

An Chomhairle um Oideachas
Gaeltacha & Gaelscolaíochta



**Learning to read in Irish and English:
A comparison of children in Irish-medium,
Gaeltacht and English-medium schools in Ireland**

Final report to
An Chomhairle um Oideachas Gaeltacha & Gaelscolaíochta

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SUMMARY

Background

English-medium schools are provided with clear guidelines regarding the sequencing of Irish and English reading instruction. The situation for Irish-medium schools is less certain: there is no clear policy on the sequencing of reading instruction for Irish-medium schools. As a result schools vary in practices: some schools present Irish reading first and some instruct in English first (a further minority introduce reading in the two languages at about the same time). Either approach (Irish reading first or English reading first) may represent the most appropriate practice. However, research is lacking as to the effects of such variations on biliteracy attainment.

The aim of the present research study was to examine the development of word reading and related skills in Irish and English in children attending different school types in the Republic of Ireland. Those from English-speaking and Irish-speaking backgrounds were included. A second aim was to examine the outcomes of varying reading sequencing practices currently used in Irish immersion schools. The participating children were selected from four schools in County Galway, a region that is home to the strongest Gaeltacht area in the country. Of the four schools, two were Irish-medium, one was situated within the Gaeltacht region and one was a conventional English-medium school. Two Irish-medium schools in Galway participated: one school that commenced formal reading in English initially (referred to as English Reading First: ERF), and another which began with formal reading in Irish (referred to as Irish Reading First: IRF). Children from the participating Gaeltacht school were primarily from Irish-speaking backgrounds. Those attending the other school types began to acquire Irish, their L2, only once they started to attend school.

Method

To investigate the development of reading in the Irish and English languages, a range of ages was represented in an initial cross-sectional study, with children (N=254) from Senior Infants, Second Class and Fourth Class participating. The children were assessed on measures of letter knowledge, word reading, nonword reading, orthographic knowledge, and vocabulary in the two languages. In a longitudinal follow-up study, the original Senior Infants children (n=84) from the four schools were re-tested at two further time points, when they were in First and Second Class.

Findings

Early language-specific advantages were evident, with Irish-medium children performing better at Irish reading-related tasks. The Gaeltacht group lagged behind on the reading tasks in the younger classes, perhaps reflecting an emphasis on oral language in the classroom, but were catching up by the later stages of the study. The Gaeltacht group showed an early advantage on tasks related to oral language such as Irish vocabulary, although overall, for all groups, vocabulary scores were higher in the English task than on the Irish task. Overall, performance was very similar on the English language tasks by Second Class. Early differences soon reduced so that all groups performed similarly well on the English tasks while all three Irish-medium schools also performed well on the Irish language tasks.

While there were some predictable early differences between the ERF and IRF groups, by Second Class performance was very similar on both the Irish and English language tasks. However, since participating children came from just four schools, one of each type, school effects cannot be ruled out and further research would be required before we can conclude that both approaches (ERF and IRF) produce the same long term outcomes.

Conclusion

Children in the Irish-medium and Gaeltacht schools were found to acquire higher levels of Irish decoding skill, Irish vocabulary and knowledge of Irish orthographic patterns than age-matched children attending an English-medium school. These advantages were without cost to their later English word reading/ decoding skill as measured here.

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INTRODUCTION

Irish-medium education: Issues and challenges

In recent decades in the Republic of Ireland, the number of Irish-medium schools has greatly increased, from 17 schools in 1972 to 135 schools in 2007 with a total enrolment of approximately 30,000 pupils. Despite their rapid expansion, Irish-medium schools face a number of challenges affecting reading instruction. Irish-medium schools account for no more than 7.35% of the total number of primary schools (Ó Laoire, 2005) and as such constitute a small market for book publishers. The result is a relative dearth of age- and ability-appropriate Irish textbooks and other supports suitable for the Irish-medium context (Coady & Ó Laoire, 2002). A second major issue for Irish-medium schools is the relative lack of specific training for teachers in language pedagogy (Coady, 2001). As of yet, it is not possible to specialise in immersion teaching, as is the case, for example, for French immersion programmes in Canada (Erben, 2004), although teachers training at St. Patrick's College, Drumcondra or Mary Immaculate College, Limerick, can complete some of their teaching practice in Irish-medium schools. A third issue concerns the lack of guidelines for planning reading instruction practices in Irish-medium schools.

The variability of reading instruction practices within Irish-medium schools has been highlighted in a number of reviews (e.g., Ní Bhaoill & Ó'Duibhir, 2004; Ó Laoire & Harris, 2006). The Revised Primary School Curriculum (1999) offers no explicit guidelines for Irish-medium schools regarding the language in which reading instruction should commence. The curriculum notes only that reading should not commence in both languages simultaneously: "It is advised that formal reading is not begun in the two languages at the same time in all-Irish and Gaeltacht schools" (p.5). Available research is insufficient to determine the most appropriate reading sequence in the Irish-medium context, either in general or for particular school types (Ó Laoire & Harris, 2006). Consequently, there is no consensus on best practice, and sequencing, that is the order in which reading instruction in Irish and English occurs, varies considerably from school to school. Ní Bhaoill and O'Duibhir (2004) report that 58% of surveyed Irish-medium schools began formal reading instruction in Irish, 36% commenced with English, and the remainder introduced Irish and English around the same time. No figures are currently available relating to the precise timing or order of introduction of Irish and English reading for Gaeltacht schools. However, MacDonnacha, Ní Chualáin, Ní Shéaghdha and Ní Mhainín (2005) found that the

majority had commenced both Irish and English formal reading instruction by the second year of schooling.

Schooling in Gaeltacht regions

Specific regions within the Republic of Ireland are designated as Irish-speaking or 'Gaeltacht' areas. These regions are essentially bilingual rather than Irish-speaking and face ever-increasing pressure from the majority language, English. Home use of Irish varies significantly for families in Gaeltacht communities; one recent survey of 575 Gaeltacht parents noted that a majority (54%) spoke Irish with their children at home only occasionally at best (Harris et al., 2006). Ó Riagáin (2001) notes the decline in marriages between fluent Irish speakers in Gaeltacht areas, resulting in a decrease in the number of children with native ability in Irish. In many cases an adult within the home may not speak Irish, and migration from English speaking regions of Ireland or from other countries means that there may be no adult fluent Irish speakers in the home (Ó Riagáin, 1997). Schools operating within these regions generally provide education through the medium of Irish to children of mixed Irish language ability (Ó'hlfearnáin, 2007; MacDonnacha et al., 2005).

The complex linguistic composition of many Gaeltacht areas presents challenges for schools serving these regions. In 2004, there were 143 primary schools attended by 9,556 children in the Gaeltacht. The majority of Gaeltacht schools are small, with 69% having between one and three teachers (MacDonnacha et al., 2005). In these schools, children with a wide range of Irish language abilities are taught: some with high levels of Irish language fluency and others with no Irish at all. The number of children in Gaeltacht regions coming to school with high levels of Irish language proficiency is decreasing (National Council for Curriculum and Assessment, 2007). A considerable proportion of children currently attending Gaeltacht schools (26%) were born outside of the Gaeltacht (MacDonnacha et al., 2005). As a result, use of Irish as the dominant language has declined in a number of Gaeltacht schools (Ó'Murchú, 2001). The small size of many Gaeltacht schools makes it more difficult to accommodate the needs of a group of children with very different linguistic abilities. Grouping native Irish speakers with second language (L2) learners of Irish has been found to be beneficial for the L2 learners, but detrimental to the first language (L1) speakers, at the preschool level at least (Hickey, 2001). The L2 learners are essentially experiencing an immersion system and their presence alongside L1 Irish speakers must make it difficult for Gaeltacht schools to play a key role in the maintenance of the language (Education Act, 1998, section 9h).

