The 2010 National Assessments of English Reading and Mathematics in Irish-Medium Schools

Summary Report

Gerry Shiel, Lorraine Gilleece,
Aidan Clerkin and David Millar

Educational Research Centre

The 2010 National Assessments of English Reading and Mathematics in Irish-Medium Schools

Summary Report

Gerry Shiel, Lorraine Gilleece, Aidan Clerkin, and David Millar

Educational Research Centre

The 2010 National Assessments of English Reading and Mathematics in Irish-Medium Schools

Summary Report

Cataloguing-in-publication data

Shiel, Gerry
The 2010 National Assessments of English Reading and Mathematics in Irish-medium Schools. Summary report.

Dublin: Educational Research Centre

iv, 40 p., 30 cm

Includes bibliographical references.

1. Reading (Primary) – Ireland – Evaluation
2. Mathematics (Primary) – Ireland – Evaluation
3. Academic achievement
4. Educational surveys – Ireland

2011

I Title II Shiel, Gerry

371.9262 dc23

ISBN: 978 0 900440 32 8

Cover designed by e-print Ltd., Dublin
Printed in the Republic of Ireland by e-print Ltd., Dublin

Contents

Preface

In 2009, national assessments of English reading and mathematics were carried out by the Educational Research Centre on behalf of the (then) Department of Education and Science. The assessments involved nationally representative samples of schools and pupils, including Scoileanna Lán-Ghaeilge and Gaeltacht schools. However, in reporting the outcomes (see Eivers et al., 2010a), it was not possible to provide separate estimates of achievement for Irish-medium schools, as the numbers of such schools and pupils in the sample were too small. Therefore, the Centre was asked to implement the national assessments in representative samples of Scoileanna Lán-Ghaeilge and Gaeltacht schools in 2010. This report summarises the outcomes of the assessments in Irish-medium schools in 2010, and compares them with those of the 2009 national assessments. Further details on these outcomes and related recommendations may be found in the main report on the study (Gilleece, Shiel, Clerkin, & Millar, 2012).

The aims of the 2010 assessments were:

- to establish current English reading and mathematics standards of Second and Sixth class pupils in Irish-medium schools, and to compare these with overall national standards;
- to provide high quality and reliable data that can be used by the Department of Education and Skills in policy review and formulation and in decisions regarding resource allocation in the areas of English reading and mathematics;
- to provide information and advice to schools and teachers in order to assist in school planning designed to improve teaching and learning in English reading and mathematics
- to identify factors relating to reading instruction in English in Irish-medium schools;
- to examine school, teacher, home background and pupil characteristics, and teaching methods which may be related to English reading and mathematics achievement;
- to establish a basis against which to compare future performance in English reading and mathematics in Irish-medium schools.

Over the past decade, and particularly in the aftermath of the publication of Circular 0044/2007 (DES, 2007)[*], there has been considerable debate on the effects of full immersion in the early years of primary schooling, and on the benefits of beginning the teaching of reading in English or in Irish. The current study is not designed to inform these issues. Rather, its purpose is to compare performance in English reading and mathematics across school types, and to identify those factors that are associated with performance in the sectors of interest – Scoileanna Lán-Ghaeilge and Gaeltacht schools. National assessments provide snapshots of performance at a given point in time, and are not intended to evaluate the effectiveness of different approaches to language teaching. Pupils were not assigned to schools at random, nor were prior (incoming) skills or early reading performance taken into account. No attempt was made to investigate the characteristics of pupils who may have left their schools before the end of Sixth class. Instead, the current study raises questions that can be addressed using experimental or other appropriate research methodologies.

[*] The Circular required Irish-medium (Scoileanna Lán-Ghaeilge and Gaeltacht) schools to teach 2.5 hours of English every week, from, at the latest, the second term of Junior Infants. The circular was withdrawn by the Department of Education and Skills in January, 2010.

Overview of the Report

This report is divided into 8 chapters. Chapter 1 provides a broad context for the 2010 National Assessments of English Reading and Mathematics in Irish-medium schools (NAIMS), including a review of earlier national assessments involving such schools. Chapter 2 describes the frameworks for the English reading and mathematics tests and survey instruments, and outlines the survey methods. Chapter 3 summarises achievement outcomes of NAIMS, as well as comparisons with the 2009 National Assessment of Mathematics and English Reading in primary schools. It also describes performance on proficiency levels and differences in performance between boys and girls. Chapter 4 profiles pupils and their families. It describes the characteristics of families (including migrant status and socioeconomic background), the home educational environment, parents' and pupils' attitudes to Irish, and parents' reasons for selecting Irish-medium schools and their plans for their child's post-primary schooling. Chapter 5 profiles schools and teachers. It includes characteristics of the school, teachers' involvement in professional development, learning support provision, school-level learning resources, assessment and feedback, and school policy on the sequence in which beginning reading is taught. Chapter 6 describes the teaching and learning of English and mathematics in classrooms, covering such issues as planning for instruction, the language of instruction in mathematics classes, the resources used by teachers, and use of non-standardised assessment instruments. Chapter 7 looks in more depth at associations between school, teacher and student variables and achievement in the context of multi-level models of performance. Recommendations arising from the study are given in Chapter 8.

Acknowledgements

The Educational Research Centre wishes to acknowledge the support of the National Advisory Committee which was appointed by the Minster of Education and Skills to assist the Centre in implementing both the 2009 National Assessments of English Reading and Mathematics and the current study. The members of the Committee are: Carmel Nic Airt (An Foras Pátrúnachta), Dónal Ó hAiniféin (Gaelscoileanna), Mark Candon (CPSMA), Deirbhile Nic Craith (INTO), John Curran (IPPN)(replaced by Aedín Ní Thuathail from October 2011), Arlene Forster (NCCA), Áine Lynch (NPC–P), and Ciara O'Donnell (PDST) (replaced by Mary Manley in October 2011). The Department of Education and Skills is represented by Margaret Kelly, Pádraig Mac Fhlannchadha (Chair until July 2011) and Caitríona Ní Bhriain (Chair from August 2011). ERC staff on the Committee are Eemer Eivers and the authors of this report.

A Working Group was established to advise the Centre on modifications that could be made to the questionnaires used in the 2009 National Assessments to ensure their appropriateness for the current study. Thanks are extended to Members of this Group, Pádraig Ó Duibhir (Coláiste Phádraig, Droim Conrach), Tina Hickey (An Coláiste Ollscoile, Baile Átha Cliath), and Marina Ní Threasaigh (An Roinn Oideachas agus Scileanna). Thanks are due to Nick Sofroniou for assistance with Chapter 7.

Thanks are also due to staff at the ERC, including Peter Archer (Director), Mary Rohan, Paula Chute, John Coyle, Eemer Eivers, Caoimhe Máirtín, and Hilary Walshe for their assistance and support. Finally, we thank the school principals, teachers, pupils and parents who participated in the study.

Chapter 1
Context of the Study

The restoration of the Irish language has been a key policy objective of successive governments since the foundation of the State in 1921. An important strand of this policy is support for Irish as the medium of instruction in schools. In 1934, the Department of Education endorsed a resolution of the Second National Programme Conference, which required teachers to teach through the medium of Irish in infant classes in all schools, and to teach history, geography, singing and physical education through Irish in other classes. More recently, policy in relation to bilingual education has been to support instruction through the medium of Irish in schools in Gaeltacht areas ('Gaeltacht schools'), and in Irish-medium schools outside the Gaeltacht ('Scoileanna Lán-Ghaeilge' or Gaelscoileanna) where parents and communities wish their children to be taught through Irish. Policy documents such as the *Government Statement on the Irish Language* (Government of Ireland, 2006) and the *20-year Strategy for the Irish Language 2010-2030* (Government of Ireland, 2010)[1] indicate continuing support for education through the medium of Irish at pre-school, primary and post-primary levels. The Education Act (1998) refers to the special role of Gaeltacht schools 'in contributing to the maintenance of Irish as the primary community language' (Government of Ireland, 1998, Section 9h).

Not surprisingly, given such expectations, there has been ongoing interest in standards of achievement in schools in which Irish is the main medium of instruction. In a landmark study on the effects of bilingual education, which predated the establishment of most Scoileanna Lán-Ghaeilge, Macnamara (1966) found that the teaching of arithmetic through Irish to native English speakers resulted in lower levels of mathematical problem solving but not mental arithmetic among Fifth class pupils, leading him to conclude that use of a bilingual's weaker language as a language of instruction may contribute to underperformance. Macnamara's finding was later challenged by Cummins (1977), who argued that, because the study compared the performance of pupils learning English as a first language (L1) on an English version of a problem solving test with that of pupils learning Irish as a second language (L2) on an Irish version, competence in mathematics may have been confounded with competence to demonstrate ability when tested through the weaker language (Irish).

Macnamara also reported that the English reading performance of native-speakers of Irish (pupils in Gaeltacht schools) in Fifth class was behind that of native-speakers of English born in Ireland by 13 months of English reading age, and behind that of pupils in Britain by some 30 months.

Since Macnamara's study, several international studies have provided evidence for the benefits of bilingual and immersion education, especially full immersion in the Canadian French context (e.g., Bourton-Trites & Reeder, 2001; Genesee, 1987; Lambert, Genesee, Holobow & Chartrand, 1993; Turnbull, Hart & Lapkin, 2000). In such studies, students in immersion programmes often lag behind in English reading in the early primary grades, but catch up and surpass matched comparison groups by the end of primary schooling. Similar findings were reported in a small-scale study conducted in Ireland by Parsons and Lyddy (2009).

[1] The current Fine Gael-Labour coalition government backed the 20-year plan in its joint programme: *Towards Recovery: Programme for a National Government 2011-2016* (March, 2011).

Other outcomes have also been associated with bilingual education. In a meta-analysis of 63 studies conducted in Canada and the United States (all involving 'balanced' bilinguals), Adesope, Lavin, Thompson and Ungerleider (2010) found positive overall effects of bilingualism on a range of cognitive measures including metalinguistic awareness, metacognitive awareness, abstract and symbolic reasoning, attentional control, and problem solving. Many of these skills are hypothesised to arise from the cognitive flexibility that is developed when dealing with two languages at the same time.

More recently, debate in Ireland has centred on issues such as full vs. partial immersion in the early years of Irish-medium schooling (e.g., Ó hAiniféin, 2008), and whether initial reading instruction should be in Irish or English (Ní Bhaoill & O'Duibhir, 2004; NCCA, 2007).

Earlier National Assessments

The (now) Department of Education and Skills has organised national assessments of achievement in primary schools since the early 1970s. Most of these, including the 2009 National Assessments of Mathematics and English Reading (NA 2009), have been based on representative national samples that have included pupils in Irish-medium schools. In general, the numbers of Irish-medium schools and pupils in these studies have been small (i.e., they have been in proportion to their representation in the target population), and hence, it has not been possible to report separate results for Scoileanna Lán-Ghaeilge and Gaeltacht schools. An exception has been those studies that have specifically targeted Irish-medium schools only, or a combination of Irish-medium and English-medium schools (see Table 1.1).

Table 1.1: Earlier National Assessments Involving Samples of Irish-medium Schools

Year	Domain(s)	Target Group(s)	Report
1982	Oral Irish	Second class	Harris (1984)
1985	Oral Irish	Sixth class	Harris & Murtagh (1987, 1988)
1988	English reading	Fifth class	Dept. of Education (1991)
2002	Oral Irish, Irish reading	Sixth class	Harris et al. (2006)

The 1988 National Assessment of English Reading included a sample of pupils in Fifth class in English-medium schools and all pupils in Fifth class in Scoileanna Lán-Ghaeilge. A standardised test of reading achievement was administered to both groups. The mean score for pupils in English-medium schools was 59.2, while that for pupils in Scoileanna Lán-Ghaeilge was 66.1. The difference in favour of Scoileanna Lán-Ghaeilge (about one-half of a standard deviation) was statistically significant. In interpreting the stronger overall performance in English reading of pupils in Scoileanna Lán-Ghaeilge, the report referred to higher socioeconomic status among pupils attending Scoileanna Lán-Ghaeilge, as well as a more favourable teacher-pupil ratio, though these factors were not linked systematically to achievement.

In 2002, the Department of Education and Science commissioned a national assessment of oral Irish and Irish reading in Sixth class in Scoileanna Lán-Ghaeilge, Gaeltacht schools, and English-medium schools. On a 25-item multiple-choice test of reading comprehension, administered to all three samples, pupils in Scoileanna Lán-Ghaeilge achieved a significantly higher mean percent-correct score (85%) than their counterparts in Gaeltacht schools (71%) and English-medium schools (39%)[2]. On a 90-item reading comprehension test that included multiple-choice and constructed response items, which was

[2] Unlike the current study, the 2002 Study of Irish in Primary Schools sampled all Gaeltacht schools; the focus of the current study is on schools in which Irish is the medium of instruction.

administered to pupils in Irish-medium schools only, pupils in Scoileanna Lán-Ghaeilge achieved a mean score that was significantly higher, by over one-third of a standard deviation, than that of their counterparts in Gaeltacht schools.

The most recent national assessments involving primary-level pupils were implemented in 2009 (NA 2009), and involved administering tests of English reading and mathematics in Second and Sixth classes (Eivers et al., 2010a). As 2009 was the first year that these class levels were included in a national assessment, it was not possible to establish links with earlier national assessments. The value of the 2009 study in the context of the current study is that comparisons can be drawn between performance in reading and mathematics of pupils in Gaeltacht schools and Scoileanna Lán-Ghaeilge with that of pupils in English-medium[3] schools in NA 2009, not only in terms of achievement, but also with respect to characteristics of schools, classrooms and pupils.

Some Factors Associated with Achievement in Reading and Mathematics

In this section, a selection of factors identified in earlier research studies as being associated with reading and mathematics achievement are described.

Socioeconomic Status

There is strong evidence in the literature of an association between socioeconomic status and reading. In Ireland, studies of English reading in primary schools (Eivers, Shiel, Perkins & Cosgrove, 2005; Eivers et al., 2010a) confirm that as socioeconomic status (typically based on parents' occupations or their educational levels) increases, so does achievement in English reading and mathematics.

In their study of Irish reading in Irish-medium schools, Harris et al. (2006) found that, in the case of Scoileanna Lán-Ghaeilge, almost twice as many families reported having at least one parent with a third-level degree compared with English-medium schools. Conversely, over twice as many parents of pupils in Gaeltacht and English-medium schools reported a level of education at or below Junior Cert compared with Scoileanna Lán-Ghaeilge. Harris et al. (2006) also provided evidence that a context effect operates in Scoileanna Lán-Ghaeilge, at least in the case of Irish reading, as pupils attending such schools who had no linguistic, social or educational advantages (such as high levels of parent education) achieved at a significantly higher level in Irish reading than pupils in English-medium schools who enjoyed such advantages.

