireland and England, and on average internationally.

Pupils in Northern Ireland are taught to practise a broad range of reading skills and strategies, with teachers reporting that more than half of pupils are taught, at least once a week, about each reading skill and strategy, apart from two related to websites.

Pupils in 2021 were most commonly taught reading in same-ability groups as was the case in 2016. However, in 2021, there was a lower use of same-ability grouping reported compared to 2016, indicated by a large difference. This approach is still much more common in Northern Ireland compared to pupils across the world.

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Appendix A – Progress in International Reading Literacy Study (PIRLS) 2021: Overview

A.1 Introduction

PIRLS 2021 is the fifth in the IEA's⁷⁴ series of comparative international surveys of reading achievement. PIRLS is administered on a five-yearly cycle, and Northern Ireland has participated in the 2021, 2016 and 2011 cycles. Earlier cycles of PIRLS took place in 2006 and 2001, however Northern Ireland did not participate. The next PIRLS cycle is planned for 2026.

More details about the study are included below.

A.2 PIRLS 2021 participants

PIRLS 2021 involved a total of 57 countries and eight benchmarking participants⁷⁵. Participants were varied, ranging from highly developed countries or regions through to developing ones. Their education systems also varied, differing for example in the age at which children start school. More information about the education system in each participating country and region can be found in the PIRLS 2021 Encyclopedia (Reynolds *et al.*, 2022).

Due to the school disruption and closures caused by the Covid-19 pandemic, PIRLS 2021 data collection extended over 22 months from October 2020 to July 2022. This was because some countries' data collection periods were delayed. Table A.1 gives the list of participants in PIRLS 2021, details about when their data collection period was and whether they participated in the paper or digital assessment. Northern Ireland is emphasised with a black outline.

⁷⁴ International Association for the Evaluation of Educational Achievement (IEA): see [About IEA](#)

⁷⁵ Countries participating in PIRLS follow guidelines and strict sampling targets to provide samples that are nationally representative. 'Benchmarking participants' are regional entities which follow the same guidelines and targets to provide samples that are representative at regional level.

Table A.1 Countries and benchmarking participants that took part in PIRLS 2021

Country	Data collection period	Digital or paper	Average age at time of testing	PIRLS 2021 reporting group ⁷⁶
Albania	March to April 2021	Paper	10.0	Group 1
Australia	September to December 2021	Paper	10.0	Group 3
Austria	April to May 2021	Paper	10.3	Group 1
Azerbaijan	April to June 2021	Paper	10.1	Group 1
Bahrain	May to June 2021 September to October 2021	Paper	10.3	Group 2
Belgium (Flemish)	April to June 2021	Digital	10.0	Group 1
Belgium (French)	April to May 2021	Paper	10.0	Group 1
Brazil	November to December 2021	Paper	10.2	Group 3
Bulgaria	March to April 2021	Paper	10.7	Group 1
Chinese Taipei	March to May 2021	Digital	10.1	Group 1
Croatia	October to November 2021	Digital	11.2	Group 2
Cyprus	March to June 2021	Paper	9.8	Group 1
Czech Republic	May to June 2021	Digital	10.4	Group 1
Denmark	March to June 2021	Digital	10.9	Group 1
Egypt	April 2021	Paper	10.0	Group 1
England	May to July 2022	Paper	10.3	Group 3
Finland	March to June 2021	Digital	10.8	Group 1
France	May to June 2021	Paper	9.9	Group 1
Georgia	October to December 2021	Paper	10.6	Group 2
Germany	April to July 2021	Digital	10.4	Group 1
Hong Kong, SAR	April to July 2021	Paper	10.1	Group 1
Hungary	October to November 2021	Digital	11.2	Group 2

⁷⁶ See the Introduction of this report for full details of each group.