International immersion: Reading sequencing practices

Immersion schools in countries such as Canada and Wales generally introduce reading in the language of instruction of the school. However, generalizing from the Canadian or Welsh cases may not be appropriate to the Irish situation. Even in the primarily English-speaking areas of Wales, there are generally some pupils in each class who are L1 Welsh speakers (Baker, 1993; Ball & Henry, 1996). This is not the case for Irish-medium schools: the vast majority of children attending Irish-medium schools come from English-speaking homes, with only about 22% of parents speaking in Irish with their children more often than occasionally (Harris et al., 2006). Similarly, there are marked contrasts between French immersion programmes and immersion in the Irish context, as noted by Ó Laoire and Harris (2006). The attrition rate in Canadian immersion programmes is much higher than that found in Irish-medium schools (Ó Laoire & Harris, 2006) with high rates of student dropout due to academic or behavioural issues (Cummins, 2000). In French immersion, support for poor readers largely involves moving children from the immersion stream into a regular English-medium classroom (Halsall, 1994; Obadia & Theriout, 1997). There is evidence to suggest that some of the students most at risk of reading difficulties transfer out of French immersion before the end of their fourth year of schooling (see MacCoubrey, Wade-Woolley, Klinger & Kirby, 2004). While detailed data on Irish-medium schools are not currently available, anecdotal accounts suggest that attrition rates do not compare to Canadian rates. Students who withdraw from Canadian immersion are not included in research data relating to schooling outcomes. This constitutes a significant sampling difference: research on French immersion in Canada typically considers only those pupils who remain in immersion. By contrast, research on attainment in Irish immersion is based on samples of students who remain in immersion without any substantial attrition.

A second major distinction between Irish and Canadian immersion relates to the type of school in which immersion takes place (Ó Laoire & Harris, 2006). Immersion programmes in Ireland are generally whole school immersion centres, at least at the primary level. In Canada, immersion programmes consisting of just one French stream greatly outnumber those in which the entire school is French-medium. Attrition usually involves simply switching streams within a school. In the Irish context, withdrawal from immersion typically requires the child to change schools rather than just streams. Choosing to send a child to an Irish-medium school is, in this respect, a more significant educational decision compared with choosing an L2 immersion stream within an English-medium school. Within Irish-medium schools, academic difficulties must be addressed within an immersion environment. As such,

Irish immersion schools may have to be more flexible than their Canadian counterparts in order to accommodate a wider range of pupils (Ó Laoire & Harris, 2006).

In Canadian immersion, initial literacy instruction is in French. English reading is subsequently introduced in the fourth year of schooling in the traditional French immersion model. The rationale for this practice is to maximize early exposure to the immersion language (see Genessee, 1987). This practice appears to consistently produce high levels of reading skill in both languages (Genessee, 1976; Lambert, Genessee, Holobow & Chartand, 1993; Noonan, Colleaux & Yackulic, 1997). Ó Laoire and Harris (2006) discuss two key justifications for a similar approach to Irish, that is introducing Irish reading first in Irish-medium schools. First, they cite the current practice in Canadian immersion schools and second, they outline how the common underlying proficiency hypothesis and the interdependency hypothesis (see Cummins, 1984; 2000) might support such an approach. According to these views, given appropriate motivation to learn, transfer of literacy skills can be expected between a bilingual child's two languages, including from minority to majority languages (Cummins, 1998), in this case from the minority language, Irish, to the majority language, English. For an Irish/English bilingual programme, instruction that develops Irish reading skills initially, and also develops conceptual and linguistic proficiency, should in theory support development of literacy in the majority language (English). The massive dominance of the English language in Ireland should be considered. Children generally have far greater exposure to English and to English texts outside of school. Furthermore, children from Irish-language backgrounds are under considerable social pressure to learn and to use English and therefore motivation to learn is high.

While these factors provide support for a practice of introducing Irish reading first, they do not necessarily undermine the policy giving precedence to English reading adopted by some Irish-medium schools. The significant differences between Canadian and Irish immersion programmes, such as the attrition rate and type of school in which immersion occurs, make it difficult to assess whether similar practices will produce optimal outcomes in the Irish/English context. The common underlying proficiency hypothesis also acknowledges that reading skill transfer may occur from the L1 to the L2 (e.g., Noonan, Colleaux & Yackulic, 1997; see also Verhoeven, 1991). Reading skills developed in the English language may therefore support later reading development in Irish. The common underlying proficiency hypothesis does not detail the mechanisms of skill transfer between languages (research on the nature of cross-language transfer generally is quite limited). It is

possible that transfer of skill from the L2 to the L1 depends on significant home or parental contribution to reading development in the L1. That is, in circumstances where reading instruction begins in the second language (Irish), it may be important that the child experiences reading in English at home or outside the school setting (see Ó Laoire & Harris, 2006). Consistent with this, Cummins (1977) suggests that children in Canadian immersion programmes engage in a considerable amount of reading in English outside of school (see also Eagon & Cashion, 1988). Many teachers argue that delaying reading instruction in the first language may have detrimental motivational consequences (e.g., see Cummins, 1976), given that many children can recognise a large number of English words before coming to school and often show more interest in learning to read in that language.

Another argument in favour of introducing English reading first is that some children do not easily acquire the foundation oral Irish skills necessary to benefit from Irish reading instruction. Language proficiency is an important element of literacy attainment and the positive cognitive effects of bilingualism are only seen when a certain threshold of proficiency in both languages has been attained (Cummins 1976; Toukoumaa & Skutnabb-Kangas, 1977). For children with a very limited knowledge of Irish, learning to read and write in Irish will be particularly challenging. For students who are slow to learn to read through Irish (as their L2), a solution might be to promote literacy development in English (as their L1). By supporting learning leading to a common underlying proficiency in this way, transfer to Irish might subsequently be promoted. Providing formal literacy instruction in the native language allows children to use their knowledge of oral language as a foundation for learning to read and write (Cummins, 1993; Durgunoglu, 1998). Reading skills in the L1 can then be subsequently transferred to the weaker language after the initial breakthrough into literacy (Lanauze & Snow, 1989).

In short, either approach (Irish reading first or English reading first) may represent the most appropriate policy and “may well represent the optimum response *at individual school level* to different educational, social and linguistic circumstances” (Ó Laoire & Harris, 2006, p.38). Both Cummins (2001) and Ewart and Straw (2001) suggest that the order in which formal reading instruction is introduced in a bilingual programme may not, in itself, determine reading attainment. There is a dearth of research in the Irish context to either support or contradict this view. Thus, research is required to identify how reading instruction might best be structured so as to facilitate biliteracy attainment.

