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AcademicAchievement, Anxiety and Attitudes in Early and Late Immersion in Ireland

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Abstract

Differences between early and late Irish-immersion secondary school students are examined, not only in terms of academic outcome and target language ability, but also in terms of attitudes to learning the target language. Participants included a gender-balanced group of 97 students in Irish-immersion in fourth year of secondary school (mean age 15.5 years). The students were categorised as either early immersion (had attended an Irish-medium primary school) or late immersion students (Irish as core subject only until secondary). Participants completed a C-test and a Student Questionnaire based on Gardner's (1985) Attitude and Motivational Test Battery (AMTB), which looked in particular at their class anxiety, motivation and parental support for learning Irish. State examination results (Junior Certificate) were also collected and compared for the early and late immersion students. No difference was found between the groups in terms of overall academic attainment in Mathematics and Irish scores in Junior Certificate results. However the late immersion students performed significantly less well than early immersion student on more subtle tests of Irish ability and scored significantly higher on classroom anxiety. The discussion considers these outcomes and suggestions are made for provision of a transitional programme for late immersion students to address differences in their language proficiency and anxiety levels.

Introduction

Early and late immersion

Immersion education is available in Ireland at preschool, primary and secondary levels (Ó Murchú , 2003). These are schools in which all subjects are

taught through the medium of Irish, apart from the subject English in primary school and a foreign language in secondary school. The majority of children attending these schools are native speakers of English. Recent years have seen significant growth in the number of pupils attending such schools (see Gaelscoileanna 2004), and statistics for 2005 show almost 31,000 pupils throughout the Republic and Northern Ireland in 158 all-Irish primary schools, and 36 secondary schools. (Of these, there are 31 schools in Northern Ireland, with about 2500 children attending.) The school year 2005–06 was the first year in which there was an Irish-medium primary school in every county in Ireland.

A child can, in theory, begin in Irish immersion at any time, depending on whether a school has a place for him/her. However, the most common entry points into Irish immersion are either at pre-school (age 3–4), at the beginning of primary school (age 4–5) or, less commonly, at the beginning of secondary school (age 11–12). Here the primary and secondary intakes will be defined for the Irish population as early and late immersion respectively. In secondary immersion schools, although the majority of places are reserved for students who were in an immersion primary school, there may be a non-immersion intake as a result of attrition from primary immersion, or as a result of an individual school's policy of keeping a certain number of places for pupils from non-immersion schools in its local catchment area or parish. These late immersion students have studied Irish as a separate subject throughout primary school and therefore have some proficiency in the language. This variation in student profile makes Gaelscoileanna (Irish speaking immersion schools) an unusually good base from which to approach immersion education studies. While a small number of studies have been conducted on aspects of Irish immersion education (e.g. Coady & Ó Laoire, 2002; Hickey, 1997; Mac Fhlannchadha, 1999), there has been no formal comparison of early and late immersion outcomes in Irish-medium education.

Early, middle and late French-immersion programmes in Canada vary, not only in the age of starting in immersion, but also in degree of immersion

(with total immersion having the most overall French used, and partial immersion having only a proportion of subjects taught through French from the outset). In general, in Canadian early total immersion, classes move from 100% immer- sion to 50% or less in later grades of immersion schooling. In contrast, the immersion model adopted in Irish-medium schools is intensive and stable, with the only subject taught through English being English itself, or a foreign language. The colloquial name for immersion schools in Ireland is 'all-Irish and in general they are just that, with Irish being the only medium of instruction.

The effect of age of immersion has been studied extensively in Canadian immersion populations and research comparing outcomes between pro- gramme groups has been influential internationally. Johnstone (2002a) reviewed the literature on early and late immersion, including in his thorough sweep of the literature the earlier review by the Canadian Carlton Board of Education (1996) on the same topic. He noted that, while early total immersion appears to achieve superior L2 learning compared to 'partial', 'delayed' or late immersion, nevertheless, some pupils in late immersion can come close to the L2 reading and writing skills of their early immersed peers by using their more advanced learning strategies and their L1 literacy. Johnstone notes that, as a result, late immersion is becoming more widespread in Europe and in Australia (see Read, 1996, for example), though he does sound a note of caution regarding the tendency not to use control or comparison groups in evaluations.