Gender

Where gender differences have been found in earlier national assessments of English reading and mathematics, they have been relatively small. In NA 2009, girls in Second class achieved an overall mean reading score that was significantly higher than boys by 14 score-points, or just over one-quarter of a standard deviation. At Sixth class, girls outperformed boys on overall reading by 4 score-points – a difference that was not statistically significant. There were no significant gender differences on overall mathematics at either Second or Sixth class levels.

[3] Fewer than 5% of schools in NA 2009 were drawn from the Irish-medium sector, and the outcomes for all schools in the assessments are almost identical to those for English-medium schools (see Chapter 2).

In the 2002 National Assessment of oral Irish and Irish reading in Sixth class across three school types, girls in Scoileanna-Lán Ghaeilge, Gaeltacht schools and English-medium schools significantly outperformed boys on Irish reading (Harris et al., 2006).

Language Spoken at Home

In NA 2009, Eivers et al. (2010a) identified the language of assessment as a key factor associated with performance. Pupils in Second class who spoke English/Irish at home (90% of the sample) significantly outperformed those who spoke another language at home in English reading by three-fifths of a standard deviation, and in mathematics by two-fifths. At Sixth class level, pupils who spoke English/Irish at home (94%) outperformed those who spoke another language, by four-fifths of a standard deviation in English reading (which was statistically significant) and by one-fifth of a standard deviation in mathematics (which was not statistically significant).

In Harris et al. (2006), pupils in Scoileanna Lán-Ghaeilge whose parents had high levels of proficiency in spoken Irish had a higher average score on a test of Irish reading than pupils whose parents had minimal or no proficiency in Irish. In Gaeltacht schools in the study, pupils whose parents were native speakers of Irish outperformed pupils whose parents had lower levels of proficiency.

Key Points

- Earlier national assessments provide some insights into the performance of Irish-medium schools. In 1988, pupils in Scoileanna Lán-Ghaeilge significantly outperformed their counterparts in English-medium schools on English reading. The 2009 National Assessments of Mathematics and English Reading (NA 2009) is especially relevant to the current study because performance on these domains in Irish medium schools is benchmarked against the performance of national samples of pupils in NA 2009.
- Research conducted in French Canada shows that pupils attending schools which operate strong immersion policies perform well in English reading and mathematics by the end of primary schooling, even though progress in English reading may be slower in the early grades. A small study implemented in Ireland (Parsons & Lyddy, 2009) supports the view that immersion programmes can lead to positive outcomes in a child's first and second languages.
- Bilingual education has been shown to contribute in a positive manner to a number of non-achievement outcomes such as metalinguistic awareness, abstract and symbolic reasoning, attention control, and problem solving (Adesope et al., 2010).
- Many factors are associated with performance in reading, whether in English or Irish. These include socioeconomic status at school and pupil levels, pupil gender, and the language spoken at home. Earlier studies (e.g., Harris et al., 2006) indicate higher levels of socioeconomic status among pupils attending Scoileanna Lán-Ghaeilge compared with Gaeltacht and English-medium schools.

Chapter 2
Assessment Frameworks and Methodology

This chapter outlines the assessment frameworks and methods used in the National Assessments of English Reading and Mathematics in Irish-medium Primary Schools (NAIMS).

Assessment Frameworks

The assessment frameworks for NAIMS are the same as those used in the 2009 National Assessments of Mathematics and English Reading. The full framework documents for English reading and mathematics (Educational Research Centre, 2008, 2009) provide detailed descriptions of the content areas and processes underlying the tests in these domains, while the mathematics framework also includes sample test items similar to those on the test itself. The frameworks also include a rationale for the content of the School, Teacher, Parent and Pupil Questionnaires, and the Pupil Rating Form.

English Reading

The definition of English reading upon which the reading framework and test are based is:

> the process of constructing meaning through the dynamic interaction among the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation. Young readers read to learn, to participate in communities of readers, and for enjoyment (Eivers et al., 2010a, p. 15).

The framework defined reading comprehension along two dimensions: the purpose of the text (literary experience, acquire and use information), and the process used to interpret it (Retrieve, Infer, Interpret & Integrate, and Evaluate).

In addition to reading comprehension, the English reading test includes some vocabulary items designed to assess core reading skills such as processing word and sentence meanings.

While the test for Second class included multiple-choice items only, the test for Sixth class included multiple-choice and constructed-response items, in the ratio of 3:1. The inclusion of constructed-response items facilitated assessment of higher-level interpretative and evaluative reading comprehension skills.

The final version of the Second class test comprised four forms. Each form had 20 vocabulary items (a common block across all four booklets), and 33-34 comprehension questions based on five texts. The Sixth class test also comprised four forms, each with 20 vocabulary items (again a common block), 5-6 texts, and 42-44 comprehension questions.

Mathematics

In the Primary School Mathematics Curriculum (PSMC) (DES/NCCA, 1999b), mathematics is described as:

> the science of magnitude, number, shape, space, and their relationships and also as universal language based on symbols and diagrams. It involves the handling (arrangement, analysis, manipulation and communication) of information, the making of predictions, and the solving of problems through the use of a language that is both concise and accurate (p. 2).

The mathematics framework (Educational Research Centre, 2009; Eivers et al., 2010b) mirrored the PSMC where mathematical content strands and cognitive process skills combine to form specific instructional objectives at each class level. The mathematical content strands are: Number, Algebra, Shape & Space, Measures, and Data. The cognitive process skills are: Apply & Problem-Solve, Communicate & Express, Integrate & Connect, Reason, Implement, and Understand & Recall. It was not possible to include items dealing with Communicate & Express on a paper and pencil test.

In developing test specifications, all mathematics objectives for Second class (59 objectives) and Sixth class (78 objectives) in the PSMC were listed and items were generated by a team of item writers based on the objectives. The representation of content areas and process skills was designed to approximate the distribution of objectives as they relate to these elements on the PSMC. About one-third of items at both class levels were multiple choice, and the remaining items were constructed response – pupils were asked to write an answer, complete a diagram or graph, or make a drawing.

At Second class, the final test comprised 5 blocks of 20 items each, distributed over four forms, so that the middle block in each form was common, and the other blocks appeared once in the first and last positions. At Sixth class, 6 blocks of 25 items were distributed over 6 forms so that one of two non-calculator blocks appeared in the first position of each form, a common block appeared in the middle position, and one of the remaining three blocks appeared in the final position. Pupils in Sixth class could use calculators for the second and third blocks.

Maths booklets were translated into Irish by a professional translator in preparation for the 2009 National Assessment of Mathematics. Translations were checked by a second experienced translator with extensive teaching experience and disagreements were resolved in conference. The same booklets used in NA 2009 were used in NAIMS 2010.

Sampling Schools and Pupils

As noted in Chapter 1, the two populations of interest in the current study were: pupils attending schools in the Gaeltacht areas in which Irish was the medium of instruction in all classes (Gaeltacht schools); and pupils attending Irish-medium schools in areas outside the Gaeltacht (Scoileanna Lán-Ghaeilge (SLG)). It was decided to sample 60 SLG and 60 Gaeltacht schools, giving effective sample sizes of approximately 200 for each school type, or 400 in total.

The sampling frame used in NAIMS was based on the Primary Schools Database 2008-09, that was issued to the Educational Research Centre by the (then) Department of Education and Science in Spring 2009. The database contained a listing of all primary schools supported by public funds in the Republic of Ireland. As well as demographic data on schools (school size, numbers of boys and girls enrolled at each grade level), the database also provided information on:

- Medium of instruction – whether 'all' classes were taught through English, 'some' or 'all' classes were taught through Irish, or 'some subjects' were taught through Irish.
- School type – whether 'All-Irish' (i.e., Scoil Lán Ghaeilge), 'Gaeltacht' or 'English medium'.

The accuracy of the database was checked against other available sources including databases for earlier school years and lists of schools, such as the list of SLG on the Gaelscoileanna website, and some adjustments were made (see Gilleece et al., 2012 for details).

The sampling frame was split into three strata – Gaeltacht schools, SLG existing at or before 2001-02, and SLG established since 2001-02. This division was necessary since 25

schools did not have pupils listed as being in Fifth or Sixth class in 2008-09, and therefore would be unlikely to have pupils in Sixth class at the time of testing. Schools classified as Gaeltacht, and teaching some subjects through Irish, or all subjects through English, were excluded from sampling.

There were 102 schools in the Gaeltacht stratum. Sixty schools were selected from this stratum using probability proportional to size (PPS) systematic sampling with implicit stratification by DEIS[4] band and school size (total number of pupils in Junior Infants to Sixth class). Fifty-eight of the 110 SLG that had been established before 2001-02 were selected from this stratum using the same approach. Two SLG were selected from among those established since 2001-02, giving a total of 60. Table 2.1 shows the number of schools and pupils in the selected and achieved samples for English reading. A corresponding table for mathematics may be found in Gilleece et al. (2012). Table 2.1 shows that, at Second class level, 54 of 60 SLG (90%) agreed to participate in the study while 51 of 60 Gaeltacht schools (85%) did so.

Table 2.1: Numbers of schools and pupils in selected and achieved samples (English reading), by school type

Stratum		Selected Sample		Achieved Sample	
		Second	Sixth	Second	Sixth
Scoileanna Lán-Ghaeilge (New and Established)	Schools	60	60	54	51
	Pupils	2036	1669	1694	1413
	Classes[1]	-	-	73	66
Gaeltacht Schools	Schools	60	60	51	51
	Pupils	683	799	570	596
	Classes	-	-	52	52

[1]Numbers of classes are not given on DES databases.

Questionnaires and Ratings Forms

In addition to the tests of English reading and mathematics, the following instruments were used in the study:

- A ***School Questionnaire***, which school principals were asked to complete. This contained questions about school location, intake and enrolment characteristics, school resources (e.g., library books, computers, interactive whiteboards), staffing, and provision for additional support for pupils. The questionnaire also asked about assessment and planning practices for English, Irish, and mathematics.
- A ***Teacher Questionnaire***, which class teachers were asked to complete, and was similar at Second and Sixth classes. It asked about qualifications, teaching experience, experience of continuing professional development, and classes taught. There were also questions on the teaching of Irish, the language of instruction in mathematics lessons, reasons for not teaching mathematics exclusively through Irish (if relevant), numbers of Irish books in class libraries, and a separate section, similar to those for English and mathematics, on the teaching of Irish.

[4] DEIS (Delivering Equality of Opportunity in Schools) is an action plan put in place by the Department of Education and Skills in 2005 to address the effects of educational disadvantage in schools. The School Support Programme (SSP), which comprises a set of measures and provides schools with additional human and material resources, is a key element of DEIS. Urban Schools in the SSP are allocated to Band 1 or Band 2, depending on their average level of disadvantage. There is a separate set of measures for rural schools in the SSP.

- ***A Pupil Rating Form***, which teachers were asked to complete. It sought contextual information about each pupil who participated in the survey. Areas covered included attendance, receipt of learning support, general academic ability, and proficiency in English reading and mathematics.
- ***A Pupil Questionnaire***, which pupils participating in the study were asked to complete. It included questions about the language spoken at home, homework practices, attitudes to, and engagement in reading and mathematics, and other activities outside the school. The Sixth class questionnaire included additional questions on pupils' attitudes to use of Irish in a number of contexts, and language preferences for reading and mathematics.
- ***A Parent Questionnaire,*** which parents of participating pupils were asked to complete. It included questions relating to family size, parental occupations, home educational processes and resources, parental reading habits, and frequency of providing help with homework. Parents were also asked to rate their child's proficiency in Irish reading, to indicate when their child showed an interest in Irish and English reading for the first time, to estimate the numbers of Irish and English books in the home, and to record the frequency with which they used the Irish language in a range of reading and speaking contexts.

Response Rates

Response rates, based on schools that agreed to participate in NAIMS, were uniformly high. For example, in Second class, 94% of selected pupils in SLG and 92% in Gaeltacht schools completed the English reading test. Response rates on all questionnaires exceeded 90%, and approached 100% in the case of the School and Teacher Questionnaires.

At each test administration (English reading and mathematics), teachers were asked to complete a Test Administration Form detailing the number present, the number absent, the number exempted from testing, and the number who had left the school. Overall, exemptions from testing are low, ranging from 5 pupils (Gaeltacht schools, Sixth class, mathematics) to 14 (SLG, Second class, mathematics), with most exemptions accounted for by specific or general learning disabilities.

Implementation of NAIMS in Schools

Thirty-one DES inspectors, who had received training on the aims and procedures of the assessments, were assigned to participating schools to support them in implementing NAIMS and to function as quality monitors.

Testing took place in most schools between the 12th and 28th of May 2010, with schools selecting two mornings in the test window that suited them and on which their assigned inspector was available. Administration of the English and mathematics tests was counter-balanced across schools, with half of schools in each school type doing English reading first, and half doing mathematics first.

At Second class, schools were asked to indicate in advance, in respect of each participating class, whether the class would take the mathematics test in English or Irish as directions for the maths test must be read aloud, and hence the test can be administered in one language only. At Sixth class, class teachers were asked to indicate the preferred language of the mathematics test in advance, in respect of each pupil in their class. Teachers administering the mathematics test through Irish were permitted to provide the corresponding English version of a word or phrase if requested, though it was made clear that help on solving specific mathematics questions could not be provided.

Over 90% of pupils in Second class in SLG took the mathematics test in Irish, and over 80% in Sixth class did so. In Gaeltacht schools, about one-half of pupils in Second class and three-fifths in Sixth class took the mathematics test in Irish. The increase in Gaeltacht schools may reflect the growing competence in Irish of pupils who did not speak the language of instruction at home.

Inspectors who monitored testing in each school circulated between participating classes. At the end of testing (i.e., after both tests had been completed on different days), they completed an Observation Form that summarised their views on how well the school had handled aspects of test administration. Inspectors' evaluations were very positive, indicating a high level of commitment to the study on the part of teachers, parents and pupils. School co-ordinators (designated teachers who liaised with the Educational Research Centre during the study) also expressed high levels of satisfaction with implementation of the study (see Gilleece et al., 2012 for additional details and suggested improvements).

Weighting, Scaling and Analysis Procedures

Weighting

Bias in assessments such as NAIMS can arise from two sources: (i) disproportionate sampling of schools (and hence pupils) relative to the populations of interest; and (ii) non-response by schools and pupils selected to participate. The procedure used to calculate weights was the same one used in NA 2009 (see Eivers et al., 2010b, p. 37), where adjustments are made for non-response at school and pupil levels. Sampling weights feed into the scaling of test data and to the analysis of achievement data and questionnaire responses.