For English-medium schools, clear guidelines have been established with regards to the sequencing of Irish and English reading instruction. Current policy in

English-medium schools acknowledges that skill transfer occurs from English reading to Irish reading, and the Revised Primary School Curriculum (1999) recommends that Irish reading be introduced formally in the fourth year of schooling. At this point in their schooling, it is expected that children have attained a reasonable foundation in English literacy (which formally begins in the second year of school) and in spoken Irish. By the age of nine, children in Ireland are reading, or learning to read, in both Irish and English.

The English and Irish orthographies

The English orthography is complex, with numerous inconsistencies in its grapheme-phoneme correspondences and consequently many exception or irregular words. Similarly spelled words have different pronunciations: for example, *done* does not rhyme with *lone*, and *have* does not rhyme with *cave*. The same spelling can yield different pronunciations, as in the homographs *won-one* and *write-right-rite* and the multiple pronunciations associated with forms such as *tear*, *row* and *bow*. Some spellings seems remote from their sounds, for example, *yacht*, *women*, *aisle*. Languages like English that have complex writing–sound correspondences are referred to as ‘orthographically deep’. By contrast languages that have consistent written letter–sound relations are ‘orthographically shallow’ or ‘transparent’ languages (e.g. Finnish, Serbo-Croatian, Welsh). This forms a continuum of languages from deeper to shallower languages. Numerous standardisations of Irish spelling have resulted in a relatively good correlation between writing and sound mappings (Ó Laoire, 1997), and, although some inconsistencies remain (see Ó Laoire, 2005), the orthography of Irish is not as deep as that of English (Hickey, 2006; 2007). (However, neither is Irish as shallow as languages such as Welsh.) The Irish alphabet consists of 18 letters: five vowels (a, e, i, o, u) and thirteen consonants (b, c, d, f, g, h, l, m, n, p, r, s, t), representing about 50 basic sounds. Vowels are either long or short, with a stroke (*síneadh fada*) over the vowel indicating that it is long. The Irish syllable structure permits consonant clusters in both syllable onsets and codas. An additional distinction between consonants that are slender (*caol*) or broad (*leathan*) also supports pronunciation (for instance, <bád> with a broad ‘d’, ‘boat’, while <báid> with a slender ‘d’ ‘boats’) but complicates writing through the use of vowels to indicate consonant status.

Irish is a Celtic language, and exhibits some of the general features of Celtic languages, including inflectional morphology. The two major types of grammar-dependent initial mutations that feature prominently in the Irish orthography are lenition and eclipsis. Lenition involves the addition of an ‘h’ after the initial consonant,

thus altering the sound attributes of the consonant; for example the /b/ in *bord* becomes /w/ or /v/ in *bhord*. Eclipsis requires the addition of a letter or combination of letters to the start of the word, and changes the initial phoneme. Lenition in the case of nouns can be accompanied by changes in the ending of the consonantal cluster, called attenuation or slendering (Ó Laoire, 1997). Verbs inflect to reflect number, person, tense and voice. In Irish, while such changes modify the original phoneme, the eclipsed letter is maintained in the spelling. Morphological transparency is thereby retained, but at the cost of phonological transparency. The 'mb' in 'ár mbord' (our table) is pronounced /m/, with no remaining /b/ sound. By contrast, other Celtic languages overwrite the spelling, maintaining phonological transparency, but at the cost of morphological consistency (in Welsh for example). The child reading in Welsh can readily sound out the word, as it is phonologically transparent, but in order to comprehend the child may have to see past the mutation to the original form. The child reading in Irish must recall the rule governing how the mutation changes the sound, but he or she can readily appreciate the original word, arguably aiding comprehension.

Although it may be considered to be more consistent than English, the Irish orthography continues to present difficulties for the beginning reader (Hickey, 2007). The complex morphological and inflectional system requires the reader to recognise words across orthographic variations, despite the changing representation in writing and in pronunciation. While the English and Irish languages share some sounds and segments, they hold conflicting rules for the conversion of orthography to phonology: some sound–spelling mappings conflict in the two languages. Furthermore, Irish children are introduced to reading in the two languages within a relatively short time frame and in particular those attending Irish-medium schools must acquire the two systems within a short time span.

Difficulties inherent in cross-language comparisons

For minority languages, such as Welsh and Irish, there is typically a lack of assessment measures for reading and standardised measures of general cognitive ability. In the case of Irish, there is a limited number of assessment measures available for Irish reading attainment, particularly for young children. Furthermore, tests of English reading attainment have, to date, not been standardised for use with children attending Irish-medium or Gaeltacht schools and norms for widely used cognitive ability tests are unavailable for children whose first language is Irish. Previous research suggests that individuals from a non-English speaking background can be disadvantaged on both verbal and nonverbal tests of cognitive ability

designed for English speakers (e.g., Carstairs, Myers, Shores & Fogarty, 2006) and some reviews identify letter knowledge and phonological sensitivity as key predictors of reading over general cognitive ability (e.g., see Bowey, 2005).

In order to address this measurement issue, cross-language comparisons of reading development have often favoured experimental measures of single word reading, nonword reading and vocabulary (e.g. Spencer & Hanley, 2003; Hanley et al., 2004). Receptive vocabulary is strongly predictive of early reading skills (e.g. see Bowey, 2005). In a series of studies of reading acquisition in Wales, Hanley and colleagues (e.g. Spencer & Hanley, 2003; Hanley et al., 2004; Spencer & Hanley, 2004) utilised translational equivalents for their English and Welsh word sets in order to ensure that words from the two language sets were of comparable familiarity. For their vocabulary measures, translational equivalents were again employed in order to match for familiarity. In one of the most comprehensive cross-language studies to date, Seymour, Aro and Erskine (2003) constructed nonword reading tasks using common consonant-vowel (CV) structures in order to match for difficulty across twelve European languages.

The present research

A similar approach used within the Irish context provides an opportunity to examine the effects of differing reading sequencing practices in immersion contexts on reading attainment compared with outcomes in comparable, conventional English-medium programmes. The aim of the research was to examine the development of word reading and related skills in Irish and English in children attending different school types in the Republic of Ireland. Those from English-speaking and Irish-speaking backgrounds were included. A second aim was to examine the outcomes of varying reading sequencing practices currently used in Irish immersion schools. The children were selected from four schools in County Galway, a region that is home to the strongest Gaeltacht area in the country. Of the four schools, two were Irish-medium, one was situated within the Gaeltacht region and one was a conventional English-medium school. Two Irish-medium schools in Galway participated: one school that commenced formal reading in English initially, and another which began with formal reading in Irish. Children from the participating Gaeltacht school were primarily from Irish-speaking backgrounds. Those attending the other schools types began to acquire Irish, their L2, only once they started to attend school.

To investigate the development of reading in the Irish and English languages, a range of ages was represented in the initial cross-sectional study, with children from Senior Infants, Second Class and Fourth Class participating. Children were

assessed on measures of word reading, nonword reading, orthographic and letter knowledge, and vocabulary in the two languages. Additional findings from this study are reported in Parsons and Lyddy (in press). In a longitudinal follow-up study, the original Senior Infants children from the four schools were re-tested at two further time points (at First and Second Class) employing the same experimental measures.