Lapkin et al. (1991) compared early immersion and middle immersion students in terms of achievement in French, their target language. They tested pupils in Grade 8, and they found that the early immersion pupils achieved better results in reading, writing, listening and speaking measurements than their later immersed peers. However, as with other immersion studies, the duration of immersion advantage experienced by the early immersion pupils was not controlled for. As a note of caution, Lapkin et al. (1991) warned that French language performance needs monitoring across time to gauge medium-term effects on French outcomes at the end of secondary school.

In a study investigating not only French proficiency outcomes in

Canadian immersion programmes but also strategies and aptitudes towards French learning, Harley and Hart (1997) compared early immersion and late immersion students in terms of memory ability and language aptitude in the 11th grade. A significant positive relationship was found between memory ability and French ability in the early immersion students, but in the late immersion students a significant positive relationship was found between analytical language aptitude and French ability. Importantly, no difference was found between early immersion and late immersion students in terms of general language aptitude. Harley and Hart nevertheless warn that it is possible that the late immersion group represented a more select sample. Apart from the issue of whether pupils who elect to attend late immersion differ in attitude or ability from those continuing in immersion, older learners bring different skills to the task of language learning than younger learners. Cummins (1980) predicted that older second language learners would acquire second language cognitive academic linguistic proficiency (CALP) faster than younger learners, provided they have well developed first language CALP. He asserted that there are consistent research results suggesting that first- language CALP is a major positive determinant of second-language CALP.

Harley and Hart's (1997) findings seem to offer some support for Cummins's theory, in that late immersion students showed signs of using analytical language aptitude to achieve a good outcome, whereas the successful early immersion pupils relied on memory ability. Furthermore, Cenoz (2003) found that when duration of exposure to a second language is held constant, older learners' L2 attainment (in this case in English) was better across all performance categories. Indeed a previous review by Harley (1991:13) comments that:

> Comparisons of the French proficiency of early and late immersion students in secondary-level follow-up programs reveal a general tendency for late immersion students to catch up in reading and writing skills, with early immersion students usually maintaining an advantage in listening and in spoken French.

According to Cummins (1980, 1984), the apparent catch-up by the later immersion group would result from their greater cognitive maturity and the fact that they had already acquired literacy skills in their first language which they were able to utilise in making rapid progress in L2 literacy within the immersion context. Harley and Jean (2000) compared early immersion and late immersion students in terms of French ability at Grades 8 and 10. They found that by Grade 10, early immersion students were still significantly in advance of late immersion students in terms of vocabulary. However, the rate of late immersion students' acquisition of vocabulary in French was superior when duration of immersion was accounted for. Additionally, the French word-analysis skills between late immersion and early immersion students were not significantly different by Grade 10, showing a catch-up by the late immersion students. The researchers advised focused instruction in word analysis, as increased growth of word analysis skills seems to be connected to an increase in rate of vocabulary acquisition and increased second language ability for the late immersion students. In this case there was a significant positive correlation between word analysis skills and vocabulary within groups.

De Courcy (2002) looked at four late immersion students and found that they began their immersion experience with a heavy dependence on translating text into their L1, English. As this reliance had largely disappeared after a year or so in late immersion, then early immersion pupils are less likely to manifest such reliance on translation into their L1 after spending all of their primary school years in immersion. Johnson and Swain (1994) have argued that the evidence regarding differences in strategy between early and late immersion students may indicate that the assumptions underlying early immersion education may not be valid for a late immersion population. As an example, they cite the argument that there is no place for the use of the students' first language in immersion education and that the curriculum should be the same for both early and late immersion students. They comment on the large proficiency gap between late immersion students' first language skills and their proficiency

in the language of immersion. Johnson and Swain (1994) propose that teaching methods for late immersion students should be adapted in the form of a bridging course, in order to help students overcome their reliance on their first language and encourage language learning strategies that facilitate the development of study skills in the second language among late immersion students. Such bridging courses, in the form of 'latecomer centres', were introduced in Wales, which has a high level of immigration from non-Welsh speaking areas to Welsh speaking areas (where immersion schooling is the norm). These centres allow students with little prior Welsh exposure to become confident in its usage via an intensive Welsh environment (see Welsh Language Board, 2004). The latecomer centre courses vary in length, usually lasting a full term (or two terms part-time) and are designed specifically for older learners (ages 7 – 11).

In the Irish context, Coady and Ó Laoire (2002) have pointed out that teachers need to adapt their instructional strategies to account for the difference between students in Irish-medium schools who are native Irish speakers and those who are learning Irish as a second language (as these students are mixed in some Irish-medium schools). This argument is also relevant to the distinction between late and early immersion students, and the need to adapt instructional strategies to suit both groups, at least at the beginning of the late immersion group's experience.