Country	Data collection period	Digital or paper	Average age at time of testing	PIRLS 2021 reporting group ⁷⁶
Iran, Islamic Rep. of	April to May 2022	Paper	10.2	Group 3
Israel	May to June 2022	Digital	10.0	Group 3
Italy	March to May 2021	Digital	9.8	Group 1
Jordan	May 2021	Paper	10.0	Group 1
Kazakhstan	September to October 2021	Digital	10.8	Group 2
Kosovo	June 2021	Paper	10.1	Group 1
Latvia	September to November 2021	Paper	11.3	Group 2
Lithuania	September to November 2021	Digital	11.3	Group 2
Macao, SAR	March to May 2021	Paper	9.9	Group 1
Malta	April to May 2021	Digital	9.9	Group 1
Montenegro	April to May 2021	Paper	9.9	Group 1
Morocco	October 2021	Paper	10.5	Group 2
Netherlands	March to June 2021 October to November 2021	Paper	10.1	Group 1
New Zealand	October to December 2020	Digital	10.0	Group 1
North Macedonia	May 2021	Paper	9.9	Group 1
Northern Ireland	September to October 2021	Paper	10.8	Group 2
Norway (Grade 5)	April to June 2021	Digital	10.8	Group 1
Oman	February to May 2021	Paper	9.8	Group 1
Poland	May to June 2021	Paper	10.9	Group 1
Portugal	April to July 2021	Digital	10.1	Group 1
Qatar	March to April 2021 September 2021	Digital	10.1	Group 2
Republic of Ireland	September to October 2021	Paper	11.0	Group 2

Country	Data collection period	Digital or paper	Average age at time of testing	PIRLS 2021 reporting group ⁷⁶
Russian Federation	April 2021	Digital	10.8	Group 1
Saudi Arabia	November 2021	Digital	10.4	Group 2
Serbia	March to April 2021	Paper	10.6	Group 1
Singapore	October to November 2020	Digital	10.4	Group 1
Slovak Republic	May to June 2021	Digital	10.5	Group 1
Slovenia	March to June 2021	Digital	10.0	Group 1
South Africa	August to November 2021	Paper	10.2	Group 3
Spain	April to June 2021	Digital	9.9	Group 1
Sweden	March to April 2021	Digital	10.7	Group 1
Turkey	June 2021	Paper	9.9	Group 1
United Arab Emirates	February to March 2021 October to November 2021	Digital	10.4	Group 2
United States ⁷⁷	October to November 2021	Paper (bridge data)	10.7	Group 2
Uzbekistan	April 2021	Paper	10.6	Group 1
Benchmarking participants				
Alberta, Canada	April to June 2021	Digital	9.9	Group 1
British Columbia, Canada	April to May 2021	Digital	9.8	Group 1
Newfoundland and Labrador, Canada	May to June 2021	Digital	9.9	Group 1
Quebec, Canada	October to December 2021	Digital	10.7	Group 2

⁷⁷ The United States administered the PIRLS 2021 digital assessment and the PIRLS 2021 paper bridge assessment (see A.3 for details of the bridge sample). The United States opted to report the paper bridge scores.

Country	Data collection period	Digital or paper	Average age at time of testing	PIRLS 2021 reporting group ⁷⁶
Moscow City, Russian Federation	April to May 2021	Digital	10.7	Group 1
South Africa (Grade 6)	August to October 2021	Paper	12.3	Group 3
Abu Dhabi, UAE	October to November 2021	Digital	10.4	Group 2
Dubai, UAE	February to March 2021 October to November 2021	Digital	10.2	Group 2

Source: Exhibit 1 and Exhibit A.1, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

A.3 Transition to digital assessment

PIRLS aims to evolve each cycle to ensure the content is relevant and that it reflects how pupils are engaging with reading materials in their everyday lives. Because of this, PIRLS 2021 included a transition to digital assessment, continuing from 2016 where e-PIRLS was introduced. Twenty-six countries and seven benchmarking entities participated in the digital assessment and 31 countries and one benchmarking entity continued to administer the assessment using paper booklets. Northern Ireland administered the assessment on paper in PIRLS 2021 (see Table A.1).