Scaling the Achievement Tests

Scaling of the English reading and mathematics tests for Second and Sixth classes was conducted using Item Response Theory methodologies (see Eivers et al., 2010b, Chapter 4). Item parameters obtained in the course of scaling the tests in NA 2009 were applied to the corresponding items in NAIMS. In this way, pupils' performance on NAIMS was placed on the same scales as those used in NA 2009.[5] The outcomes of this exercise are reported in Chapter 3, where performance on NA 2009 and NAIMS are compared for overall scales and subscales in each domain.

The cut-points for proficiency levels developed in the context of NA 2009 (see Eivers et al., 2010b, Chapter 6) were applied to pupils' scores in NAIMS, allowing for a comparison of the proportions of pupils scoring at each level on each test across the two studies. The proficiency levels provide descriptions of the knowledge and skills of pupils at different levels of performance in English and mathematics, and hence provide a criterion-referenced interpretation of performance.

Analyzing the Data

Data (e.g., test scores, percentages of pupils or parents) presented in the remainder of this report are weighted. Where comparisons among three or more groups are made (e.g., between SLG, Gaeltacht schools, and English-medium schools), alpha levels are adjusted to guard against making a Type 1 error (declaring a difference to be statistically significant, when it isn't).

In deciding on an appropriate group from NA 2009 against which to compare the performance of pupils in NAIMS, there was a choice between selecting pupils in English-

[5] In NA 2009, all scales were set to a mean of 250 and a standard deviation of 50.

medium schools who had participated in the assessment, or selecting all pupils who had participated, including a small number from Irish-medium schools. Since relatively few SLG and Gaeltacht schools participated in NA 2009 (7 SLG and 3 Gaeltacht schools), and the inclusion or exclusion of Irish-medium schools did not make any substantive difference to key indicators of performance such as mean achievement scores, it was decided to benchmark the performance of pupils in NAIMS against that of all pupils in NA 2009.

Associations between context variables (e.g., socioeconomic status (SES)) and achievement are examined in three ways: (i) by examining correlations (values between -1 and +1 that show the strength of a relationship); (ii) by comparing mean scores (e.g., the mean reading scores of pupils with high, average and low values on an SES scale); and (iii) using multi-level modeling, where the effects of variables at school and pupil levels on performance can be examined, while controlling for other variables.

School-Types Referred to in the Current Study

Gaeltacht School: A school in the Gaeltacht, in which Irish is medium of instruction in all classes.

Scoil Lán-Ghaeilge (Gaelscoil): A school outside the Gaeltacht, in which Irish is the medium of instruction.

English-medium School: A school in which English is the medium of instruction, though some classes or subjects may be taught through Irish.

Key Points

- The assessment frameworks for NA 2009, and the tests of English reading and mathematics used in 2009 were also used in the current study, without modification. Some additions were made to the School, Teacher, Parent, and Pupil Questionnaires to take the specific circumstances of Irish-medium schools into account.
- Samples of 60 SLG and 60 Gaeltacht schools were selected to participate in NAIMS. Fifty-four SLG and 51 Gaeltacht schools participated, giving school-level response rates of 90% and 85% respectively. Within schools, response rates exceeded 90% for the tests of English reading and mathematics, and for all questionnaires administered.
- Implementation of NAIMS in schools was overseen by members of the Inspectorate of the (then) Department of Education and Science. Tests were administered in May, 2010.
- The test scores of pupils in NAIMS were placed on the same scales used in NA 2009, facilitating comparisons of performance across the two studies.

Chapter 3
Achievement Outcomes

This chapter describes the achievements of pupils in Scoileanna Lán-Ghaeilge (SLG) and in Gaeltacht schools who participated in NAIMS 2010, and compares their performance with that of the national sample in NA 2009.

Overall Performance and Performance by Subdomain

The mean score for each domain and subdomain in NA 2009 was set to 250, and the standard deviation to 50. Since pupil scores in NAIMS were projected onto the same scales used in NA 2009, it is possible to compare the performance of pupils in SLG and Gaeltacht schools with the performance of pupils in NA 2009.

English Reading

Table 3.1 shows that the mean scores of pupils in Second (267) and Sixth (266) classes in SLG were significantly higher than the corresponding NA 2009 mean scores (both 250). The mean score of pupils in Sixth class in Gaeltacht schools (257) was also significantly higher (by about one-sixth of a standard deviation) than the corresponding mean in NA 2009 (250). However, at Second class, the difference in reading performance between pupils in Gaeltacht schools (253) and in NA 2009 schools (250) was not significant.

We can also compare the performance in reading of pupils in SLG and Gaeltacht schools. At Second class, pupils in SLG (267) achieved a significantly higher mean score than pupils in Gaeltacht schools (253). At Sixth class, the difference in mean scores between pupils in SLG (266) and pupil in Gaeltacht schools (257) was not statistically significant.

Table 3.1: Mean scores of pupils on overall English reading, by school type and class level

	Second Class		Sixth Class	
	Mean	St. Dev.	Mean	St. Dev.
Scoileanna Lán-Ghaeilge	**267**	49	**266**	45
Gaeltacht Schools	253	47	**257**	46
NA 2009 (Ref.)	250	50	250	50

Mean scores that are significantly higher than in NA 2009 for the corresponding grade level are shown in bold.

Differences between boys and girls in SLG were small and not statistically significant in either Second or Sixth classes. Whereas no difference was observed in Second class in Gaeltacht schools, girls in Sixth class significantly outperformed boys.

Table 3.2 summarises performance on reading vocabulary and reading comprehension for pupils in Second and Sixth classes. The table shows that, for reading vocabulary (265) and reading comprehension (268) in Second and Sixth classes, mean scores are significantly higher in SLG than in schools in NA 2009 (both 250). At Sixth class (but not Second) mean scores for pupils in Gaeltacht schools on reading vocabulary (256) and reading comprehension (258) are significantly higher than in NA 2009. In a separate analysis, it was found that pupils in Second class in SLG, but not in Sixth, had significantly higher mean scores than their counterparts in Gaeltacht schools on vocabulary and reading comprehension. Although in Sixth class the mean score of pupils in SLG on reading vocabulary was some ten points higher than that of pupils in Gaeltacht schools, the difference was not statistically significant.

Table 3.2: Mean scores of pupils in English reading vocabulary and reading comprehension subscales, by school type and class level

	Second Class		Sixth Class	
	Mean Vocabulary	Mean Comprehension	Mean Vocabulary	Mean Comprehension
Scoileanna L-G	**268**	**265**	**266**	**265**
Gaeltacht Schools	253	253	**256**	**258**
NA 2009 (Ref.)	250	250	250	250

Mean scores that are significantly different from NA 2009 are in bold.

Performance in reading literacy can also be classified by reading subprocess. Three such subprocesses are identified at Second class: Retrieve, Infer, and Interpret & Integrate. An additional subprocess, Examine & Evaluate, is assessed at Sixth class. In line with their stronger overall performance in reading, pupils in Second class in SLG outperformed pupils in NA 2009 on Retrieve, Infer and Interpret & Integrate, while none of the differences between Gaeltacht and NA 2009 schools were statistically significant. Pupils in Second class in SLG had significantly higher mean scores than pupils in Gaeltacht schools on Infer and Interpret & Integrate, but not on Retrieve.

Pupils in SLG outperformed pupils in NA 2009 on all four process subscales at Sixth class, while pupils in Gaeltacht schools outperformed pupils in NA 2009 on three of four scales. The exception was Examine and Evaluate. Differences in favour of pupils in SLG over pupils in Gaeltacht schools were not statistically significant for any of the four subscales in Sixth class.

Mathematics

In mathematics, pupils in Second class in SLG (258) had a significantly higher mean score than pupils in NA 2009 (250) (Table 3.3).The difference in performance between pupils in Second class in Gaeltacht schools (256) and pupils in NA 2009 (250) was not significant. Pupils in Sixth class in Gaeltacht schools achieved a significantly higher mean score (259) than pupils in NA 2009 (250) at that class level. The difference in performance between pupils in SLG and pupils in NA 2009 in Sixth class was not statistically significant.

Table 3.3 Mean scores of pupils in overall mathematics, by school type and class level

	Second Class		Sixth Class	
	Mean	St. Dev.	Mean	St. Dev.
Scoileanna Lán-Ghaeilge	**258**	49	254	45
Gaeltacht Schools	256	46	**259**	45
NA 2009 (Ref.)	250	50	250	50

Mean scores that are significantly different from NA '09 are in bold.

On average, pupils in SLG and Gaeltacht schools did not perform significantly differently from one another in overall mathematics at either Second or Sixth class.

Boys in Second and Sixth classes in SLG achieved significantly higher scores in mathematics than girls. In NA 2009, differences in favour of boys at both class levels were not statistically significant. No significant gender differences were found for pupils in Gaeltacht schools at either Second or Sixth classes, though boys in Second class had a score that was 7 points higher than girls.

Mathematics performance can also be examined by content area and process. Pupils in Second class in SLG outperformed their counterparts in NA 2009 schools on three content areas (Number/Algebra, Measures and Data), and had a significantly lower mean score on the fourth – Shape & Space. Pupils in Second class in Gaeltacht schools

outperformed pupils in NA 2009 on one content areas – Measures. Differences between pupils in SLG and Gaeltacht schools were not statistically significant for any of the content areas.

Pupils in Sixth class in SLG significantly outperformed pupils in NA 2009 on one content area – Number/Algebra – while pupils in Gaeltacht schools outperformed pupils in NA 2009 schools on three – Number/Algebra, Measures and Space & Shape. There were no significant differences between pupils in SLG and Gaeltacht schools on any of the content areas at this class level.

Pupils in Second class in SLG and Gaeltacht schools significantly outperformed their counterparts in NA 2009 schools on two mathematics process skills – Implement and Apply & Problem Solve. Differences between pupils in SLG and Gaeltacht schools were not statistically significant for any of the mathematics process skills.

Pupils in Sixth class in SLG outperformed their counterparts in NA 2009 on one mathematics process skill – Implement. Pupils in Sixth class in Gaeltacht schools outperformed pupils in NA 2009 on three – Recall, Implement, and Apply & Solve Problems. No differences between pupils in SLG and Gaeltacht schools were statistically significant.

Performance on Mathematics, by Test Language

Pupils could take the mathematics test in either English or Irish. At Second class, this was decided on a class-by-class basis by pupils' teachers, while at Sixth class, it was decided in respect of individual pupils. Table 3.4 shows the percentages of pupils taking the mathematics test in Irish and English at each class level, for each sector, and the corresponding mean overall mathematics scores. At Second class, 91% of pupils in SLG took the mathematics test through Irish, while 49% of pupils in Gaeltacht schools did so. Although the mean score of those taking the test in English in SLG (276) was greater than that of those taking it in Irish (256), the difference was not statistically significant.

In Sixth class, over four-fifths of pupils (81%) in SLG completed the mathematics test in Irish, while about three-fifths (59%) in Gaeltacht schools did so. Pupils in SLG who completed the mathematics test in Irish achieved a mean score (255) that was about the same as that of those who took it in English (251). Pupils in Gaeltacht Schools who took the mathematics test in Irish in Sixth class also had a very similar mean score (258) to those who took it in English (260).

Table 3.4: Mean scores of pupils who took the mathematics tests in English or Irish, by school type and class level (NAIMS, 2010)

	Second Class		Sixth Class	
	Percent of Pupils	Mean Overall Mathematics	Percent of Pupils	Mean Overall Mathematics
SLG				
Irish	91	256	81	255
English	9	276	19	251
All	100	258	100	254
Gaeltacht				
Irish	49	251	59	258
English	51	261	41	260
All	100	256	100	259

Statistically significant differences by test language within school type are in bold.

Performance on English and Mathematics, by Proficiency Levels

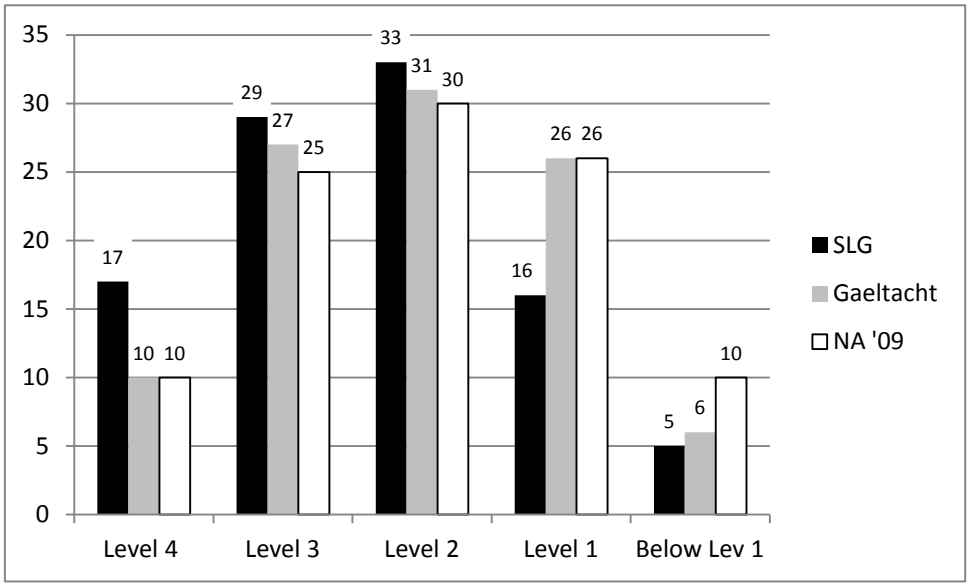
Performance in English reading and mathematics can also be reported in terms of the proficiency levels that were developed for NA 2009. Proficiency levels provide descriptions of the types of reading and mathematics tasks that pupils at different levels of performance are expected to succeed on (see Gilleece et al., 2012 for full descriptions). It is assumed that pupils who achieve at a particular level would be successful on tasks at lower levels of proficiency (for example, a pupil achieving at Level 4 in reading would have an even higher probability of success on Level 3 items).

English Reading

At Second class, 17% of pupils attending SLG perform at Level 4 in English reading, compared with 10% of pupils in both Gaeltacht schools and schools in NA 2009. On the other hand, 21% of pupils in SLG perform at or below Level 1, compared with 32% in Gaeltacht schools, and 35% in NA 2009. This indicates that, at Second class level, there are more pupils with higher-level reading skills, and fewer pupils with weak reading skills in SLG than in Gaeltacht or NA 2009 schools (Figure 3.1).