METHOD

Participants

The total sample for the cross-sectional study consisted of 254 pupils from Senior Infants, Second Class and Fourth Class attending schools in a region of County Galway (see Table 1). The longitudinal study involved 84 children (see Table 2). For ease of discussion, the longitudinal test times will be referred to as Times 1, 2 and 3; these times do not map onto the class samples of the cross-sectional study however (detailed below).

The Galway region affords an interesting contrast of reading instruction practices across Irish-medium, Gaeltacht and English-medium schools. This region has the highest number of primary school children attending Gaeltacht schools in the Republic of Ireland (MacDonnacha et al., 2005), and also has a number of demographically comparable Irish-medium and English-medium schools outside of the Gaeltacht regions. Of the children attending the Gaeltacht-based schools in Galway, many experience strong levels of Irish-language support at home. In addition, this region is home to the strongest Irish language area in the country, with 22,377 Irish speakers in the Galway county Gaeltacht alone (76.8% of the total population of the area), and a further 6,878 Irish speakers in the other Galway regions (Central Statistics Office, 2007). The majority of the Irish speakers within the Galway county Gaeltacht report daily use of the language (66.4%).

By Senior Infants, children are in their second year of schooling and are generally introduced to formal reading in one language at this point. Second Class (the fourth year of schooling) is the school year in which children in English-medium schools typically commence reading in the Irish language. At Fourth Class, children have received a total of six years of schooling and are expected to have mastered basic reading skills, according to the Revised Curriculum guidelines (1999). For the cross-sectional study, the age range of the participants was between five and 11 years ($M=7.7$ years, $SD=1.68$), and participant numbers were relatively evenly distributed by school year. The mean age was 5.9 years ($SD=.43$) for the Senior

Infants pupils, 7.8 years ($SD=.42$) for the Second Class pupils and 9.84 ($SD=.49$) for the Fourth Class pupils. Similar numbers of boys and girls participated (126 boys, 128 girls). In the longitudinal study, the original Senior Infants group (Time 1) was tested on two further occasions, at First and Second Class (Times 2 and 3 respectively). At Time 2, children were all either 6 or 7 years of age ($M = 6.7$, $SD = .45$), and were one year older at Time 3. A small number of pupils tested at Time 1 (original Senior Infants group) were not available for testing at Times 2 and 3 (see Table 2).

The principals of 28 schools within the Galway region were contacted and 17 replied indicating their willingness to participate in the study. From these 17 schools, four schools (two Irish-medium, one English-medium and one Gaeltacht-based school) were selected for participation in this study based on their reading instruction practices and similarity in terms of classroom size, sex ratio and socio-economic status. These schools are all within one county in Ireland, are administered by the same local educational authorities and use a similar curriculum and teaching methods.

Table 1

Sample sizes of participating classes from the cross-sectional study

	Senior Infants	Second Class	Fourth Class	Total
Irish-medium school (English reading first)	22	18	20	60
Irish-medium school (Irish reading first)	22	21	22	65
Gaeltacht school	21	18	19	58
English-medium school	29	25	17	71
Total	94	82	78	254

Table 2

Participant numbers at Times 1, 2 and 3

	Time 1		Time 2 & 3	
	Boys	Girls	Boys	Girls
ERF	11	11	9	10
IRF	11	11	9	11
Gaeltacht	11	10	10	9
English-medium	13	16	12	14
Total	46	48	40	44

The two Irish-medium schools matched except for the key sequencing variable in that one school commenced reading instruction in English initially (referred to in what follows as ERF – English reading first) and the other began reading instruction in Irish first (referred to below as IRF – Irish reading first). Children in the ERF school were introduced to reading in English initially by Senior Infants and Irish reading in the initial months of First Class. The policy of the IRF school was to introduce reading in Irish at the end of Junior Infants (the first year of schooling) and the start of Senior Infants. Children were introduced to English reading towards the end of Senior Infants. The Gaeltacht school’s policy with regards to reading instruction was to commence Irish reading initially between the end of Junior Infants and Senior Infants. Children began reading in English between the end of Senior Infants and the initial months of First Class. In the English-medium school, children were formally introduced to reading in English in Senior Infants. Reading instruction in Irish commenced in Second Class. Having selected these four schools, 460 children from participating year grades received consent forms to take home to their parents; 296 were returned signed with consent to allow the child to participate. A number of children (42) did not participate due to behavioural, academic, linguistic or practical issues.

Table 3

Sequencing of reading instruction across the school samples

	English reading	Irish reading
Irish-medium school– English reading first (ERF)	Senior Infants	Early First Class
Irish-medium school– Irish reading first (IRF)	End of Senior Infants	End of Junior Infants/ Early Senior Infants
Gaeltacht school	End of Senior Infants/ Early First Class	End of Junior Infants/ Early Senior Infants
English-medium school	Senior Infants	Second Class

The majority of children attending the Gaeltacht school reported use of the Irish language at home. Table 4 presents details of the proportion of Irish and English spoken at home by these children (as reported by the children and confirmed by teachers). The diverse linguistic backgrounds of the children are evident in all three class groups in this school. As is the case in the majority of Gaeltacht schools (e.g., see MacDonnacha et al., 2005), a number of children had arrived at the school with

very little English, others had varying levels of Irish and English ability and some children had no Irish at all.

Table 4

Language spoken at home (percentages for each category) by the Gaeltacht school children, by class

	Senior Infants	Second Class	Fourth Class
Only Irish	47.6	16.7	26.3
More Irish than English	9.5	55.6	5.3
Irish and English equally	14.3	11.1	42.1
More English than Irish	9.5	11.1	26.3
English only	19.1	5.5	0

The Gaeltacht school and the two Irish-medium schools all employed the *Séideán Sí* course (An Gúm, 2003) at Senior Infants. *Séideán Sí* is a set of Irish language textbooks developed specifically for Gaeltacht and Irish-medium schools. This programme utilises early readers, CDs, flashcards and workbooks, and introduces the word-initial broad sounds and short vowels in the first year and word-initial slender consonants and long vowels in the second year (Hickey, 2007). The programme aims to develop phonemic awareness through a series of exercises and children are provided with practice in linking the initial grapheme to its corresponding phoneme and to the whole word. At the time of testing, *Séideán Sí* material did not extend to the older groups. A mixture of the available Irish textbooks was employed, with instruction emphasising both reading aloud and independent reading. Teachers at the Irish-medium and English-medium schools reported following a mixed method of instruction (phonics and whole word strategies) for English reading. Similar textbooks were employed in all schools for English reading.

Measures

Productive letter sound knowledge

Participants were presented with the letters of the Irish and English alphabets singly and were asked to give the sound of the letter. The correct answer was taken as the sound children were being taught in school. The maximum score for the English letter sound task was 26 and 23 for the Irish letter sound task (inclusive of the long Irish vowel sounds).

Nonword reading

The Irish and English nonword reading tasks consisted of 30 items for each language presented singly in black lower case font on a computer screen. Stimuli for the English nonword reading task were selected from those used by Seymour et al. (2003). Two sets of nonwords were constructed for each language; one comprised of 15 monosyllables using the structures CV, VC and CVC, and the other of 15 bisyllables using the structures VCV, CVCV, VCVC. The Irish version of this task was constructed by sampling frequent grapheme-phoneme correspondences in the Irish language, using the EasyReader® (Version 1.1, 2003) Irish language software. This software provides information regarding the occurrence of particular letter strings in Irish words. Features specific to the Irish language, such as the vowel length marker (indicating a long vowel sound, e.g., 'a'- /a/; 'á'- /a:/) were included. Each nonword list conformed to the phonotactic rules of the relevant language and tasks were matched with regards to number of letters, phonemes and syllables. The order of the nonwords was randomised across the test lists. Children attempted all items.