In the digital assessment pupils could freely navigate through the texts and activate a panel that presents the questions. These assessments were specifically designed to assess online informational reading, based on simulated internet websites about scientific and historical subject matter. The text ‘Oceans’, an example of the assessment, can be found on the [PIRLS international website](#).

Countries that administered the PIRLS digital assessment implemented a data collection design that involved two pupil samples: the main sample of about 4500 pupils and a second smaller ‘bridge’ sample of comparable quality (about 1500 pupils). Pupils in the main sample took the 2021 digital assessment, while the additional bridge sample was administered the paper format, with trend questions⁷⁸ only. For further information about the digital assessment see the PIRLS 2021 Assessment Frameworks (Mullis and Martin, 2019).

With the transition to the digital environment in PIRLS 2021, it was necessary to adapt past procedures and psychometric scaling approaches to accommodate the change from paper to digital assessment. More details can be found in the PIRLS 2021 Technical report (Bezirhan, Foy and von Davier, 2023).

A.3 Group adaptive design

When an assessment is much too difficult or too easy for a population, little information is available to accurately measure performance. The aim of the group adaptive design in PIRLS 2021 was to improve the match across countries between assessment difficulty and pupils’ levels of reading attainment.

The group adaptive design involved texts and questions being categorised as difficult, medium, and easy, and then combined into booklets of two levels, ‘more difficult’ and ‘less difficult’ (see Chapter 3 of the PIRLS 2021 Assessment Frameworks (Mullis and Martin,

⁷⁸ That is, questions which have only been included in earlier cycles of PIRLS, rather than new questions introduced for 2021.

2019)). The ‘more difficult’ booklets included difficult and medium texts and questions, and the ‘less difficult’ booklets included easy and medium texts and questions. All booklets (paper or digital) were administered in each country. Countries whose pupils have higher reading attainment, on average, distributed a higher proportion of the ‘more difficult’ booklets (70 per cent), and countries whose pupils have a lower average reading attainment distributed a higher proportion of the ‘less difficult’ booklets (70 per cent). Group adaptive design was used in Northern Ireland, as a high-attaining country.

Countries were not advantaged or disadvantaged by using this design, instead it provided a more accurate measure of performance. For more details see the PIRLS International Results in Reading (Mullis *et al.*, 2023) or the PIRLS 2021 Assessment Frameworks (Mullis and Martin, 2019).

A.4 PIRLS 2021 in the UK

The countries which comprise the United Kingdom are regarded separately by the IEA and, of the four, Northern Ireland and England chose to participate in PIRLS 2021. The 2021 cycle represented Northern Ireland’s third PIRLS participation, so comparisons can be made with the 2016 and 2011 cycle where appropriate. England has participated in all PIRLS cycles, so comparisons can be made with all earlier cycles where appropriate. Scotland previously participated in PIRLS in 2006 and 2001.

Outcomes from the 2016 and 2011 cycles of PIRLS in Northern Ireland can be found on the [NFER PIRLS website](#).

A.5 PIRLS 2021 sampling strategy

The PIRLS samples are drawn based on internationally specified criteria, and are designed to be representative of the national population of pupils in the target age group (or regional population for benchmarking participants). Each participating country and benchmarking entity is therefore expected to provide a sampling pool that covers all or almost all of the target national population. Where exclusions are considered necessary, these must be within set limits.

Exclusions may be for a variety of reasons, including:

- geographical (e.g., remote and/or very small schools may be excluded at sampling stage)
- linguistic (e.g., participants may exclude some language groups at sampling stage if they opt to translate the assessment into majority languages only and not all languages spoken within the country/region)

- special educational needs (e.g., special schools teaching pupils who cannot access the assessment may be excluded at sampling stage, or individual pupils who cannot access the assessment may be excluded at the administration stage).

The guidance for PIRLS stipulates that no more than five per cent of the population in total should be excluded across all stages of the survey. For more information see the technical report (Almaskut, LaRoche and Foy, 2023) and the Appendices of the PIRLS International Results in Reading (Mullis *et al.*, 2023).