At Sixth class, 15% of pupils in SLG perform at Level 4 on English reading, compared with 11% in Gaeltacht schools and 10% in NA 2009. On the other hand, 22% of pupils in SLG perform at or below Level 1, compared with 27% in Gaeltacht schools, and 35% in NA 2009. Hence, in broad terms, the advantage enjoyed by pupils in SLG in Second class is maintained through Sixth class. By Sixth class, about 5% of pupils in SLG and Gaeltacht schools perform below Level 1, compared with 10% in NA 2009. This indicates that there are fewer pupils with very serious English reading literacy difficulties in Irish-medium schools.

Figure 3.1: Percentages of pupils in second class at various levels on the English reading proficiency scale, by school type



Mathematics

In Second class, 13% of pupils in SLG performed at Level 4 in mathematics, compared with 8% in Gaeltacht schools and 10% in NA 2009 schools. In a similar vein, 44% in SLG, 42% in Gaeltacht schools, and 35% in NA 2009 schools performed at Level 3 or higher. Similar percentages of pupils in SLG and Gaeltacht schools (29%, 28% respectively) achieved at Level 1 or below, compared with 35% of pupils in NA 2009 schools.

In Sixth class, about 10% of pupils in SLG, Gaeltacht schools and NA 2009 performed at Level 4 in mathematics. Forty-two percent in Gaeltacht schools achieved at Level 3 or higher, compared with 36% in SLG and 35% in NA 2009. Between 5 and 10% of pupils in each school type performed below Level 1.

Key Points

- Pupils in Second and Sixth classes in SLG, and pupils in Sixth class in Gaeltacht schools achieved significantly higher mean scores on English reading than pupils in NA 2009. Pupils in Second class in Gaeltacht schools had a mean score that was three points higher than that of pupils in NA 2009, but the difference was not statistically significant.
- Girls in Sixth class in Gaeltacht schools had a significantly higher mean reading score than boys. There were no significant differences in reading between boys and girls in SLGs at either Second or Sixth classes, or in Gaeltacht schools at Second class.
- In Second class, pupils in SLG achieved a significantly higher mean score on mathematics than pupils in NA 2009, while the mean scores of pupils in Gaeltacht schools and NA 2009 were not significantly different. In Sixth class, pupils in Gaeltacht schools achieved a significantly higher mean score than pupils in NA 2009, while the mean scores of pupils in SLG and NA 2009 were not significantly different from one another.
- Boys in Second and Sixth classes in SLG but not Gaeltacht schools achieved significantly higher mean scores in mathematics than girls.
- Although pupils in Second class in both SLGs and Gaeltacht schools taking the mathematics test in English achieved higher mean scores (by 20 and 10 points respectively) than pupils taking the test in Irish, differences were not statistically significant. In Sixth class, pupils in SLG taking the test in Irish had a slightly higher mean score than those taking it in English, while, in Gaeltacht schools, pupils taking the test in English had a slightly higher mean score. Again, neither difference reached statistical significance.
- The percentage of pupils in Second class in SLGs who performed at Level 4 on the English reading proficiency scale (17%) was greater than in Gaeltacht schools or NA 2009 schools (10% in both). Similarly, fewer pupils (21%) in Second class in SLGs performed at Level 1 or below, compared with pupils in Gaeltacht schools (34%) and NA 2009 (35%). At Sixth class, fewer pupils in SLGs or Gaeltacht schools (4% and 5% respectively) performed below Level 1, compared with NA 2009 (10%).
- Forty-four percent of pupils in SLGs, 42% in Gaeltacht schools, and 35% in NA 2010 performed at Levels 3 or 4 on the mathematics proficiency scale in Second class. About the same proportions in the three school types (8%, 8% and 10% respectively) performed below Level 1. In Sixth class mathematics, more pupils in Gaeltacht schools (42%) than in SLGs (36%) or NA 2009 schools (35%) performed at Levels 3 or 4. Conversely, marginally fewer pupils in Gaeltacht schools (5%) than in SLGs (7%) or NA 2009 schools (10%) performed below Level 1.

Chapter 4
A Profile of Pupils and their Families

There are four main sections in this chapter. First, characteristics of the pupils' families are described. Second, the educational climate in pupils' homes is discussed. Third, parents' and pupils' attitudes towards, and use of, the Irish language are considered. The fourth section describes parents' and pupils' intentions for post-primary schooling.

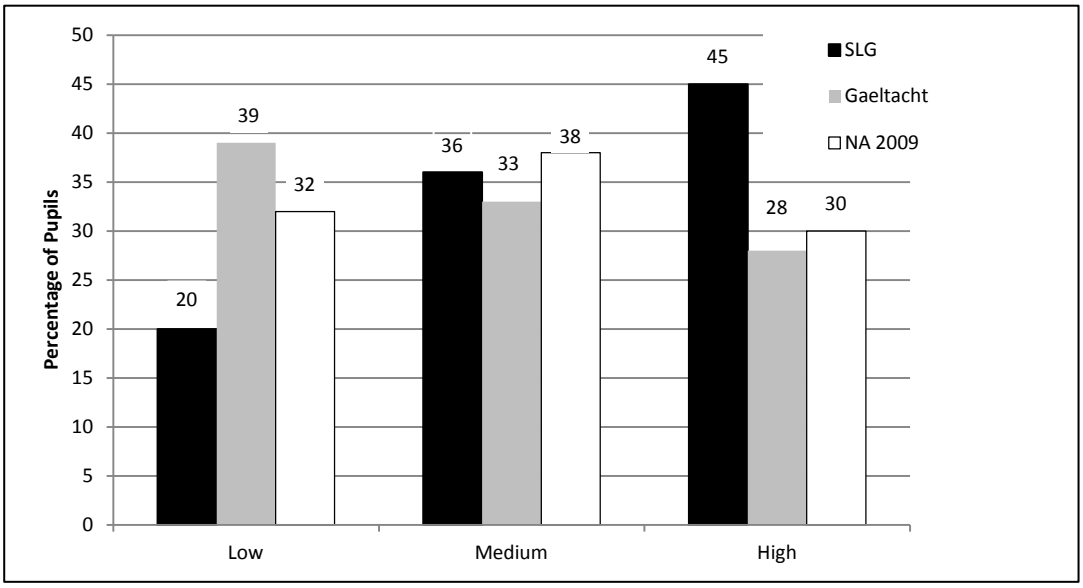
Family Characteristics

In the parent questionnaire, parents were asked to indicate their own (current or most recent) job and that of their partner. Occupations were scaled using an international socioeconomic index (Ganzeboom, De Graaf & Treiman, 1992). Scores ranged from 16 to 90 points. Pupils with two scores, i.e., one for each parent, were given the higher of the two values.

At both Second and Sixth class, the mean socioeconomic status of pupils attending Scoileanna Lán-Ghaeilge (SLG) was significantly higher than that of pupils attending Gaeltacht and NA 2009 schools. Differences in favour of SLG pupils ranged from one-third to one-half of a standard deviation, depending on class level.

Figure 4.1 shows the percentages of Sixth class pupils in SLG, Gaeltacht schools and NA 2009 schools classified as being from low, medium and high SES families (cut-off points are those used in NA 2009). Just 20% of Sixth class SLG pupils are in families with a low socioeconomic status – a markedly lower percentage than in Gaeltacht schools (39%) or NA 2009 schools (32%) (Figure 4.1). Conversely, 45% of Sixth class pupils in SLG come from a high SES background – proportionately more than in Gaeltacht schools (28%) and in schools in NA 2009 (30%). Estimates for Second class are broadly similar.

Figure 4.1. Percentages of Sixth class pupils from high, medium and low socioeconomic status families



In line with findings from NA 2009, higher familial socioeconomic status (SES) was associated with significantly higher levels of achievement. At both Second and Sixth class in SLG and Gaeltacht schools, pupils from high SES families achieved a significantly higher mean English reading score than pupils from low SES families. Further, pupils from medium SES

families had significantly higher mean reading scores than pupils from low SES families except in Second class in Gaeltacht schools where the difference was not significant.

A large majority of pupils across all school types lived in homes where at least one parent was in employment, although the percentages in SLG (91% at both Second and Sixth class) were somewhat higher than in Gaeltacht schools (Second: 84%; Sixth: 82%). The percentages of pupils in Irish-medium schools living in single-parent families ranged from 15% of Second class pupils in Gaeltacht schools to 21% of Sixth class pupils in SLG. In NA 2009, 20% of pupils at both Second and Sixth class lived in a single-parent family.

Just 6% of Sixth class pupils in SLG were born outside of Ireland, compared to 13% of Sixth class pupils in Gaeltacht schools and 15% in NA 2009. Percentages were similar at Second class.

Almost all SLG pupils (Sixth: 98%; Second: 94%) and about three-quarters of pupils in Gaeltacht schools (Sixth: 74%; Second: 78%) reported that English was the language they spoke most often at home. English was reported to be the most widely spoken home language in NA 2009, with at least 90% of pupils at both Second and Sixth class indicating that it was the main language spoken in their homes.

Few SLG pupils reported that Irish was the main language spoken in their homes (Second: 4%; Sixth: 2%) whereas one-fifth to one-quarter of pupils in Gaeltacht schools at each class level reported that this was the case. Fewer than 2% of pupils in Irish-medium schools reported speaking a language other than English or Irish as their main home language. This contrasts with NA 2009, where 9% in Second class and 5% in Sixth reported this to be the case.

In general, there were no statistically significant associations in Irish-medium schools between the main language spoken at home and achievement in English reading. However, in Gaeltacht schools at Sixth class, pupils who reported speaking English at home had a significantly higher mean score than pupils who reported speaking Irish and also a significantly higher score than pupils who spoke languages other than English or Irish (though the latter group comprises just 2% of Sixth class pupils in Gaeltacht schools). The gap between the mean score of Sixth class pupils in Gaeltacht schools who spoke English and those who spoke Irish was one-third of a standard deviation, while a larger gap of over one-and-one-third standard deviations was found in favour of those who spoke English compared to languages other than English or Irish.

Home Atmosphere and Supports

Findings from NA 2009 (Eivers et al., 2010a) provide evidence of a strong association between a supportive home environment and success in English reading and mathematics.

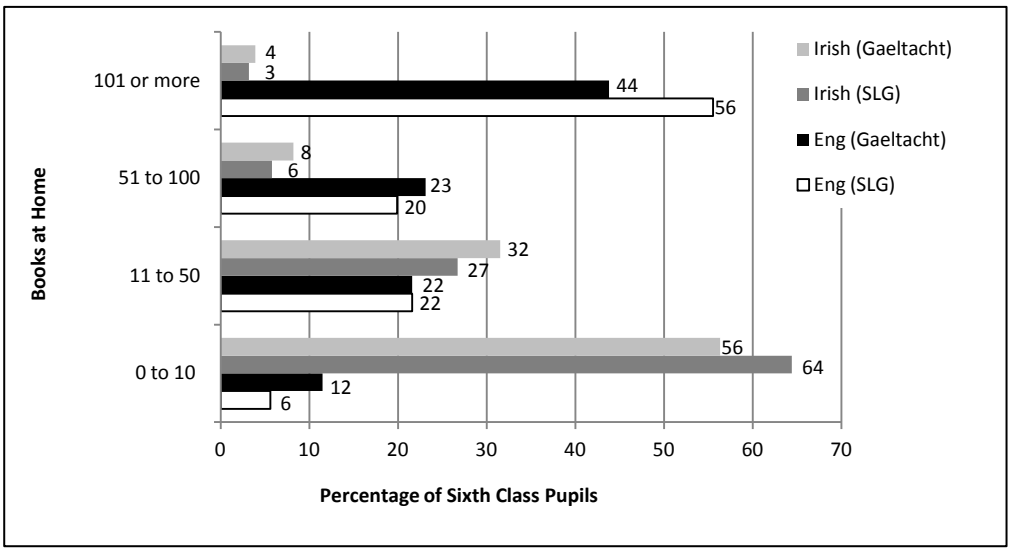
Parents in the current study were asked to estimate the numbers of books in their homes. Figure 4.2 shows that there were notable differences between availability of English and Irish books as well as availability of books in general.

Very few Sixth class SLG pupils (6%) lived in homes with 10 or fewer English books, although almost two-thirds had 10 or fewer Irish books (64%, Figure 4.2). A similar picture was evident in the homes of pupils attending Gaeltacht schools, where just 12% in Sixth class had 10 or fewer English books but 56% had 10 or fewer Irish books.

At both Second and Sixth class, SLG pupils had a significantly higher average number of English books at home than pupils in Gaeltacht schools. The difference at Second class was about 30 books and at Sixth class, about 40 books. Pupils in Gaeltacht

schools tended to have a higher number of Irish books at home than pupils in SLG but differences were not statistically significant.

Figure 4.2: Percentages of Sixth class pupils with varying numbers of English and Irish books at home



In line with the findings of NA 2009, which indicated that pupils with higher numbers of books at home achieved significantly higher average reading scores, a positive association was found between the number of English books at home and the English reading achievement of pupils in SLG and Gaeltacht schools. The association was statistically significant for Second and Sixth classes in SLG but only for Sixth class in Gaeltacht schools. The number of Irish books at home was not significantly associated with English reading achievement.

Parents reported that in excess of 90% of pupils had a quiet place in which to do their homework. At Sixth class, in both SLG and Gaeltacht schools, these pupils achieved a significantly higher mean English reading score than pupils without a quiet place to study. The difference was also significant in NA 2009.

Eivers et al. (2010a) reported that a majority of pupils (62% at Sixth class and 53% at Second) participating in NA 2009 had a TV in their bedroom. The percentages are somewhat lower among pupils in Irish-medium schools where about 50% of Sixth class pupils and 45% of Second class pupils in both SLG and Gaeltacht schools indicated that they had a TV in their bedroom. At both class levels and in both SLG and Gaeltacht schools, those without a TV in their bedroom scored between 20 and 30 points more in reading on average than those in possession of a TV.

Similar to findings from NA 2009, pupils from a lower socioeconomic background were more likely to have a TV in their bedroom.

Parents, Pupils and the Irish Language

The percentages of SLG pupils at Second and Sixth class in homes where neither parent could speak Irish were 21% and 39% respectively. The percentages were lower in Gaeltacht schools: at Second class, 13% of pupils lived in homes where neither parent spoke Irish, and at Sixth class, 17% did so.

Over 90% of SLG pupils in Second and Sixth classes lived in homes where neither parent had attended an Irish-medium post-primary school. The corresponding figures among pupils in Gaeltacht schools were 63% at Second class and 57% at Sixth class.