It was explained to the child that the test consisted of 'made up words' that they would not know, but they should attempt to say as many of the 'made up words' as they could. The child was instructed to 'sound out' the letter string as best he/she could. All possible pronunciations were accepted as correct: for the item 'bina' from the English subset, the pronunciations /beena/ and /bina/ were both accepted. However, for the long vowels in the Irish task (indicated by the vowel length marker), only the long vowel pronunciation was accepted. The test was discontinued if the child gave five consecutive incorrect responses.

Real word reading

The English and Irish single word reading tasks both comprised 50 words, presented singly in large black font in lower case on a computer screen. The English words were between 2 and 11 letters long, with a mean word frequency rating of 1,323 occurrences per million according to the Kucera-Francis (1967) written frequency ratings. The English words were taken from a number of studies of emergent literacy (e.g., Seymour et al., 2003; Masterson, Laxon, & Stuart, 1992; Patel, Snowling, & deJong, 2004; Spencer & Hanley, 2004; Hanley et al., 2004) and additional (more difficult) items were selected using the Kucera-Francis (1967) ratings for written frequency. As it was considered important that the English and Irish words were of similar familiarity, the words for the Irish set were translations of the English words. This method of matching items across languages has been used in a number of recent studies in the Welsh-English context (e.g., Spencer & Hanley, 2003; Hanley et

al., 2004; Spencer & Hanley, 2004). In the absence of established measures of frequency and age of acquisition for Irish words, translational equivalents were considered the most appropriate method for matching the English and Irish word sets in terms of familiarity.

The English and Irish word lists were also matched as far as possible for word length, number of syllables and number of phonemes. Participants were required to read up to 50 words in each language. The words were placed in sequential order of increasing difficulty to ensure that the youngest children were reasonably familiar with the initial words on the list. Self-corrections were accepted as correct responses. Children were encouraged to guess when they were unsure of an answer and praise was given periodically. This task was terminated after five failures to give the correct response.

Orthographic letter string choice task

This task examined children's sensitivity to orthographic patterns in the English and Irish languages. Children were presented with two nonwords in lower case black font on a computer screen. One nonword in each pair was composed of letter sequences found regularly in either English or Irish, and the other nonword was comprised of letter strings that could not occur legally in the language in question (e.g., for the English task, 'fage' and 'fajj', for the Irish task, 'paith' and 'taifh'). Children were asked to look at the pairs of letter strings and to point to the word that looked most like a word in either Irish or English. Five examples were given prior to testing. Instructions given to the child emphasised the language being tested in each case. Children completed the full task, regardless of any incorrect responses given. Accuracy was recorded.

Vocabulary

In the absence of suitable standardised instruments, an approximate measure of receptive vocabulary was obtained for each child. The participants chose one of four pictures (full-colour simple line drawings) presented on a computer screen for each spoken word presented. Four practice trials with corrective feedback were given at the beginning of both the English and Irish tasks. Thirty English words were selected using age of acquisition ratings (Gilhooly & Logie, 1980), so as to be appropriate for the age groups tested (6, 8 and 10 year olds). All English words employed in this task were nouns with high ratings on scales of Familiarity, Concreteness and Imageability (Toglia & Battig, 1978; Gilhooly & Logie, 1980).

As it was important that the Irish and English vocabulary tasks were of similar difficulty, the words used in the Irish vocabulary test were translations of the English words. A large set of English words was translated into Irish, with items of similar word length and number of syllables selected to ensure comparable difficulty. There were no significant differences in the number of letters or syllables in the Irish and English word sets. The test items for both tasks were ordered by increasing difficulty. The test ended after the child failed to give the correct response on five consecutive items.

Procedure

Within each group, half the children completed the Irish tasks first and half did the English tasks first. Within languages, the tasks were administered in a fixed order in a testing session lasting approximately 45 minutes. Self-corrections were marked as correct responses. The children were encouraged to make an attempt when they were unsure of an answer and praise was given periodically. They were given a short break in the middle of this testing period. All children were tested in the medium of the language of their school, and attempted both Irish and English versions of the tasks. Each child was tested individually at the back of the classroom.

RESULTS

The results from the cross-sectional study (children from Senior Infants, Second Class and Fourth Class) will be emphasised here; the results from the longitudinal study (re-testing the original Senior Infants children at First and Second Class) will be summarised below. In what follows IRF refers to the Irish-Reading-First Irish-medium school and ERF refers to the English-Reading-First Irish-medium school.

Letter sound knowledge

Children in the Senior Infants groups performed similarly across the Irish and English letter-sound knowledge task. At Second Class, children from the four school types scored at ceiling level on the English letter-sound knowledge task. At Fourth Class, all children, with the exception of the English-medium group, scored close to ceiling level on the Irish letter-sound knowledge task.