Each participating country has a ‘main sample’ and two matched ‘replacement samples’ which are used if the main sample schools decline to participate. The main sample is designed to be nationally representative of pupils in the target age group and so the sampling criteria (‘stratifiers’) for each country are designed to address key characteristics of the nation’s school system⁷⁹. Each main sample school is then assigned a ‘first replacement’ school and a ‘second replacement’ school, both of which share the same key sampling characteristics as the main sample school. This ensures that, if the main sample school declines to participate, its first replacement school can be used instead and the sample will still be nationally representative. If the first replacement school also declines to participate, the second replacement school will be invited to participate and, again, the sample will remain nationally representative. If the second replacement school declines to participate, then the country cannot include any other school, to avoid skewing the sample.

Classes of pupils of the target age are then randomly sampled within the participating schools and 95 per cent of these classes are expected to take part. Within each sampled class, at least 85 per cent of pupils are expected to take part. Samples are inspected and, if they meet the sampling criteria, accepted by the IEA’s sampling referee.

In order to meet the stringent PIRLS participation targets, countries are expected to achieve participation of:

- at least 85 per cent of their main sample schools; 95 per cent of classes (main sample and replacement); and 85 per cent of pupils (main sample and replacement) OR
- a combined school, classroom, and pupil participation rate of at least 75 per cent, based on main sample schools (although classroom and pupil participation rates include matched replacement schools).

Participating countries achieving the above criteria are deemed to have met the sampling requirements fully. Those achieving at least 85 per cent with the use of replacement schools are deemed to have achieved a sample that is suitably representative at national

⁷⁹ Schools are sampled using systematic, random sampling with probability proportional to their measures of size.

level, and are ‘annotated’ in the PIRLS international report to indicate that replacement schools were used.

A.6 Northern Ireland’s PIRLS 2021 sample

Northern Ireland’s sampling strategy

The PIRLS sample for Northern Ireland was drawn by IEA Hamburg Sampling Unit and Statistics Canada assisted by the NISRA team, and by NFER Research and Statistics teams. The sample was stratified by region and deprivation level. Learning Support Centre classes were included in the sampling frame and were later excluded at the class level.

Schools were recruited by the NFER Research and Products Operations team. Once a school had agreed to participate, one or more Year 7 classes were randomly sampled using the IEA’s within-school sampling software. This selected the number of classes automatically. Pupils in the sampled classes were required to complete the PIRLS assessment in English.

The school sample was drawn in October 2020 when data collection was planned for May and June 2021. Once the decision was made to delay the data collection period, it was agreed, in consultation with Statistics Canada, that we could retain the original group of sampled schools. However, the class sampling was re-run to account for any movement of pupils and class composition between Year 6 and Year 7.

Northern Ireland’s sample

The sample in Northern Ireland met the international sampling standards described above, with the inclusion of replacement schools.

Table A.2 Northern Ireland school sample size

Number of schools in original sample	Number of eligible schools in original sample	Number of schools in original sample that participated	Number of replacement schools that participated	Total number of schools that participated
160	160	120	23	143

Source: Exhibit A.3, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Table A.3 Northern Ireland pupils sample size

Within-school pupil participation ⁸⁰ (%)	Number of pupils sampled in participating schools	Number of pupils withdrawn from class/school	Number of pupils excluded	Number of pupils eligible	Number of pupils absent	Number of pupils assessed
90	4698	42	150	4506	456	4050

Source: Exhibit A.4, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Table A.4 Northern Ireland participation rates (weighted)

School (before replacements) (%)	School (after replacements) (%)	Class (%)	Pupil (%)	Overall (before replacements) (%)	Overall (after replacements) (%)
74	90	100	90	67	81

Source: Exhibit A.5, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Of 160 schools sampled, a total of 143 primary schools took part (120 main sample schools and 23 replacement schools: 90 per cent after replacement). Class participation was 100 per cent and pupil participation 90 per cent (see Table A.4). Overall, participation was 67 per cent before replacement (81 per cent after), therefore exceeding the combined target of at least 75 per cent of pupils and schools once replacements were included.