It was noted above that just 2-4% of SLG pupils reported that Irish was the language they spoke most often at home. However, when presented with the statement 'I use a lot of Irish at home', 14% of Sixth class pupils and 23% of Second class pupils in SLG agreed. Similarly, while 20-24% of pupils in Gaeltacht schools indicated that Irish was the main language of their homes, 36-44% considered that they speak a lot of Irish at home.

At Second class, about 80% of pupils in both SLG and Gaeltacht schools indicated that they like to speak Irish at school. At Sixth class, about 55% of pupils in each school type agreed or strongly agreed that they like to speak Irish at school.

Pupils, particularly those in SLG, were less positive about speaking Irish at home. Just 40% of Second class and 21% of Sixth class pupils in SLG agreed that they liked to speak Irish at home. The corresponding percentages for Gaeltacht schools were 51% and 48% respectively.

Future Schooling

Parents of Second class pupils were asked whether or not they expected their child to remain in their current primary school until the end of Sixth class and also whether or not they expected their child to attend an all-Irish post-primary school. Over 95% of parents of Second class pupils in both SLG and Gaeltacht schools indicated that their child would remain in their current school until the end of Sixth class, about 3% were unsure and approximately 1% expected their child to change schools prior to the end of their primary education. About two-thirds of Second class pupils were expected (by their parents) to continue to an all-Irish post-primary school. At Sixth class, a higher percentage of parents of Gaeltacht pupils (61%) than of SLG pupils (46%) reported that their child would attend an all-Irish post-primary school.

Sixth class pupils were also asked about plans for post-primary education (i.e., whether or not they expected to attend an all-Irish post-primary). About half of pupils reported that they expected to attend an all-Irish post-primary school (45% of SLG pupils and 52% of Gaeltacht pupils).

About a quarter of all Sixth class pupils in SLG and Gaeltacht schools indicated that they would not attend an Irish post-primary school because there is none near their home.

Pupils in Sixth class were also asked whether or not they would like to attend an all-Irish post-primary school. In SLG, 40% of pupils stated that they would like to, and would attend an all-Irish post-primary school while just 5% would attend but would not like to. Conversely, 13% indicated that they would not attend an all-Irish post-primary school but that they would like to. The remainder (43%) expected to, and wanted to, attend a post-primary school which is not all-Irish. Percentages were similar in Gaeltacht schools although only 7% of pupils would not attend an all-Irish post-primary school even though they would like to.

Key Points

- The average socioeconomic status of pupils in SLG was significantly higher than that of pupils in Gaeltacht schools and in primary schools generally.
- Only 7% of Second class pupils and 6% of Sixth class pupils in SLG were born outside Ireland compared with 11-13% of pupils in Gaeltacht schools and 14-15% of pupils nationally.
- One-fifth of Second class pupils and one-quarter of Sixth class pupils in Gaeltacht schools indicated that Irish is the main language spoken in their homes. Irish was the main language spoken at home of just 4% of Second class pupils and 2% of Sixth class pupils in SLG. Higher percentages of pupils indicated that they spoke a lot of Irish at home, although it may not be the main language spoken.
- Parents reported having comparatively fewer Irish language books at home than English language books. Up to two-thirds of pupils were in homes with 10 or fewer Irish books while only one-in-ten Gaeltacht pupils and one-in-twenty SLG pupils were in homes with 10 or fewer English books. As in NA 2009, a positive association was found between the number of books at home and pupils' reading achievement in English.
- As in NA 2009, pupils who reported having a TV in their bedroom achieved significantly lower reading and mathematics scores on average than pupils with no TV in their bedroom. Pupils from a lower socioeconomic background were more likely to have a TV in their bedroom.
- According to parents, 61% of pupils in Sixth class in Gaeltacht schools, and 46% in SLG would attend an Irish-medium post-primary school.

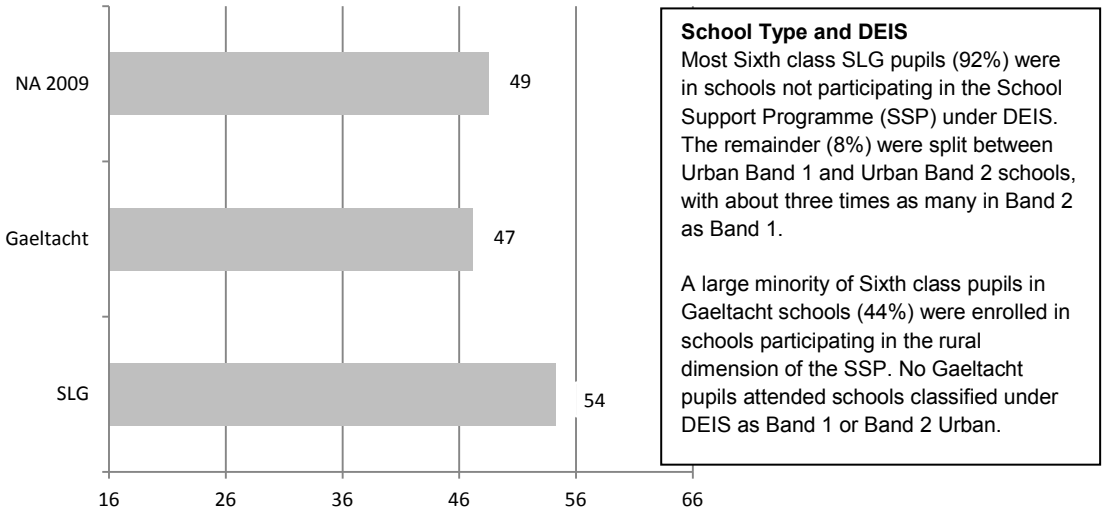
Chapter 5
A Profile of Schools and Classrooms

The focus of this chapter is on describing characteristics, practices and facilities in schools and classrooms; detailed analyses of associations between these characteristics and achievement are examined in Chapter 7.

School and Teacher Characteristics

Figure 5.1 shows that the average socioeconomic status (SES) of SLG is higher than that of Gaeltacht schools (by one standard deviation) and schools in NA 2009 (by four-fifths of a standard deviation). Both differences are statistically significant. Eight percent of pupils in Sixth class in SLG were in the School Support Programme (SSP) under DEIS (Urban Bands 1 or 2), while 44% of Gaeltacht schools were in the rural dimension of SSP. In both SLG and Gaeltacht schools, mean reading achievement of Second class pupils in SSP schools was significantly lower, by one-third (Gaeltacht) to one-half (SLG) a standard deviation. At Sixth class, the difference in favour of pupils in non-SSP schools was statistically significant in SLG only.

Figure 5.1: School-average SES of schools attended by Sixth class pupils



At both Second and Sixth class, there were no significant differences in the mean reading scores of pupils in DEIS Band 2 SLG and those in DEIS Band 2 in NA 2009. Similarly, there were no significant differences at either class level in the mean reading scores of pupils in Gaeltacht rural schools in SSP and those in rural SSP schools in NA 2009.

A majority of pupils at both Second and Sixth classes were taught by female teachers (Sixth class: 75% in SLG and 62% in Gaeltacht schools; Second class: 79% in SLG and 94% in Gaeltacht schools) and by teachers in permanent posts (Sixth class: 95% in SLG and 91% in Gaeltacht schools; Second class: 84% in SLG and 91% in Gaeltacht schools). All teachers surveyed in NAIMS indicated that they were qualified teachers. Sixth class SLG pupils were taught by teachers with an average of 13 years teaching experience compared to an average

of 20 years among teachers of Sixth class pupils in Gaeltacht schools; this difference is statistically significant. Similarly, at Second class, pupils in Gaeltacht schools were taught by teachers with significantly more experience on average (18 years versus 8 years). Sixth class teachers in NA 2009 had, on average, just over 16 years teaching experience; the corresponding average at Second class was 11 years.

Class size (i.e. the total number of pupils to whom the teacher taught English, including those in Second or Sixth class) varied considerably across schools, ranging between 13 and 39 in classes with Sixth class pupils in SLG and between 6 and 33 in classes with Sixth class pupils in Gaeltacht schools. Sixty-five percent of Gaeltacht Sixth class pupils were in multi-grade classes compared to 14% of SLG pupils. In NA 2009, about one-third of Sixth class pupils were taught in multi-grade classrooms. Average class size in single-grade Sixth classes in NAIMS was 26.0 in SLG and 22.1 in Gaeltacht schools (Table 5.1).

Table 5.1: Percentages of Sixth class pupils in multigrade and single grade classrooms, by school type and mean class size

	SLG		Gaeltacht		NA 2009	
	%	Mean	%	Mean	%	Mean
Multi-grade	14	26.6	65	18.8	32	23.4
Single grade	86	26.0	35	22.1	68	25.9

Continuing Professional Development (CPD)

Thirty-eight percent of pupils in Sixth class in SLG and 28% in Gaeltacht schools were taught by teachers who had not undertaken any professional development relevant to either English or mathematics in the three years prior to NAIMS. The corresponding estimate for NA 2009 was 28%. The percentages were higher at Second class (SLG: 52%; Gaeltacht: 41%; NA 2009: 35%). The average number of days of CPD (including assistance from advisors from the then Primary Professional Development Service) for English and mathematics combined for teachers of Sixth class pupils was 3.5 in Gaeltacht schools and 2.3 in SLG. The corresponding average in NA 2009 was 3.5 days.

In an open-ended question, teachers were asked to indicate their personal priority areas for CPD. For English, developing pupils' skills in creative writing was identified by teachers of 26% of Sixth class pupils in SLG and 42% in Gaeltacht schools. Other areas of need in English included oral language (teachers of 19% of pupils in SLG, 34% in Gaeltacht schools), information and communications technology (ICT) skills (20% in SLG, 25% in Gaeltacht schools) and strategies/materials for working with lower-achieving pupils (12% in SLG, 19% in Gaeltacht schools). Teachers' CPD needs in English were broadly similar at Second class.

For mathematics, the two most common areas of need identified by Sixth class teachers were use of ICT/interactive whiteboards (32% of pupils in SLG, 44% in Gaeltacht schools) and developing problem-solving skills (21% in SLG, 31% in Gaeltacht schools). Other frequently cited topics were teaching in multi-grade classes/differentiation, use of manipulative or hands-on materials, working with pupils with special needs/ difficulties, and working with higher-achieving pupils. At Second class, areas accorded the highest priority across Irish-medium schools were teaching specific topics (e.g., time or money), using ICT/identifying suitable websites, teaching different ability groups (e.g., in a multi-grade class), and teaching pupils with special needs.

Provision of Additional Support

Language Support

A majority of pupils (ranging from 53% in Second class in SLG to 60% in Sixth class in Gaeltacht schools) attended schools where principals reported that no pupils spoke a language at home other than English or Irish. Just 2% of all Sixth class pupils enrolled in Gaeltacht schools and fewer than 1% in SLG spoke languages other than English or Irish as their mother tongue. Principals reported that overall, just 1% of pupils in Sixth class in Gaeltacht and SLG schools were in receipt of language support in English. A similar percentage of newcomer pupils was in receipt of Irish language support in the two school types.

The picture above can be contrasted with that found in NA 2009 where about 10% of pupils spoke languages other than English or Irish at home and 6% were in receipt of English language support.

Learning Support/Resource Teaching

Teachers indicated that 16% of Second class pupils in SLG and 20% in Gaeltacht schools were in receipt of learning support (LS) or resource teaching (RT) for English (Table 5.2). The corresponding figures for Sixth class are 10% and 18% respectively. Eight percent of pupils in Second class in SLG and 10% in Sixth attended LS/RT for maths. The corresponding estimates for Gaeltacht schools are 10% and 11% respectively.

Table 5.2: Percentages of pupils in receipt of learning support/resource teaching for English or mathematics, based on teachers' reports for individual pupils

		SLG	Gaeltacht	NA 2009
Second	English	16	20	16
	Maths	8	10	11
Sixth	English	10	18	11
	Maths	10	11	10

More pupils attending Irish-medium schools in SSP under DEIS were in receipt of LS/RT compared with pupils in schools not in SSP. For example, in Sixth class, 15% of pupils in DEIS Band 2 SLG were in receipt of LS/RT for English, compared with 9% outside DEIS. In NA 2009, 16% in Sixth class in DEIS Band 2 schools were also in receipt of LS/RT for English.

Teachers reported that the most common means by which additional support for English and mathematics was provided was by withdrawing groups of pupils from the classroom. This approach was most widely used in both Second and Sixth class. About three-fifths of Sixth class pupils were in classrooms where additional support for English was provided in this way.

Provision of Support to Parents

Principals were asked whether or not their schools had run programmes for parents to support them in helping their child with English reading, Irish reading or mathematics. While a large majority of Sixth class SLG pupils (84%) were enrolled in schools which provided a support programme in English reading, the corresponding percentage in Gaeltacht schools (46%) was significantly lower (Table 5.3). About two-thirds (65%) of Sixth class pupils in NA 2009 attended schools which provided support programmes for parents in English reading.

Table 5.3: Percentages of Sixth class pupils enrolled in schools where parents were offered programmes to support their child's English reading, mathematics or Irish reading

	SLG	Gaeltacht	NA 2009
English reading	84	46	65
Irish reading	49	39	---
Maths	20	10	29

Availability of Resources

Technology

Most Sixth class pupils (87% in SLG; 96% in Gaeltacht schools; 76% in NA 2009) were in classrooms with at least one computer. Although the percentages were somewhat lower in Irish-medium schools at Second class than at Sixth class, the majority of Second class pupils were also in classrooms with at least one computer (77% in SLG; 78% in Gaeltacht schools; 77% in NA 2009).

Looking at the overall ratio of pupils to computers, a somewhat more favourable average ratio was found in Gaeltacht schools (12 pupils per computer at Sixth class and 13 at Second class) than in SLG (23 pupils per computer at Sixth and Second class), although differences across school types were not statistically significant. The pupil-to-computer ratios found in NA 2009 (12 in Second and Sixth classes) were similar to those found in Gaeltacht schools in the current study.

School and Classroom Libraries

Principals' reports indicated that the majority of Sixth class pupils in both SLG and Gaeltacht schools were enrolled in schools where there were classroom libraries in every classroom. Based on teachers' reports, the quantities of English and Irish books in the classrooms of Sixth class pupils were found to vary considerably across schools. In SLG, 90% of Sixth class pupils were in classrooms with between 75 and 450 books; the corresponding range in Gaeltacht schools was 135 to 742. On average, Sixth class pupils in Gaeltacht schools had access to a significantly higher number of English books, Irish books and books overall in their classrooms than SLG pupils. In addition, they had, on average, a significantly more favourable books-to-pupil ratio. Although Gaeltacht pupils had greater access to books in their classrooms, it is likely that SLG pupils had greater access to books in the school library as SLG were more likely to have school libraries than Gaeltacht schools.