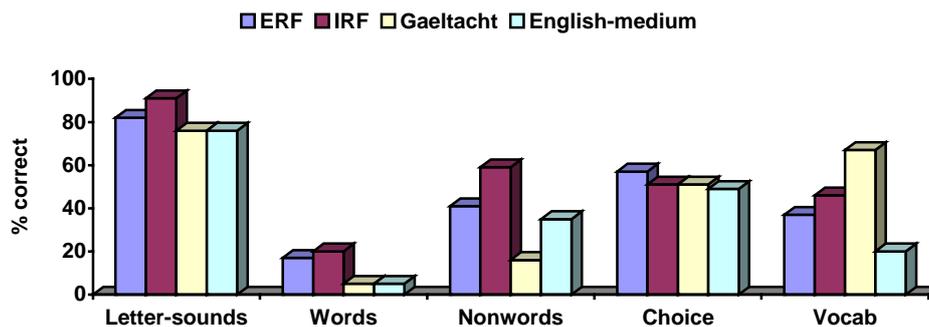


Figure 1: Performance by Senior Infants children on Irish tasks

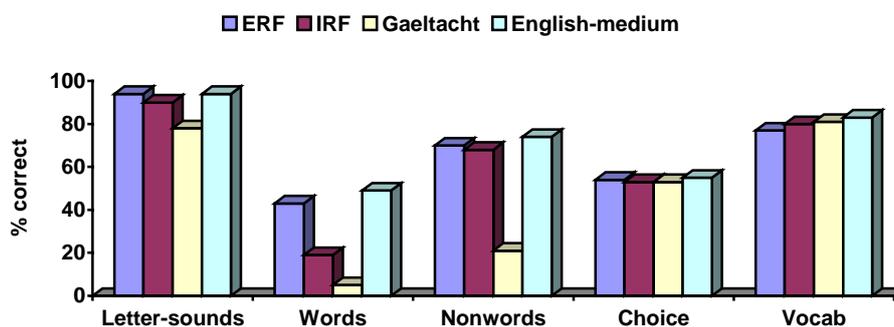


Figure 2: Performance by Senior Infants children on English tasks

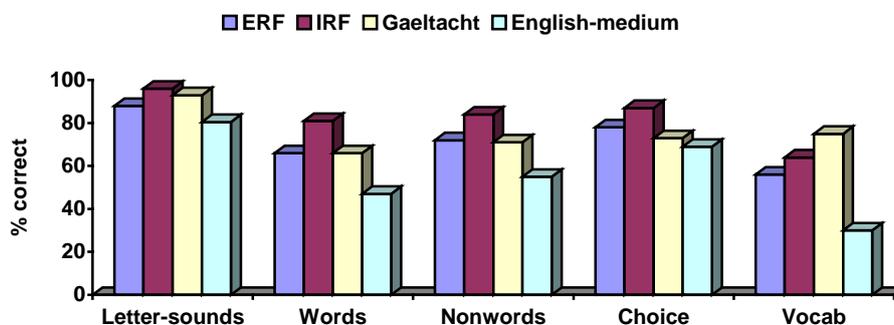


Figure 3: Performance by Second class on Irish tasks

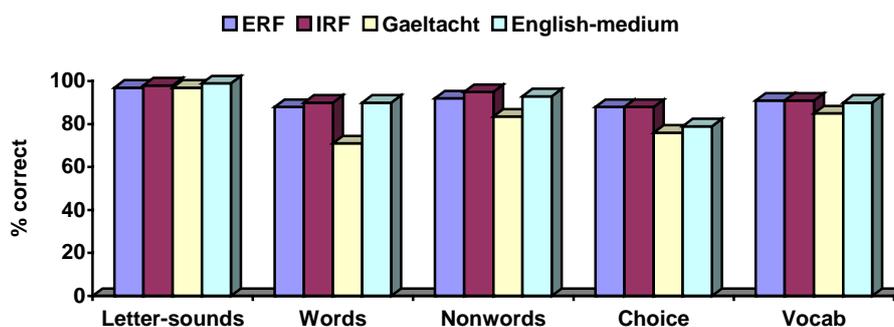


Figure 4: Performance by Second class on English tasks

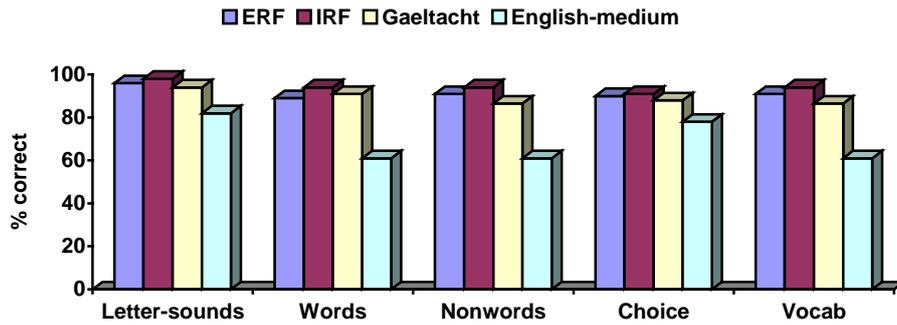


Figure 5: Performance by Fourth class on Irish tasks

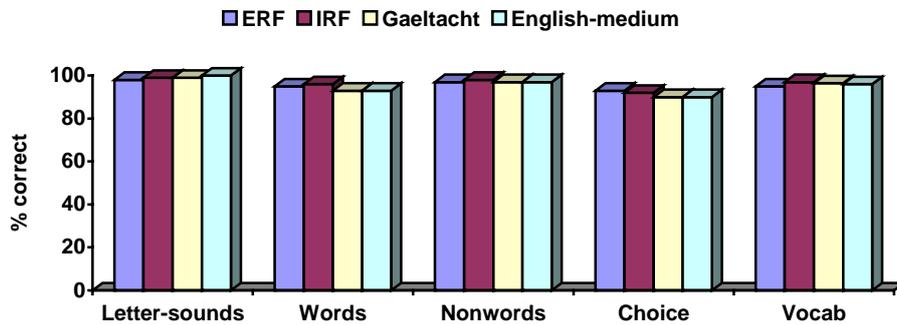


Figure 6: Performance by Fourth class on English tasks

Irish letter sound knowledge

Across the Senior Infants groups, there were clear differences by school type on the Irish letter–sound knowledge task, with children from the IRF group naming significantly more Irish letter sounds compared to children from the other three school types. The remaining three groups performed similarly to each other on this task.

For the Second Class groups, children from the Irish-medium and Gaeltacht schools performed significantly better on this task than children from the English-medium school. Children from the Gaeltacht and the IRF schools named a similar number of Irish letter sounds, and children from the IRF school named significantly more letter sounds than the ERF schooled children.

Across the Fourth Class groups, children from the Irish-medium and Gaeltacht school types generally scored upwards of 97% on the Irish letter-sound knowledge task. Within this group, English-medium schooled children named significantly fewer Irish letter sounds than children from the three other school types. Children from the English-medium school generally did not know the long Irish vowel sounds by Fourth Class.

English letter-sound knowledge

Across the Senior Infants groups, there was a significant effect of school type, and the Gaeltacht schooled children identified fewer English letter sounds than children from the other school types. Children from the other three school types named a similar number of English letter sounds. By Second Class, there were no significant differences between the four school types.

Nonword reading

Irish nonword reading

Significant differences emerged across school types for the Senior Infants groups on the Irish nonword reading task (see Figure 1), with IRF schooled children performing significantly better than the other three school types. The Gaeltacht schooled children's performance was significantly poorer than those of the other three groups at this age (reflecting an emphasis on oral language). Performance was similar for the English-medium and the ERF schooled children.

Within the Second Class group, the IRF, ERF and Gaeltacht school types scored more than 25 percentage points higher than the English-medium group. The differences across the school types were repeated in the Second Class groups on this task; children from the English-medium group made significantly more errors than all other groups on this task. For the Fourth Class children, performance for the IRF, ERF and Gaeltacht groups was similar, while performance for the English-medium group was somewhat lower.

English nonword reading

Figure 2 indicates that at Senior Infants, the Gaeltacht children's mean scores were significantly lower than those of the other three school types on the English nonword reading task. A significant effect of School type was found for the Senior Infants groups on this task: the Gaeltacht schooled Senior Infants children scored significantly below the remaining three groups. Differences among the IRF, ERF and English-medium schooled children did not reach significance.

The Second Class children from the ERF, IRF and English-medium schools all achieved similar mean scores on the English nonword reading task, while the mean score for the Gaeltacht school group was lower. This effect of school type was significant. However, by Fourth Class, there were no significant differences between any of the groups, showing that any initial disadvantage for the Gaeltacht group had by then resolved.

Real word reading tasks

Irish word reading

Figure 1 indicates that within the Senior Infants groups, the two Irish-medium school types scored at a similar level. All Senior Infants children in the English-medium group scored in the non-reader range (that is, below 10%, according to the criteria employed by Seymour et al., 2003). The English-medium and Gaeltacht groups scored at similar levels on this task. While the Senior Infants IRF group performed significantly better than the ERF children on the Irish nonword reading task, this advantage was not evident on the Irish word reading task.

At Second Class, the IRF schooled children achieved the highest accuracy scores while the Gaeltacht and ERF schools had similar scores. In contrast, the English-medium group lagged behind. At Second Class, therefore, all school types receiving instruction through Irish demonstrate a significant advantage over children from the English-medium sample on both Irish reading-based tasks.