Non-linguistic outcomes: Attitudes and anxiety

Such adaptation of provision for late immersion students may extend beyond language preparation. In recent years there has been an attempt to evaluate immersion education not only in terms of linguistic ability and academic outcomes, but also in terms of the non-linguistic factors which have long-lasting effects (e.g. MacIntyre et al., 1998) and which may be better predictors of future language use. A child's language acquisition is a function not only of duration of second language exposure, the duration of formal instruction and their age,

but also their own attitudes towards the language and other people's attitudes towards the language. Moreover, looking exclusively at proficiency in the target language misses the point somewhat. MacIntyre et al. (1998) have argued that it is not enough for learners to become communicatively competent in the classroom; instead, the aim of second language instruction (and indeed immersion) should be that the students not only can speak the second language, but are also willing to speak it for authentic communication outside the classroom.

The significance of attitudes and motivation to learn an L2 was recognised in Gardner's (1985) review of Tucker et al.'s (1976) late/early French immersion comparison study. Comparing the early immersion, late immersion and control (non-immersion) groups studied, he found that the only significant predictor of outcome in all four French measures tested was attitude and motivation towards French. Masgoret and Gardner (2003) meta- analysed results from studies which used Gardner 's Attitude and Motiva- tional Test Battery. They found that, of the variables measured in the 75 independent samples (over 10,000 participants) studied, the motivation subtest more than any other correlated significantly with objective and self- rated measures of language proficiency and achievement.

More recent research has identified willingness to communicate in a second language as an important variable: MacIntyre et al. (1998: 601) noted that 'those who are most willing to initiate communication are also most motivated to learn'. It may be that late immersion students who join classes with a majority of early immersion students who have much higher initial proficiency than their own may be less prepared to initiate communication in class. Thus, willingness to communicate, or anxiety about communicating, may have particular significance for this population, and impact on their learning strategies. Furthermore, Singleton (2001) has argued that later arrivals in a second language environment are probably more likely to cluster with other later arrivals, limiting further their contact with the second language relative to earlier arrivals. His assertion that this may be to do with avoiding isolation in a new

environment is especially relevant to those classified here as late immersion, as their early immersion counterparts usually come from a limited number of 'feeder schools' and already have a social support network of friends from a second language environment (primary gaelscoil). This type of informal clustering of late immersion pupils, without any bridging courses or targeted provision to help them to improve their language learning strategies and reduce their dependence on their first language, would not appear to be ideal.

Baker and MacIntyre (2000) noted that there appears to be a close relationship between anxiety and perceived competence in a second language. Essentially, whereas relaxed speakers overestimate their ability, anxious speakers underestimate it. Elaborating on this, Baker and MacIntyre (2000) outline a 'vicious cycle' where highly anxious students are less willing to communicate in their second language and so deprive themselves of an opportunity to practice and improve. Comparing first language and second language usage, they note that 'the greater communicative demand placed on immersion students and the emphasis on performance may leave the immersion students feeling a little more anxious about speaking' (Baker & MacIntyre, 2000: 336). Looking to an early immersion/late immersion division, it is possible that early immersion students experience a reduction in anxiety about speaking the target language by the end of primary school. However, late immersion students may, initially at least, experience it all the more keenly as they compare their own performance with their early immersion peers. MacIntyre et al. (1997) note that such anxiety is likely to be detrimental because anxious speakers are less likely to take an active, verbal part in classes or to use their second language in the wider world. Specifically, the awareness of possible future communication in the second language alone can be distracting to a highly anxious speaker (MacIntyre et al., 2002), thus inhibiting the learning experience.

Low et al. (1995), while studying a pilot programme in foreign language education in primary schools in Scotland, found differences between 8-year-old and 11-year-old language learners with respect to their ability to handle anxiety.

The 11-year-olds had developed a number of strategies to handle their anxiety, whereas the 8-year-olds did not appear to have any. Johnstone (2002b) argues that these strategies are developed because the 11-year-olds are beginning to feel anxiety about language learning whereas the 8-year-olds have not yet reached that stage. This is important, as the late immersion students in Ireland begin aged 11–12 years, around the time where the students studied in Low et al.'s study began to become anxious about language learning, and needed to develop strategies to handle that anxiety.