There were more English books than Irish books in the classrooms of Second and Sixth class pupils in both SLG and Gaeltacht schools.

Beginning of Formal Reading Instruction

Most pupils were in schools where the principal indicated that the School Development Plan included written statements on the beginning of formal instruction in English (100% of pupils in Second class in SLG, 87% in Gaeltacht schools), the beginning of formal instruction in Irish reading (98% of Second class pupils in SLG, 94% in Gaeltacht schools) and teaching mathematics through Irish (74% in Second class in SLG, 88% in Gaeltacht schools). Principals in Irish-medium schools were also asked about school policy on the language in which formal reading instruction began in the school.

Almost three quarters of Second class SLG pupils (73%) began formal reading instruction in Irish, 17% did so in English, and 11% did so in both English and Irish together. In Gaeltacht schools, the percentages of Second class pupils in each of the three

categories (those who began in Irish only, English only or Irish and English together) were broadly similar; about one-third of pupils were in each category.

In SLG, there were no significant differences in the average reading achievement of either Second or Sixth class pupils who attended schools where the policy was to begin reading instruction in Irish, English or Irish and English together. In Gaeltacht schools, Sixth class pupils who attended schools where the policy was to begin reading instruction in English and Irish together had a significantly lower average reading score than pupils in schools where the policy was to begin reading instruction in English only. The difference amounted to approximately one-third of a standard deviation. There were no statistically significant differences at Second class.

According to school principals, and in line with school policy, about one-third of Second class pupils in SLG and one half in Gaeltacht schools began English reading instruction in Junior Infants; 58% in SLG and 43% in Gaeltacht schools began English reading instruction in Senior Infants. Ten percent in SLG and 2% in Gaeltacht schools began English reading in First class, and 5% in Gaeltacht schools began in Second class.

Key Points

- Fewer than 10% of Sixth class SLG pupils attended schools participating in the School Support Programme (SSP) under DEIS. At both Second and Sixth class, non-SSP pupils achieved significantly higher mean scores in English reading and mathematics than SSP pupils.
- A substantial minority (44%) of Sixth class pupils in Gaeltacht schools attended schools participating in the rural dimension of the SSP. The only significant difference in achievement between pupils in SSP Gaeltacht schools and those in non-SSP Gaeltacht schools was in reading at Second class, where pupils in non-SSP schools had a significantly higher mean score.
- The average school socioeconomic status (SES) of SLG was significantly higher than that of Gaeltacht schools. It was also significantly higher than the corresponding school average SES of schools participating in NA 2009.
- In general, across SLG and Gaeltacht schools, the number of CPD days taken by teachers was low, although similar to that found in NA 2009.
- Principals reported that, on average, very few pupils in Irish-medium schools (2% or fewer) spoke languages other than English or Irish at home and received English language support.
- Principals indicated that about one in seven Sixth class pupils in Irish-medium schools were in receipt of learning support or resource teaching for English. About one-in-ten pupils were in receipt of learning support or resource teaching for mathematics.
- Three-quarters of Second class SLG pupils were in schools where principals reported that reading instruction began in Irish. It was less common for principals of SLG to report that reading instruction began in English only (17% of Second class pupils) or Irish and English together (11% of Second class pupils). In Gaeltacht schools, each of the three options was equally prevalent. In general, the language in which reading instruction began was not associated with achievement in reading.

Chapter 6
English and Mathematics – Teaching and Learning

Language of Mathematics Teaching

Teachers of Second and Sixth class pupils in Irish-medium schools were asked whether they taught mathematics through Irish only, English only, or through a mix of Irish and English. No pupils were in classes where teachers indicated that they taught mathematics through English only. At Second and Sixth class in Gaeltacht schools, about half of pupils were in classes where teachers reported teaching through Irish only and about half were in classes where mathematics instruction was provided through a mix of English and Irish (Table 6.1). A large majority (82%) of Second class pupils in Scoileanna Lán-Ghaeilge (SLG) were in classes where mathematics was taught through Irish only but, by Sixth class, just over one half of pupils were in classes where mathematics was taught through Irish only.

Table 6.1: Percentages of pupils whose teachers indicated that instruction in mathematics is provided in Irish only[1] or in a mix of English and Irish, by school type and class level

	SLG		Gaeltacht	
	Irish only	Mix of English and Irish	Irish only	Mix of English and Irish
Second	82	18	45	55
Sixth	53	47	50	50

[1]No pupils were taught mathematics through English only.

In a small number of cases, teachers who had indicated that they taught through Irish only went on to give an explanation for why they used English and Irish in certain cases; e.g., "I give pupils terms in English before the standardised test", and "In cases of difficulty, I explain in English".

The most common reason given by Sixth class teachers in SLG for using a mix of Irish and English related to the fact that a majority of pupils would go on to a post-primary school where English was the language of instruction. Teachers also referred to facilitating pupils in connecting mathematical concepts (in English) to everyday life and the need to have terms in English for life. A small number of pupils were in classes whose teachers identified the difficulty of Irish language terms and the lack of resources available in Irish as reasons for not using Irish exclusively.

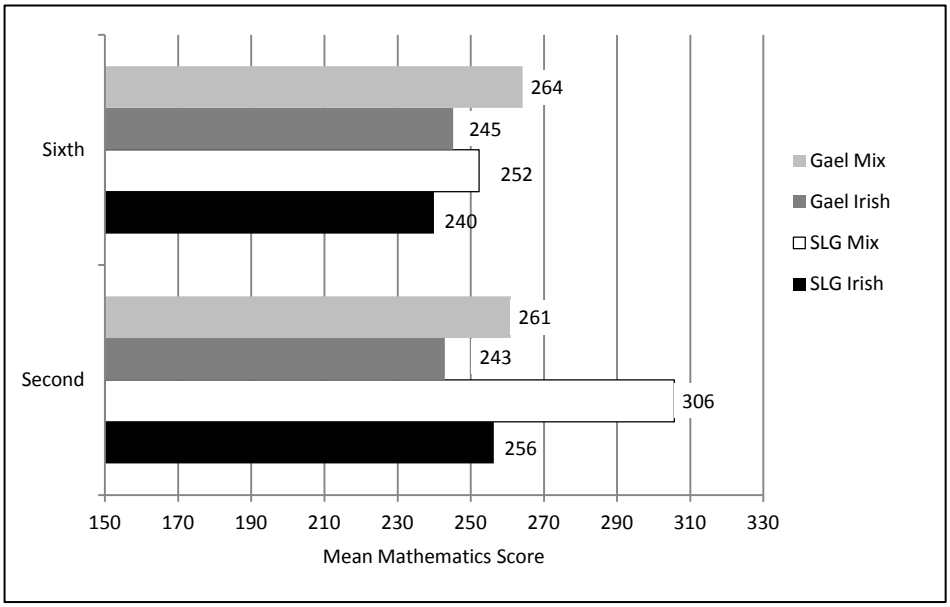
At both Second and Sixth class in Gaeltacht schools, the most commonly cited reason for using a mix of languages rather than Irish exclusively related to pupils' levels of proficiency in Irish. In classrooms where a mix of languages was used, teachers of about half of Second class pupils and one-third of Sixth class pupils indicated that they did not have sufficient confidence in pupils' levels of Irish to teach mathematics exclusively through the language. Teachers of about one-quarter of Sixth class Gaeltacht pupils in classes where a mix of languages was used indicated that the use of both Irish and English aided pupils with special educational needs. The issue of pupils progressing to a post-primary school where the language of instruction was English was cited by teachers of one-fifth of Sixth class Gaeltacht pupils in classrooms where Irish and English were used.

No significant differences were found in the mean mathematics scores of pupils at either Second or Sixth class who received instruction through Irish only and those who received instruction through a mix of Irish and English.

Just 2-6% of pupils across grade levels and school types received mathematics instruction through Irish only, yet completed the mathematics test through English. It was equally rare for Second class SLG pupils to do the test in English, having had instruction in both English and Irish – only 4% of pupils were in this category – but this was much more common in Gaeltacht schools, where 48% of Second class pupils did the mathematicss test in English having been taught mathematics in both English and Irish. At Sixth class, 17% of pupils in SLG and 34% in Gaeltacht schools had mathematics instruction in a mix of English and Irish and did the test in English.

At Second class, pupils in both SLG and Gaeltacht schools who did the mathematics test in English achieved a significantly higher mean score when instruction took place in a mix of English and Irish, rather than exclusively through Irish (see Figure 6.1). A similar pattern of results was evident at Sixth class, although differences were not statistically significant. Among pupils who did the test in Irish, there were no statistically significant differences between the mean scores of those who received instruction exclusively through Irish and those who received instruction through a mix of Irish and English.

Figure 6.1: Mean mathematics scores of pupils who did the mathematics test in English, by language of instruction, school type and grade



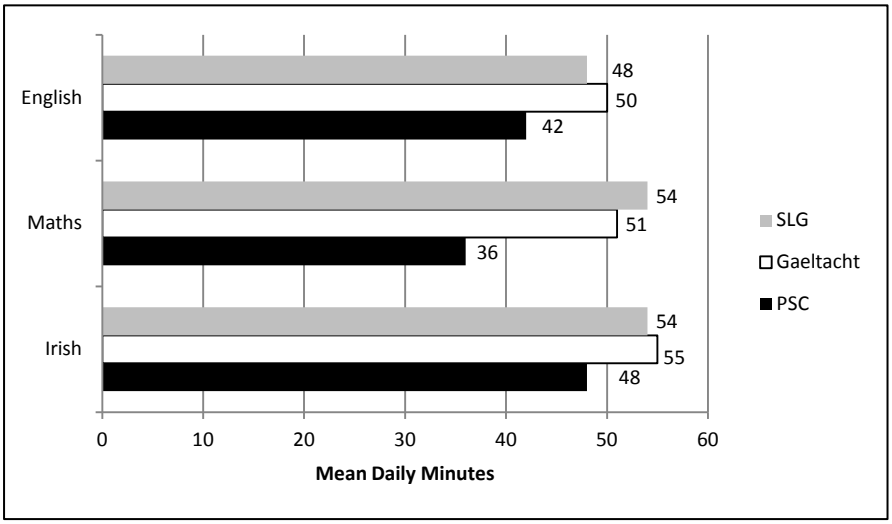
Resources for Teaching and Learning

Time spent on English, Mathematics and Irish

According to the curriculum guidelines (DES/NCCA, 1999a), four hours per week should be spent on the main language of instruction (i.e., Irish in the case of Irish-medium schools), three and a half hours on the second language (i.e., English in the case of Irish-medium schools), and a minimum of three hours weekly should be devoted to teaching mathematics. Two hours per week of "discretionary time" can also be applied to these or other curriculum areas. Figure 6.2 shows that the average amount of time spent daily by Sixth class pupils on English, mathematics and Irish exceeded the minimum recommended time in both Gaeltacht schools and SLG. The difference was particularly pronounced for mathematics where Sixth class pupils spent on average one and a half times the recommended minimum time.

Findings were similar in NA 2009, where the average amount of time spent on mathematics daily by Sixth class pupils was 52 minutes and the average time spent on the main language of instruction (i.e., English in most cases) was 55 minutes.

Figure 6.2: Mean number of minutes per day allocated to the teaching of English, mathematics and Irish, as reported by Sixth class teachers, and minimum specified in the curriculum (PSC)



At Second class (not shown), SLG pupils spent an average of 54 minutes per day on Irish, 48 minutes per day on English and 46 minutes per day on mathematics. In Gaeltacht schools, Second class pupils spent an average of 48 minutes per day on Irish, 43 on English and 42 on mathematics.

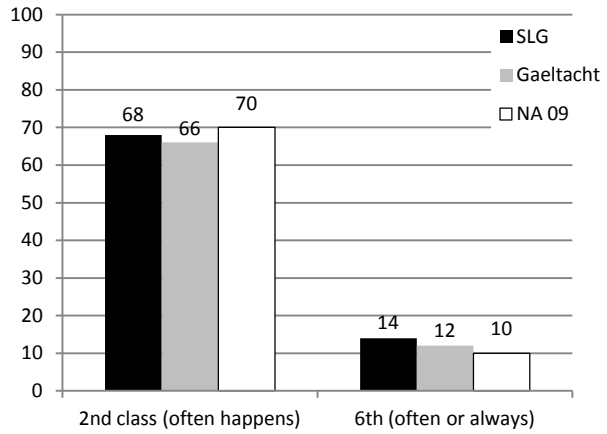
Subject-Specific Resources

Teachers in Irish-medium schools reported that published reading schemes were the most widely used resource in English lessons. About four-fifths of Second class pupils and three-fifths of Sixth class pupils in Irish-medium schools were in classrooms where teachers indicated that they used published reading schemes every day. Almost all pupils were in classrooms where they were used at least weekly. Workbooks or worksheets were also widely used; again, almost all Second and Sixth class pupils in Irish-medium schools and in NA 2009 were in classrooms where workbooks or worksheets were used at least weekly.

At both Second and Sixth class and across all school types, the use of textbooks in mathematics lessons was widespread. A large majority of pupils used textbooks in *most or all lessons* and virtually all pupils used textbooks at least weekly. Workbooks and worksheets were also very widely used, particularly at Second class. Tablebooks, real-life materials, manipulatives and mathematics games were widely used at Second class but less so at Sixth class. More than half of Sixth class pupils (63% in SLG and 58% in Gaeltacht schools) reported never using tablebooks in their mathematics lessons.

At both grade levels, pupils were asked about their use of equipment in mathematics classes. At Second class, pupils were asked whether or not they often used equipment, like weighing scales or measuring tapes, to solve problems. At Sixth class, pupils were asked how often they used this equipment, i.e. *never*, *sometimes*, *often* or *always*. Figure 6.3 shows that while mathematics equipment was widely used at Second class, it was much less frequently used at Sixth class.

Figure 6.3: Percentages of pupils who regularly use equipment to solve problems in mathematics class, by grade and school type



Use of materials in mathematics lessons

Teachers reported much more widespread use of real-life materials, manipulatives and mathematics games at Second class than at Sixth. Pupils too reported greater use of equipment at Second class than at Sixth. Textbooks and workbooks were the main materials used in mathematics lessons at Sixth class.

Technology

At Sixth class, 65% of SLG pupils and 46% of Gaeltacht pupils were in classrooms in which either a digital projector or an IWB (or both) was used at least once per week for English lessons. However, in the English lessons of one-fifth of SLG Sixth class pupils and one-third of Gaeltacht pupils, there was little use of technology; teachers of these pupils reported *rarely or never* using the IWB or a digital projector.