At Fourth Class, children from the ERF, IRF and Gaeltacht schools achieved similar mean accuracy scores while the accuracy scores for the English-medium group were lower. The effect of School type was significant. Irish word reading accuracy by the English-medium sample fell well below scores from the other three school types.

English word reading

On the English real word reading task within the Senior Infants group, the ERF school and the English-medium school achieved an accuracy score more than 20 percentage points higher than those of the IRF school and approximately 40 percentage points above the Gaeltacht children's scores. The effect of School type on the English word reading task was significant, with both Gaeltacht and IRF children scoring significantly below the results for the ERF and English-medium schools. Children receiving instruction in English reading first showed an initial advantage on the English real word reading task over children receiving instruction in Irish reading first, regardless of the medium of instruction of the school that they attended. While the IRF school sample lagged behind those receiving reading instruction in English initially on the English real word reading task, this difference was not evident on the nonword reading task.

Across the Second Class groups, mean scores of the ERF, IRF, and English-medium school types clustered at around 90% with children from the Gaeltacht sample achieving a lower score. The accuracy scores of the Gaeltacht sample were significantly below those of the other three groups. At Fourth Class, no significant

differences were found between accuracy scores of the four school types, with all groups performing similarly.

Vocabulary tasks

Irish vocabulary

Across the Senior Infants samples, a significant effect of school type was found on the Irish vocabulary measure, with children attending the Gaeltacht school scoring significantly better than all other school types. The ERF and the IRF groups scores were similar at 37% and 45%, respectively. The English-medium sample scored significantly below both Irish-medium samples and the Gaeltacht group (see Figure 1).

Again, an effect of school type was evident across the Second Class samples. The pattern found at Senior Infants was replicated: the performance of Gaeltacht-schooled children was superior to the IRF and ERF schooled children who scored at a similar level to each other, and all were significantly better than the English-medium sample. Within the Fourth Class samples, the IRF, ERF and Gaeltacht schools achieved similar scores, in comparison to the English-medium group who produced the lowest score. Across all three Irish tasks at Fourth Class, the English-medium children scored below the three school types taught through the medium of Irish.

English vocabulary

No significant differences for groups or school type were observed on this task for the Senior Infants groups, with mean scores ranging from 77% to 83%. At Second Class (see Figure 4), the mean scores of the ERF, IRF and English-medium groups fell within the same range, with the Gaeltacht school group scoring slightly lower. There was a significant effect of school type on this task, with the Gaeltacht Second class group scoring significantly below the other schools. By Fourth Class (see Figure 6), there were no significant differences between the scores of the four school types. The (slightly) weaker performance of the Gaeltacht group at Second Class may therefore be a cohort effect.

Orthographic letter string choice task

For this task, children were presented with two stimuli and were required to choose the item that conformed to the acceptable orthographic patterns of each language. Scores at Senior Infants on both the Irish and English tasks were at about chance level, suggesting no real knowledge of 'legal' orthographic patterns at this age.

Irish orthographic choice task

For the Irish orthographic choice task, the four Senior Infants groups performed at about chance level and no significant differences emerged between the different school groups. At Second Class, there was a significant effect of school type; the English-medium and Gaeltacht children scored significantly below the IRF children. No other significant differences were found across the Second Class groups.

A significant effect of school type was noted for the Fourth Class children, as children from the English-medium group scored significantly below the other three groups, consistent with the other measures of Irish reading skill. That is, the Fourth Class children attending the English-medium school had poorer knowledge of orthographic patterns in Irish.

English orthographic choice task

At Senior Infants, there were no significant differences between the four groups, with performance around chance level. At Second Class, children from the IRF and ERF schools scored significantly higher than children from the Gaeltacht sample. No other significant differences were found across the Second Class groups. For the Fourth Class groups, there were no differences across the school types.

Results from the longitudinal study

As outlined earlier (see Table 2), in a longitudinal follow-up, children from the senior infants group were tested again on all four tasks, once when in First Class and again in Second class. (In what follows, Time 1 refers to the Senior Infants data outlined above, Time 2 refers to the follow-up in First Class, and Time 3 refers to the follow-up in Second Class). Eighty-four children participated in the follow-up study.

Letter Sound Knowledge

The results outlined above indicated that at Time1 the IRF schooled children performed significantly better than the other school types (see Figure 1) on the Irish-letter sound knowledge task. By Time 2, the ERF children had caught up with the IRF children, while the English-medium and Gaeltacht children scored around 78% on the Irish letter-sound knowledge task. At Time 3, children from the English-medium school group scored significantly below the remaining three groups and had largely not acquired the long Irish vowels (é, í, ó, ú, á). For the English letter-sound

knowledge task, the Gaeltacht children continued to lag behind the other groups at Time 2, but had caught up by Time 3.

Nonword Reading

For the Irish nonword reading task at Time 2, the ERF children had caught up with the IRF children, while the Gaeltacht and English-medium children continued to score below the Irish-medium children. At Time 3, the findings observed in the cross-sectional study also emerged in the longitudinal study with children from the English-medium school scoring below the other groups

On the English nonword reading task, at Time 2, the IRF children had caught up with the other two groups, but the Gaeltacht children continued to lag behind (mean score of 39%). By Time 3, there were no significant differences between the four school groups. This finding suggests that the IRF and Gaeltacht children have drawn level with the other two groups in terms of their basic English decoding skills by Time 3.

Word Reading

On the Irish real word reading task, the ERF and IRF children scored significantly better than the Gaeltacht and English-medium children at Times 1 and 2. Gaeltacht children at Time 3 performed as well as the ERF and IRF groups, while the children from the English-medium school scored significantly below the other groups. This replicates the pattern found for the Irish nonword reading task: children taught through the medium of Irish (ERF, IRF, Gaeltacht) exhibit an advantage on this measure of Irish decoding skill.

On the English word reading task, there was a significant effect of school type at all three times, with the ERF and English-medium children achieving similar scores while the Gaeltacht children scored lowest. These results suggest that the IRF children have made up the initial lag on English word reading and the Gaeltacht children may be beginning to do so. (The cross-sectional data described above showed that all groups performed well on the English word reading task at Fourth class.)

Vocabulary Tasks

On the Irish vocabulary task, across all three time points, the English-medium school children scored below the other groups, with the Gaeltacht children demonstrating a significant advantage over the other groups on this measure. At Time 3, children from the ERF and IRF groups achieved similar mean scores to the Gaeltacht children. On

the English vocabulary task, the four school groups performed similarly at Time 1 and Time 3, but differences emerged at Time 2. In contrast to the cross-sectional data, the ERF children scored significantly below the IRF children, while no other group differences reached significance.

Orthographic Task

On the Irish orthographic choice task, no school differences were found until Time 3 where the English-medium and Gaeltacht school children scored below the ERF children. Similar findings emerged for the English orthographic choice task, with younger children, on average, scoring at around chance level. At Time 3, there was a significant effect of school type: the Gaeltacht school children scored below the other three groups. The Gaeltacht children's knowledge of orthographic patterns in the two languages, as measured here, had not developed to the same extent as the other groups. This is likely to reflect a focus on oral language, as suggested by superior performance on the vocabulary measures. The cross-sectional data, described above, show no group differences on this task at Fourth class.