Internationally, participation rates (after replacement) ranged from 64 per cent in the United States to 99 per cent in Uzbekistan.

Northern Ireland's absence rate was higher than in previous years. At the time of testing, Covid-19 was affecting schools, with staff and pupils required to stay at home if they had Covid-19 or had been identified as a close contact. This is likely to explain a higher absence rate.

⁸⁰ Weighted percentage

Table A.5 Coverage of Northern Ireland's population

International target population – coverage (%)	Exclusions from national target population – school-level exclusions (%)	Exclusions from national target population - within-sample exclusions (%)	Exclusions from national target population - overall exclusions (%)
100	2.2	3.4	5.5

Source: Exhibit A.2, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023)

Northern Ireland's exclusion rate was 5.5 per cent, which means the national defined population covered 90 to 95 per cent of the national target population. The highest exclusion rate was 25.7 per cent in Israel (this included 22.5 per cent at school level), followed by Singapore (14.5 per cent), Montenegro (13.5 per cent) and Serbia (12.0 per cent). This meant that, in these countries, the national defined population covered less than 90 per cent of the national target population (but at least 77 per cent). The lowest exclusion rates were seen in Bahrain (1 per cent) and Chinese Taipei (1.1 per cent).

Table A.6 Northern Ireland’s trend in pupil populations

Cycle	Average age at time of testing	Overall exclusion rate (%)	Absence rate ⁸¹ (%)	Overall participation rate (after replacement) (%)
2021	10.8	5.5	10.1	81
2016	10.4	3.0	4.6	84
2011	10.4	3.5	7.2	79

Source: Exhibit A.6, PIRLS 2021 International Results in Reading (Mullis *et al.*, 2023); Exhibit C.3, PIRLS 2016 International Results in Reading (Mullis, Martin, Foy, *et al.*, 2017); Exhibit C.4, PIRLS 2011 International Results in Reading (Mullis, Michael. O. Martin, *et al.*, 2012)

Table A.6 demonstrates the differences in the population of pupils in PIRLS 2021. Compared with previous cycles, pupils in Northern Ireland were 0.4 years older (between four and five months) which is due to the delay in the testing period. The average ages of pupils in the target grade within countries ranged from 9.8 (in Cyprus, Italy and Oman) to 11.3 years (in Latvia and Lithuania).

There was also a higher overall exclusion rate and absence rate.

In some circumstances, schools and pupils may be excluded from PIRLS. For pupils, this is because, in the opinion of an educational professional, they have a disability or language barrier that prevents them from accessing the assessment. The categories for exclusion are:

- pupils with a physical disability which acts as barrier to them participating in PIRLS and cannot be accommodated in the assessment situation
- pupils with an intellectual (cognitive) disability, i.e., those who are unable to follow even the general instructions for the assessment
- non-native language speakers who are unable to read or speak the language of the test and would be unable to overcome the language barrier in the assessment situation.

The increase in exclusion rate in 2021 compared to previous cycles was predominantly driven by pupil-level exclusions (rather than exclusions at school-level, such as special schools). In Northern Ireland, decisions about individual pupils were made by their teachers based on the internationally agreed criteria. There are two reasons for the

⁸¹ As a percentage of eligible pupils for each cycle

possible increase. Firstly, correspondence with some schools indicated that teachers were identifying a higher than expected instance of special education needs (SEN) in their cohorts. Secondly, for the first time, pupils from Learning Support Centres were included in Northern Ireland's sampling frame on the assumption that they could be excluded later, which they were.

Appendix B – Policies and initiatives affecting the PIRLS cohorts in Northern Ireland

Table B.1 presents the policies, events and initiatives which would have been experienced by at least one of the PIRLS cohorts in Northern Ireland. These are discussed in Chapter 1.