Between 40% and 50% of all Sixth class pupils in Gaeltacht schools and SLG were in classrooms where the teacher reported using the IWB at least weekly (i.e., in *most or all lessons* or *once or twice per week*) in one or more of English, mathematics, or Irish. However, a sizeable minority of Sixth class pupils (30% in SLG and 46% in Gaeltacht schools) were in classrooms where teachers reported *rarely or never* using an IWB for English; of course, in some cases this may relate to the fact that no IWB was available.

Sizeable percentages of Second and Sixth class pupils *rarely or never* used computers for mathematics. In SLG, the figures were 36% at Second class and 45% at Sixth, while in Gaeltacht schools, 20% of Second class pupils and 23% of Sixth class pupils *rarely or never* used computers for mathematics. In NA 2009, 42% of Second class pupils and 30% of Sixth class pupils were in this category.

Only one in ten pupils in Sixth class reported that they *often* or *always* used calculators in mathematics lessons while 80% indicated that they use them *sometimes*. Roughly half of pupils were reported by teachers to use calculators at least weekly in mathematics. A substantial minority of Sixth class pupils (15% in SLG, 9% in Gaeltacht schools) were in classrooms where teachers reported that calculators were rarely or never used. The corresponding estimate in NA 2009 was 22%. According to teachers, the most common purposes for which calculators were used in mathematics classes were: checking answers; doing routine calculations; developing number concepts; and developing estimation skills.

Non-Standardised Assessments

At both Second and Sixth class in each of the school types and across the three subject areas, teacher questioning was very widely used as a non-standardised method of assessing pupils' progress. Almost all pupils were in classrooms where teachers reported using this method of assessment either *at least once or twice per week* or *at least monthly*. Other methods of assessment which were reported to be used at least monthly by teachers of large percentages of pupils (at

least one half in either English reading or mathematics) were error analysis, pupil self-assessment, teacher-made tests, teacher-made checklists and documented observations. Error analysis was used more frequently in the assessment of English reading at both Second and Sixth class than in the assessment of mathematics or Irish. Less common forms of assessment were reflective portfolios, published progress tests or checklists and curriculum profiles. Not surprisingly, given the purpose of diagnostic tests, low percentages of pupils were in classrooms where teachers reported using these *at least monthly*.

Key Points

- Over 80% of Second class pupils in SLG were taught mathematics through Irish only whereas at Sixth class, only half of pupils were taught using Irish only, and half through a mix of Irish and English. In Gaeltacht schools, about half of pupils at each grade level were taught mathematics exclusively through Irish while half were taught using a mix of English and Irish. No pupils in Irish-medium schools were taught mathematics through English only.
- The main problem identified by teachers who taught mathematics through Irish only related to the complexity of mathematical vocabulary.
- Although the Primary School Curriculum advocates spending more time on the main language of instruction than on mathematics, on average, teachers in Irish-medium schools reported spending similar amounts of time on the two. Average instructional time in mathematics in particular exceeded what was recommended in curriculum documents.
- About half of Sixth class pupils were in classrooms where teachers reported at least weekly use of calculators in mathematics lessons. A substantial minority of Sixth class pupils (15% in SLG, 9% in Gaeltacht schools) were in classrooms where teachers reported that calculators were rarely or never used.
- Teacher questioning was reported to be the most widely used method of non-standardised assessment for English reading and mathematics. Error analysis was also quite widely used in the assessment of English reading but somewhat less so in the assessment of mathematics. About half of Sixth class pupils were in classrooms where pupil self-assessment was used at least monthly for the assessment of English reading and Irish. Less frequent use was made of other forms of assessment such as reflective journals, portfolios, published progress tests or checklists, curriculum profiles or diagnostic tests.

Chapter 7
Understanding Performance

In earlier chapters, some bivariate analyses were presented on associations between pupil achievements in reading and mathematics and school or family characteristics. In this chapter, we analyse the data using statistical modelling.

School Average Socioeconomic Status and School Average Achievement at Sixth Class

In NA 2009 schools where at least 15 Sixth class pupils completed the reading test, there was a statistically significant positive correlation between school-average SES and school-average Sixth class reading achievement (r=.79). Similarly, in SLG where at least 15 Sixth class pupils completed the reading test, there was a statistically significant positive correlation (r=.59) between school-average SES and school-average Sixth class reading achievement. Table 7.1 shows the mean SES and reading scores for pupils in schools where at least 15 pupils completed the reading test.

Table 7.1: Mean school-level SES and school-level reading achievement, Sixth class (schools with at least 15 completed reading tests[1])

	SLG	Gaeltacht	NA 2009
	Mean	Mean	Mean
School-average SES	54.0	48.7	48.3
School-average Sixth class reading achievement	265.2	256.0	249.0

[1]The percentages of schools with at least 15 completed reading tests were as follows: SLG 71%; Gaeltacht 11%; and NA 2009 40%.

Using school-average Sixth class reading achievement in NA 2009 as a dependent (outcome) variable, a regression analysis found that a one-point increase in school-average SES was associated with a 2.5 point increase in school-average Sixth class reading achievement. Applying this to SLG, we calculated the *expected* gap between average reading achievement in NA 2009 and average reading achievement in SLG, based on average school-level SES. This was estimated to be 14 points. The actual *observed* gap is 16 points. Thus, the average reading achievement in SLG is about what would be expected, given the average socioeconomic status of SLG.

A similar analysis was conducted to examine the association between school-average mathematics achievement and school-average SES. Again, descriptive statistics are provided before turning to the regression output. Table 7.2 provides the means, for school-average SES and school-average Sixth class mathematics achievement in SLG, Gaeltacht schools and NA 2009 schools where at least 15 Sixth class pupils completed the mathematics test. It is of interest to note that in NA 2009, there was a correlation of .65 between school-average mathematics achievement and school-average SES in schools with at least fifteen completed the Sixth class mathematics tests. The corresponding correlation in SLG with at least fifteen completed Sixth class mathematics tests was .40.

Table 7.2: Mean of school-level SES and school-level maths achievement, Sixth class (Schools with at least 15 completed mathematics tests only)

	SLG	Gaeltacht	NA 2009
	Mean	Mean	Mean
School-average SES[1]	54.1	48.7	48.4
School-average 6th class maths achievement	251.8	250.9	248.8

[1]Values differ slightly from those presented in Table 7.1 as values here were computed on the basis of all pupils who did the mathematics test whereas Table 7.1 relates to the reading test.

Using the NA 2009 data, a linear regression indicates that on average, a one point increase in school-average SES corresponded to a 2.4 point increase in school-average mathematics achievement. The *expected* gap between NA 2009 and SLG was 14 points. The *observed* average mathematics achievement of SLG is just 3 points higher than the average in NA 2009 (Table 7.2). Thus, the *observed* gap (3 points) between SLG and NA 2009 is much smaller than the *expected* gap (14 points).

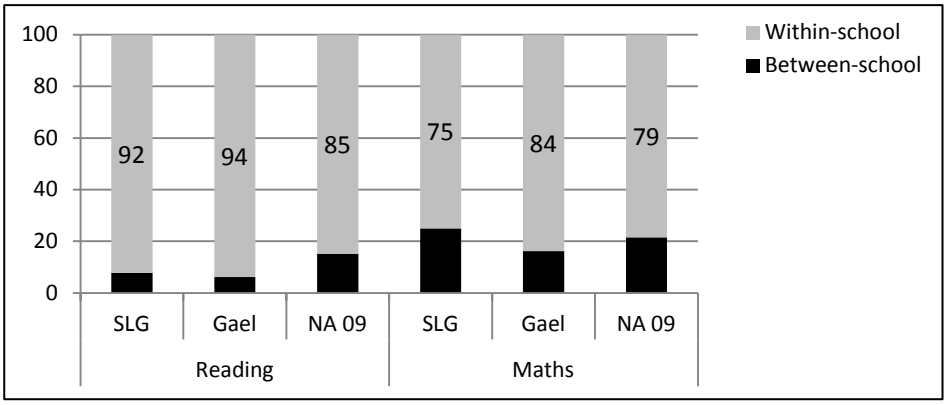
In NA 2009, school-average SES explained a greater proportion of the variation in average reading achievement (R^2=62%) than in average mathematics achievement (R^2=42%). Thus, school-average SES is a better predictor of school-average reading achievement than school-average mathematics achievement.

Differences in Achievement across Schools

In order to balance the focus of this chapter, the remainder explores data for Second class, though, where relevant, reference is made to Sixth class.

Figure 7.1 shows graphically the percentages of variation in reading and mathematics achievement at Second class which are attributable to differences between schools and to differences between pupils within schools.

Figure 7.1: Estimates of the percentages of variance in achievement at Second class which are between and within schools, by domain and school type



Between-school variance in Second class reading achievement is somewhat lower in Irish-medium schools than in NA 2009; e.g., at Second class, just 6-8% of the variation in reading achievement in Irish-medium schools is attributable to differences between schools compared to 15% in NA 2009 (Figure 7.1). However, the standard errors associated with the variance components are quite large so we cannot conclude that Irish-medium schools are more homogenous in terms of reading achievement than NA 2009 schools. Similarly at Sixth class in Irish-medium schools, there is a lower variance in reading achievement between schools (SLG: 7%, Gaeltacht: 6%) compared with NA 2009 (16%), but again, standard errors are large.

In mathematics, between-school variance in achievement in Irish-medium schools is similar to that in NA 2009; e.g., at Second class, 25% of variation in mathematics achievement in SLG[6] is attributable to differences between schools compared to 21% in NA 2009. Similarly, at Sixth class, the percentages of between-school variance in mathematics achievement are similar in SLG (17%), Gaeltacht (15%) and NA 2009 (23%) since, again, the standard errors associated with the variance components are quite large.

Understanding Second Class Reading Achievement in SLG

In this section, we look at the association between achievement and a number of characteristics simultaneously, using a multi-level modelling framework. This allows us to look at, for example, the association between pupils' leisure reading and achievement in reading, while controlling for other pupil and school characteristics. This approach reduces the risk of misinterpreting the relationship between achievement and a characteristic of interest.

The focus is on Second class pupils because it is of policy interest to know whether or not there are significant associations between school and home characteristics and early reading achievement. The model was developed for SLG as between-school variance in Second class reading achievement was a little higher in SLG than in Gaeltacht schools. Reading is used as an outcome variable as the English reading achievement of pupils in Irish-medium schools is of particular policy interest.

Additional detail on the modelling process may be found in the main report on NAIMS (Gilleece et al., 2012). Here the main outcomes are reported.

At school level, just one variable – school enrolment size at First class[7] – was statistically significant in the final model (Table 7.3). Each additional pupil enrolled at First class was associated with a 0.3 point increase in average reading achievement. The parameter estimate for enrolment size at First class in the final model (0.3) does not differ substantively from the parameter estimate in the null model (0.38). This indicates that the association between school size and reading achievement is broadly independent of the other variables in the final model. It is not clear why larger school enrolment size is associated with higher average reading achievement although it may be the case that smaller pupil numbers are found in less-established schools where practices and approaches have not yet been optimised[8], and in disadvantaged schools. Since between-school variance in reading achievement at Second class in SLG is low (8%) (i.e., it comprises a small proportion of the total variance), it is perhaps not surprising that few school-level variables are statistically significant in the final model.

[6] It is unclear how the variance in mathematics achievement might relate to the language of instruction in mathematics classes or to the language in which pupils took the mathematics test.
[7] For modelling purposes, enrolment size at First class was used as a proxy measure for school size as overall school enrolment size is expected to co-vary with year of opening (whether before 2001-02, or after).
[8] An alternative model was examined which included school-average SES as the only school-level variable. The term for school-average SES was also statistically significant, although following the modelling strategy used, this term was dropped from the model.

Table 7.3: Variables in final multilevel model of reading achievement – Second class, SLG

Significant School Variables	Significant Pupil Variables
School size (First Class)	Pupil has TV in his/her bedroom (Yes/No)
	Family SES (Continuous)
	Pupils read for fun at least occasionally (Yes/No)
	Time spent on homework (Continuous)
	Number of English and Irish books at home (Continuous)

All else being equal, pupils who indicated that they had a TV in their bedrooms achieved an average score that was 17 points lower than pupils who did not have a TV in their bedroom. This difference amounts to about one-third of a standard deviation on the reading achievement scale.

A change of one standard deviation in pupil SES was associated with a change of nearly five points in reading achievement. This shows a relatively weak relationship between family SES and achievement when other variables in the model are controlled for.

Other things being equal, pupils who indicated that they read for fun occasionally scored about ten points higher (one-fifth of a standard deviation) on average than pupils who reported never reading for fun. Having higher numbers of books at home was also associated with higher reading achievement. A one standard deviation increase in the number of books in a pupil's home was associated with an average increase of almost 11 points (about one-fifth of a standard deviation). Pupils at the 25th percentile on the books scale had about 60 books at home and the model indicates that these pupils would be expected to score about 8 points lower than those with the average number of books at home (about 200).[9] Pupils at the 75th percentile on the total books scale had about 375 books at home and are expected to score about 10 points more than those with the average number of books.

Spending increased amounts of time on English homework (as reported by parents) was associated with lower reading achievement, other things being equal. On average, pupils who spent the least amount of time on homework (i.e., one standard deviation below the mean amount of time) had a reading score which was nine points higher than pupils who spent a medium amount of time on homework (i.e., average amount of time); these pupils in turn had an average score which was seven points higher than that of pupils who spent the most amount of time on English homework (i.e., one standard deviation above the mean amount of time). It is likely that the negative association between time spent on homework and reading achievement may be accounted for by weaker pupils needing longer to complete homework tasks.

There were no statistically significant cross-level interactions or random slope variations in the model. Using pupil SES as the only predictor variable, the model explains 43% of between-school variance and 4% of within-school variance. Using pupil SES and home climate (i.e., number of books at home, pupil engages in leisure reading, time spent on homework, and pupil has a TV in his/her bedroom) as explanatory variables accounts for 54% of between-school variance and 16% of within-school variance.

[9] The 25th and 75th percentile values on the z-standardised scale are -0.80 and 0.98, respectively. Multiplying these by the PE (10.61) gives values of -8.49 and 10.43. The 25th percentile value of the total books scale before z-standardisation is 61. The corresponding 75th percentile value is 375.

Adding in the only significant school-level predictor (school enrolment size at First class) means that the model explains 67% of between-school variance and 16% of within-school variance. Overall, the model explains 19.8% of the total variance in reading achievement at Second class in SLG.