DISCUSSION

This research has shown that children attending Irish-medium and Gaeltacht schools in Ireland perform well on tests of Irish word reading competence and related skills fundamental to reading in Irish, compared with their English-medium counterparts. Furthermore, the research indicates that by Fourth Class, this advantage is achieved without detriment to English decoding skill. This section will discuss the results from each school in order of school class.

Senior Infants children

The Senior Infants children in Irish-medium schools demonstrated a significant advantage over their peers attending English-medium schools on the Irish vocabulary task, even though a number of children in the Senior Infants group were from homes where Irish is not spoken as the main language. The particular advantage for Gaeltacht-schooled children on the vocabulary measure and their relative early disadvantage on the reading related measures (in both languages) are consistent with an emphasis on developing oral language skills, to the benefit of the non-native Irish speakers.

On the English word reading task, the Senior Infants ERF and English-medium children scored significantly higher than the IRF children. For all other English measures, with the exception of the English vocabulary task, the Senior Infants Gaeltacht children scored below the other groups. Interestingly, this group also continued to lag behind at Time 2 in the longitudinal study. Again, this may reflect an emphasis on oral language in the Gaeltacht classroom. Such differences were not apparent in the older age groups.

Second Class children

Overall, the findings obtained for the slightly older Second Class children tested in the cross-sectional study were comparable to the Second Class children from the longitudinal study. Children taught through the medium of Irish demonstrated significant advantages over the English-medium children across all aspects of Irish reading skill measured at Senior Infants. The Irish-medium and English-medium children scored at an equivalent level across all of the English measures. This is consistent with findings from other immersion contexts, which indicate that children typically 'catch up' with their peers in conventional programmes on measures of first language reading skill (Genessee, 1978; Geva & Clifton, 1994; Lambert & Tucker, 1972; Swain & Lapkin, 1982).

Fourth Class children

Generally, the findings from the Second Class children were replicated in the Fourth Class groups. The Irish-medium children had a clear advantage over the English-medium children in terms of Irish word decoding skills. Notably, the Fourth Class Gaeltacht children did not score below any of the other groups on the English measures, as they had in Second Class. The Gaeltacht children also scored at a similar level to the Irish-medium children on all the Irish measures. Again, the performance of the ERF and IRF children was very similar across all English and Irish measures employed here.

The Gaeltacht children as an exceptional group

Gaeltacht schools face exceptional challenges in teaching local children. The existing linguistic features of Gaeltacht areas, the pervasive influence of the English language and the lack of reading resources for first language Irish speakers all constitute considerable difficulties for these schools. However this study found that the (older) Gaeltacht children not only performed at a similar level on the Irish reading tasks to the Irish-medium children, they were also significantly ahead of the Irish-medium

children on the Irish vocabulary measure at both Senior Infants and Second class in the cross-sectional study. Given the language background of this group, their performance here on the Irish reading tasks is consistent with the Harris et al. (2006) study of national achievement. The children in the current study attended a Gaeltacht school located in a community where high levels of Irish language support were available. Furthermore, children in this school who spoke Irish at home were in the majority rather than the minority. However, these findings must be interpreted in light of the sampling of just four schools in this study; school-specific characteristics may influence the results here and therefore generalisation to school types must be treated with caution.

Children from English-speaking homes attending the Gaeltacht school were found to benefit from being in a class with native speakers, as they too demonstrated an initial advantage on the Irish vocabulary task compared with the children in the Irish-medium schools. Harris et al. (2006) suggest that children from English-speaking homes in Gaeltacht schools where there are substantial numbers of native Irish speakers in a class or where Irish is the dominant language in the community outside the home may be more motivated to acquire native-like competence in Irish than children in English dominant schools.

Reading sequencing

This study examined the outcomes of the two current reading practices in Irish schools. The two participating Irish-medium schools were comparable in terms of their classroom size, their sex ratio and socio-economic status, but differed in terms of the key reading sequencing variable. In the cross-sectional study, differences between the performance of children in the Irish-medium school receiving reading instruction in Irish initially and those receiving reading instruction in English first were evident only at Senior Infants.

In the longitudinal study, the ERF children had caught up with the IRF children on the Irish letter knowledge task and the Irish nonword reading task at Time 2, while the IRF children had yet to draw level with the ERF children on several of the English measures. Consistent with the findings of the cross-sectional study, by Time 3 there were no differences between the two groups. In short, for both Second Class cohorts, the scores of the IRF and ERF groups could not be differentiated across any of the English or Irish task versions. These findings support the view that the language in which reading is formally introduced is not critical to later first language word decoding skill (see Cummins, 2001; Ewart & Straw, 2001) or second language word reading. However, as only two such schools were compared in the present

study, school effects could be influencing results and a larger scale comparison of ERF and IRF schools would be needed before definitive conclusions are reached.

General comparisons with other countries

Overall, the present data compare well to studies of immersion conducted in other countries. The second language reading skill advantages found here, and the absence of a 'cost' to first language reading skills, concur with results from Canadian immersion, (e.g. Day & Shapson, 1989; Swain & Lapkin, 1982; Swain, 1984, 1995; Curtain & Pesola, 1994; Genesse, 1987), and previous national surveys of achievement in Irish (e.g. Harris et al., 2006; Harris, 1993; Harris & Murtagh, 1999; see also Murtagh, 2007). The Irish vocabulary scores of the Gaeltacht group were significantly higher than all other class groups at Senior Infants and Second Class in the cross sectional study, and their advantage lasted until First Class in the longitudinal study. The Irish-medium pupils were level with the Gaeltacht children at Fourth Class, and at an earlier point (Time 3: Second Class) in the longitudinal study. This is in line with evaluations of French programmes which have found that immersion pupils can score at levels comparable to those of native speakers on some measures of receptive language skills (e.g., Harley, Allen, Cummins & Swain, 1991).

CONCLUSIONS

While the present study acquired a large sample of pupils from a linguistically valuable area, conclusions are somewhat constrained by the fact that each schooling type is represented by one school only. Naturally, children were taught by different teachers, and in different classrooms and schools. These potential confounds simply could not be controlled, given the nature of this study. It is possible that some of the effects found here are school or class group effects rather than a result of the school type (for example, the lower performance of the Gaeltacht Second Class group on the measure of English vocabulary may reflect such a difference). However, the schools were administered by one educational authority, were of similar socio-economic status, followed the same curriculum and utilised the same text books. The absence of suitable standardised tests for use with Irish-schooled children meant that children were not matched for nonverbal ability across their grades and schools. It is possible therefore, that factors other than schooling context or medium of instruction

could account for noted differences or similarities. However, previous research suggests that the use of tests of cognitive ability designed for L1 English speakers may be problematic for non-English speaking backgrounds (e.g., Carstairs et al., 2006), and a number of reviews have identified letter knowledge and phonological sensitivity as better predictors of reading skill over general cognitive ability (e.g., see Bowey, 2005).

The longitudinal study, involving follow-up assessments of the youngest group of children from the cross-sectional study, served to aid the interpretation of group differences, given the above limitations to the study. The fact that the results from the longitudinal study generally replicate those of the cross-sectional study is important in this regard. Nevertheless, further research with larger samples is clearly warranted to determine the most appropriate reading sequence in the Irish-medium context.

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