The years in which pupils took part in PIRLS cycles are emphasised with a black box.

Table B.1 Policies and initiatives affecting cohorts of PIRLS pupils in Northern Ireland

Year	Policy / initiative / event	PIRLS 2011 cohort age	PIRLS 2016 cohort age	PIRLS 2021 cohort age
Pre 2000	<ul style="list-style-type: none"> 1998 – Strategy for the Promotion of Literacy and Numeracy in Primary and Secondary Schools was published 2000/01 - Sure Start was introduced in Northern Ireland 	-	-	-
2001	-	0	-	-
2002	-	0 to 1	-	-
2003	<ul style="list-style-type: none"> The Education and Training Inspectorate developed Together Towards Improvement (TTI) as a resource to support schools in the process of self-evaluation 	1 to 2	-	-
2004	<ul style="list-style-type: none"> The Early Years Fund was set up (this became the Early Years Pathway Fund in 2016) 	2 to 3	-	-
2005	<ul style="list-style-type: none"> The Common Funding Scheme was established 	3 to 4	-	-

Year	Policy / initiative / event	PIRLS 2011 cohort age	PIRLS 2016 cohort age	PIRLS 2021 cohort age
2006	<ul style="list-style-type: none"> • Sure Start was widened to cover education outcomes • DE launched Extended Schools Programme and Full Service Programme 	4 to 5	0	-
2007	<ul style="list-style-type: none"> • Revised Northern Ireland Curriculum 	5 to 6	0 to 1	-
2008	-	6 to 7	1 to 2	-
2009	<ul style="list-style-type: none"> • Every School a Good School: A Policy for School Improvement was published 	7 to 8	2 to 3	-
2010	-	8 to 9	3 to 4	-
2011	<p>2011 cohort took part in PIRLS</p> <ul style="list-style-type: none"> • Count, Read: Succeed: A Strategy to Improve Outcomes in Literacy and Numeracy was introduced 	9 to 10	4 to 5	0
2012	<ul style="list-style-type: none"> • Nurture Groups were launched • Delivering Social Change Literacy and Numeracy Signature Programme, which ran from 2012 to 2015 • DE launched the Understanding Difficulties in Literacy Development, a professional development programme, which also ran from 2012 to 2015 	-	5 to 6	0 to 1
2013	-	-	6 to 7	1 to 2
2014	<ul style="list-style-type: none"> • Bright Start School Age Childcare Grant scheme (2014 to 2015) 	-	7 to 8	2 to 3

Year	Policy / initiative / event	PIRLS 2011 cohort age	PIRLS 2016 cohort age	PIRLS 2021 cohort age
2015	<ul style="list-style-type: none"> The Education Authority replaced five Education and Library Boards DE launched the Literacy and Numeracy Key Stage 2 and Key Stage 3 Continuing Professional Development Transition Project, which ran from 2015 to 2020 	-	8 to 9	3 to 4
2016	<p>2016 cohort took part in PIRLS</p> <ul style="list-style-type: none"> Shared Education Act DE's Leading Learners Strategy was launched 	-	9 to 10	4 to 5
2017	<ul style="list-style-type: none"> The Inspection and Self-Evaluation Framework (ISEF) replaced Together Towards Improvement (TTI) 	-	-	5 to 6
2018	<ul style="list-style-type: none"> Chief Inspector's Report 2016-2018 was published 	-	-	6 to 7
2019	-	-	-	7 to 8
2020	<ul style="list-style-type: none"> Start of the Covid-19 pandemic Children and Young People's Strategy 2020-2030 launched Engage Programme launched Expert panel to tackle educational underachievement was appointed 	-	-	8 to 9
2021	<p>2021 cohort took part in PIRLS</p> <ul style="list-style-type: none"> ETI published phase-specific thematic reports on remote learning 	-	-	9 to 10 (the average age of pupils in PIRLS 2021 was 10.8)

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NFER ref. PIRN

ISBN. 978-1-912596-85-0