A general problem with attempting to model reading achievement at Second class in the current study relates to the nature of the questions on the pupil questionnaire. To reduce the reading load to an age-appropriate level, Second class pupils were presented with dichotomous questions whereas Sixth class pupils were asked to rate frequencies or attitudes using a four-point scale. The dichotomous question format did not allow subtle distinctions to be made between Second class pupils.

Key Points

- The analyses reported in this chapter focused primarily on SLG and NA 2009 schools rather than on Gaeltacht schools as smaller enrolment sizes in the latter render some statistical procedures problematic.
- The average school-level Sixth class reading score in SLG is about what would be expected, given the average school-level socioeconomic status (SES) of these schools.
- The average school-level Sixth class mathematics score in SLG is somewhat lower than what would be expected, given the average school-level SES of SLG.
- School-average SES correlates more strongly with Sixth class reading achievement compared to mathematics achievement.
- A multilevel model of Second class reading achievement in SLG indicated that just one school level characteristic was significantly associated with reading achievement, once pupil level characteristics were considered. Higher pupil reading achievement was associated with larger school enrolment size (using enrolment at First class as a proxy indicator of overall enrolment size).
- At pupil level, there was a statistically significant negative association between reading achievement and a pupil having a TV in their bedroom. This is in line with the findings of Eivers et al. (2010a) who reported that, in NA 2009, pupils with TVs in their bedrooms had significantly lower mean scores in both reading and matheamtics.
- The model also showed that higher SES, having higher numbers of books at home and spending time on leisure reading were positively associated with reading achievement. Home climate variables such as books at home and spending time on leisure reading explain additional variance in achievement over and above SES.
- Spending longer periods of time on English homework was negatively associated with achievement. It is likely that this may result from lower achieving pupils taking longer to complete homework.
- The model explained 67% of between-school variance and 16% of within-school variance. These are broadly similar to the percentages explained by another recently published model of reading achievement at primary level in Ireland (Smyth et al., 2010). An earlier model of reading literacy in disadvantaged primary schools explained a similar amount of between-school variance (69%) but a greater amount of within-school variance (29%) (Sofroniou, 2004).

Chapter 8
Recommendations

This chapter provides recommendations arising from the National Assessments of English Reading and Mathematics in Irish-medium Schools. A full rationale for each recommendation is given in the main report on the study (Gilleece et al., 2012). The recommendations are designed to complement those made in the report of the *2009 National Assessment of Mathematics and English Reading* (Eivers et al., 2010a) and the actions set out in the *National Strategy to Improve Literacy and Numeracy 2011-2020* (DES, 2011a), which were further elaborated on in *Circular 0056/2011*, *Initial Steps in the Implementation of the National Literacy and Numeracy Strategy (DES, 2011b)*, a document that was issued to schools as this report was being completed.

Performance on English Reading

1. Irish-medium schools should continue to carefully monitor the performance of pupils who are experiencing difficulties in English reading, how they cope with increasing literacy demands in English and Irish, and how they respond to the support they receive at school and at home.
2. Gaeltacht schools should place a stronger emphasis on the development of higher-order English reading skills (Examine and Evaluate), especially in the Senior classes.

Performance on Mathematics

3. In line with providing pupils with access to the full curriculum through the medium of Irish, Scoileanna Lán-Ghaeilge (SLG) should place a stronger emphasis on developing mathematical reasoning and problem solving in the Senior classes, paying particular attention to developing and using mathematical language in Irish as pupils engage in these processes.
4. Qualitative research should be conducted into the teaching of mathematical reasoning and problem solving in the Senior classes in schools, with an emphasis on how instructional dialogue, language register and participation vary across SLG, and between SLG, Gaeltacht schools, and English-medium schools.

Relationship between Socioeconomic Status and Performance

5. In line with the *National Strategy to Improve Literacy and Numeracy 2011-20,* Irish-medium schools should seek to raise performance on reading literacy, and should take the socioeconomic status of their pupils into account in setting targets aligned to the *Strategy*.
6. In line with the *National Strategy*, Irish-medium schools should seek to raise average performance in mathematics. SLG should focus in particular on the Senior classes, where the performance of higher achievers should be monitored closely.
7. SLG in the SSP under DEIS should monitor performance carefully with a view to significantly reducing the gaps in English and mathematics relative to non-SSP schools, in both Junior and Senior classes. In doing so, they should be guided by relevant research on the effective teaching of language, literacy and numeracy in bilingual contexts.

8. Gaeltacht schools in SSP under DEIS should continue to carefully monitor the English reading performance of pupils once formal instruction begins, and should intensify work in English reading and related areas (e.g., oral language) to ensure that pupils make adequate progress, even if English is not their first language.
9. The DES and relevant agencies should advise Irish-medium schools in SSP on effective, research-based approaches to accelerating the performance of at-risk pupils in English reading and mathematics, taking the bilingual context of schools into account, including the language of beginning reading instruction.
10. The National Council for Curriculum and Assessment should take the needs of Irish-medium schools into account as it prepares its new integrated language curriculum for primary schools.

Language of Beginning Reading Instruction

11. Further research should be conducted into the impact of various approaches to beginning reading instruction in Irish-medium schools, including the effects of introducing English and Irish reading at the same time and the extent to which early language work prepares children to access the full curriculum through Irish.

Language of Mathematics Instruction

12. Future research involving Irish-medium schools should examine more closely the relationship between teachers' confidence and competence in using Irish to teach higher-order mathematics skills and raise pupil performance in mathematics.

Support for At-risk Pupils

13. Irish-medium schools should review levels of support/resource teaching, especially in Senior classes, with a view to distributing support in such a way that all pupils can access the full curriculum including English, mathematics and Irish.
14. Irish-medium schools should continue to find ways to integrate support services into classrooms where possible, in line with current DES guidelines, with services being provided for English, mathematics and Irish on a needs basis.

Time Allocated to Teaching

15. SLG and Gaeltacht schools in the SSP, and Galetacht schools where high percentages of pupils do not speak English as the main language, should allocate additional discretionary time to the teaching of English.
16. In line with the *National Strategy to Improve Literacy and Numeracy 2011-20*, SLG should continue to allocate additional discretionary time to teaching mathematics, particularly in the Senior classes, with a view to increasing pupils' engagement in reasoning mathematically and solving non-routine problems.

Access to and Use of Technology

17. Irish-medium schools should increase the range of computer-based activities in mathematics in which students engage in Sixth class, especially those that involve handling data, solving non-routine problems, and performing other tasks requiring higher-level thinking.

Assessment

18. Teachers in Irish-medium schools should implement a broader set of assessment tools on a more frequent basis in both English and mathematics classes, including teacher-made checklists, documented observations, and learning portfolios.

Continuous Professional Development

19. In addition to national priorities, continuing professional development in literacy and numeracy for teachers in Irish-medium schools should include topics identified by teachers as relevant to their current needs. In English these would include creative writing, oral language, use of ICTs, strategies for teaching low-achieving pupils, selection of texts/resources and teaching spelling/phonics. In mathematics, they include ICTs, developing problem solving and other higher-level skills, multi-grade classes/differentiation, teaching lower-achieving pupils and pupils with special needs, implementing informal assessments, and teaching higher-achieving pupils.

Parental Choice and Engagement

20. Irish-medium schools should organise more frequent information evenings designed to inform parents how to support their child's learning in the main curriculum areas. Parental attendance should be encouragd and supported.
21. Parents should be made aware of the importance of engaging their children in reading for pleasure on a consistent basis, discussing with them what they have read at home and at school, and monitoring their viewing, especially if there is a TV in their bedroom.
22. Research should be conducted by the DES and others into how parents with low levels of proficiency in Irish can be helped to provide support at home to their children who are receiving instruction through the medium of Irish at school.

Pupil Engagement

23. Research should be conducted into how Irish-medium schools can be supported in maintaining pupils' initially positive attitudes to, and engagement with, Irish throughout the primary school years, with particular emphasis on boys.

References

Adesope, O. O., Lavin, T., Thompson, T., & Ungerleider, C. (2010). A systematic review and meta-analysis of the cognitive correlates of bilingualism. *Review of Educational Research. 80*, 207-245.

Bournot-Trites, M., & Reeder, K. (2001). Interdependence revisited: Mathematics achievement in an intensified French immersion program. *Canadian Modern Language Review, 58*, 27-43.

Cummins, J. (1977). *Immersion education in Ireland: A critical review of Macnamara's findings*. Edmonton, Alberta: Centre for the Study of Mental Retardation, University of Alberta.

DES/NCCA (Department of Education and Science/National Council for Curriculum and Assessment). (1999a). *Primary school curriculum. Introduction*. Dublin: Stationery Office.

DES/NCCA (Department of Education and Science/National Council for Curriculum and Assessment). (1999b). *Primary school curriculum: Mathematics. Content*. Dublin: Stationery Office.

DES (Department of Education and Science). (2007). *Circular 0044/2007. Language and literacy in infant classes in Irish-medium schools*. Dublin: Author.

DES (Department of Education and Skills). (2011a). *Literacy and numeracy for learning and life. The National Strategy to Improve Literacy and Numeracy among Children and Young People 2011-2020*. Dublin: Author.

DES (Department of Education and Science). (2011b). *Circular 0056/2011. Initial steps in the implementation of the national literacy and numeracy strategy*. Dublin: Author.

Department of Education. Curriculum Development Unit. (1991). *Report on the national survey of English reading in Irish primary schools 1988*. Dublin: Author.

Educational Research Centre. (ERC). (2008). *Framework for the 2009 National Assessment of English Reading*. Dublin: Author. Accessed at: http://www.erc.ie/documents/reading_framework2009.pdf

Educational Research Centre. (ERC). (2009). *Framework and test specifications for the 2009 National Assessment of Mathematics – second and sixth classes*. Dublin: Author. Retrieved from: http://www.erc.ie/documents/maths_framework2009.pdf

Eivers, E., Clerkin, A., Millar, D., & Close, S. (2010b). *The 2009 National Assessments: Technical report*. Dublin: Educational Research Centre. Retrieved from http://www.erc.ie/documents/na2009_technical_report.pdf

Eivers, E., Close, S., Shiel, G., Millar, D., Clerkin, A., Gilleece, L., & Kiniry, J. (2010a). *The 2009 National Assessments of Mathematics and English Reading*. Dublin: Educational Research Centre. Retrieved from http://www.erc.ie/documents/na2009_report.pdf

Eivers, E., Shiel, G., Perkins, R., & Cosgrove, J. (2005). *The 2004 National Assessment of English Reading*. Dublin: Educational Research Centre.

Ganzeboom, H.B., De Graaf, P., & Treiman, D. J. (with De Leeuw, J.). (1992). A standard international socio-economic index of occupational status. *Social Science Research*, 21, 1-56.

Genesee, F. (1987). *Learning through two languages: Studies of immersion and bilingual education*. Cambridge, MA: Newbury House.

Gilleece, L., Shiel, G., Clerkin, A., & Millar, D. (2012). *The 2010 National Assessments of English Reading and Mathematics in Irish-medium primary Schools. Main report.* Dublin: Educational Research Centre.

Government of Ireland. (1998). *Education Act*. Retrieved from: http://www.oireachtas.ie/documents/bills28/acts/1998/a5198.pdf

Government of Ireland. (2006). Government statement on the Irish language. Retrieved September 1, 2011 from http://www.pobail.ie/en/IrishLanguage/Strategy/Policy%20Statement%202006.pdf

Government of Ireland. (2010). *20 year strategy for the Irish language 2010-2030*. Retrieved from http://www.pobail.ie/en/IrishLanguage/Strategy/StrategyEnglish.pdf

Harris, J. (1984). *Spoken Irish in primary schools.* Dublin: Institiúid Teangeolaíochta Éireann.

Harris, J., Forde, P., Archer, P., Nic Fhearaile, S., & O'Gorman, M. (2006). *Irish in primary schools: Long-term national trends in achievement*. Dublin: Stationery Office.

Harris, J., & Murtagh, L. (1987). Irish and English in Gaeltacht primary schools. In G. Mac Eoin, A. Ahlqvist, & D. Ó hAodha (Eds), *Third International Conference on Minority Languages: Celtic papers. Multilingual Matters, 32,* 104-124.

Harris, J., & Murtagh, L. (1988). National assessment of Irish-language listening and speaking skills in primary-school children. Research issues in the evaluation of school-based heritage-language programmes. *Language, Culture and Curriculum, 1*(2)*, 85-130.*

Lambert, W.E., Genesee, F., Holobow, N., & Chartrand, L. (1993). Bilingual education for majority English-speaking children. *European Journal of Educational Psychology, 8*(1), 3-22.

Macnamara, J. (1966). *Bilingualism and education: study of the Irish experience.* Edinburgh: University of Edinburgh Press.

NCCA (National Council for Curriculum and Assessment). (2007). Language and literacy in Irish-medium schools: Supporting school policy and practice. Dublin: Author. Retrieved from http://www.ncca.ie/uploadedfiles/publications/LL_Supporting_school_policy.pdf.

Ní Bhaoill, M., & O'Duibhir, P. (2004) *Emergent reading in Gaeltacht and all-Irish schools*. Baile Átha Cliath: An Comhairle Um Oideachas Gaeltachta agus Gaelscoilaíochta. Aisgafa ó http://www.cogg.ie/includes/documents/T%C3%BAs%20na%20L%C3%A9itheoireachta%20pl%C3%A9ch%C3%A1ip%C3%A9is.pdf

Ó hAiniféin, D. (2008). *An tumoideachas in Éireann: Immersion education in Ireland. Léacht an Chonartha 2008*. Baile Átha Cliath: Conradh na Gaeilge.

Parsons, C., & Lyddy, F. (2009). *Learning to read in Irish and English: A comparison of children in Irish medium, Gaeltacht and English-medium schools in Ireland.* Dublin: An Chomhairle Um Oideachas Gaeltachta agus Gaelscoileanna.

Smyth, E., Whelan, C.T., McCoy, S., Quail, A., & Doyle, E. (2010). Understanding parental influence on educational outcomes among 9 year olds in Ireland: The mediating role of resources, attitudes and children's own perspectives. *Child Indicators Research 3*, 85-104.

Sofroniou, N. (2004). A model of reading literacy. In E. Eivers, G Shiel, & F. Shortt, (Eds) *Reading literacy in disadvantaged primary schools*, pp. 145-156. Dublin: Educational Research Centre.

Turnbull, M., Lapkin, S., & Hart, D. (2001). Grade 3 immersion students' performance in literacy and mathematics: Province-wide results from Ontario (1998-99). *Canadian Modern Language Review, 58*, 9-26.