In light of this research, there is a need to investigate attitudes to language learning and anxiety in early and late immersion samples in second-level Irish-medium schools (Gaelscoileanna) as well as achievement. In Irish immersion secondary schools there is generally no stratification between those who have attended an Irish-medium primary school and those who have not, and, in most cases, early immersion and late immersion groups are mixed into the same classes from the outset, with little or no separate provision. In the case of the schools sampled here, the practice is to distribute the late immersion students in each class in roughly equal proportions. Late immer- sion students are in the minority in each class, with most of their places being provided due to a policy of maintaining a small number of places for pupils from local non-immersion schools, or to the attrition of primary Gaelscoil students to the more widely distributed mainstream English-medium second- ary schools.

Design of the Study and Research Questions

The main aim of this study is to compare early and late immersion pupils in fourth year of second-level immersion on a number of both academic and non-academic variables. The former are evaluated by looking at pupils'
Mathematics and Irish scores on national examinations and on C-tests, and the latter using measures of their attitudes and anxiety. The research questions can be summarised as follows:

(1) Are there differences between the general academic achievement of

early and late immersion pupils? This will be investigated using scores in Mathematics in the Junior Certificate (state examinations taken at the end of third year of secondary school).

(2) Are there differences in their academic Irish achievement? This will be investigated through a comparison of fourth-year early and late immersion pupils' Junior Certificate scores in Irish. The related question of whether there are more subtle differences in the Irish proficiency of early and late immersion pupils in fourth year of secondary school will also be investigated, using C-test results, in light of the research evidence that that there is a clear 'duration of second language immersion' gap between the two groups. Some cross-sectional data from a sample of first-year pupils will also be reported here to cast some light on the relative proficiency gap in another group of early and late immersion pupils on entry to secondary school.

(3) Are there differences in non-academic factors between early and late immersion pupils? The data here are responses to subscales of Gardner's ATMB. A related question is whether there is an interaction between the early and late immersion groups' Irish proficiency and more social factors such as attitudes towards the language and class anxiety, as well as their own perception of their ability. The latter element is linked to Baker and MacIntyre's (1998) investigation of non-linguistic outcomes in an immersion and non-immersion group but looking instead internally to non-linguistic variables in two different immersion groups. Given that Baker and MacIntyre showed evidence of a link between anxiety and perceived ability, here the relationship between anxiety and performance will be investigated.

Participants

Data were collected from 97 students in fourth year of second-level Irish immersion schools. Sixty-two of these pupils began immersion education at

primary or preschool level (early immersion), while 35 began immersion education only on entry to secondary school (late immersion). Therefore, at the point of testing, the fourth-year early immersion students had had eight years of Irish-immersion primary schooling and three and a half years of immersion secondary schooling experience, totalling about 10,000 hours of Irish-medium instruction. In contrast, the late immersion pupils had had eight years of Irish as a separate subject in English-medium primary schools, plus three and a half years' immersion experience at secondary, totalling about 3600 hours of Irish.[1] The sample had an age range of 15 – 17 years (mean age $= 15.41$ years, $s_X = 0.515$ years). The gender ratio was 45:52 (female to male). All pupils reported English as their first language, and the schools were in an urban, middle-class English speaking area.

In order to explore further the similarities and differences between the early and late immersion pupils, data were also collected on 73 first-year secondary immersion students from the same middle-class, English speaking catchment area, comprising 20 late and 53 early immersion. At the time of testing, these first-year late immersion students had only four months' immersion experience. All pupils reported English as their first language. This sample had an age range of 12 – 13 years (mean age $= 12.49$ years, $s_X = 0.503$ years) and comprised females only. It is a limitation of this study that these data, rather than longitudinal data on the fourth-year participants, are used. They are included here mainly in order to explore, tentatively, whether a group of younger early and late immersion students in the same schools show similarities and differences in their attitudes to, and proficiency in, Irish at about the time of entry to second-level immersion. While different individuals are involved, some similarities between the first- and fourth-year late immersion pupils are apparent. Background data on Irish use collected from these groups indicate that the late immersion pupils in both the first- and fourth-year sample were dependent on their primary school exposure to Irish (as a single subject) before joining the immersion school and had not been exposed to significant use of Irish

either in their homes or outside of primary school. Background data on the first- and fourth-year samples as a whole also showed no significant differences either with regard to current exposure to Irish outside of school.

Test instruments

Participating fourth-year students and their parents gave their permission for the inclusion of their Junior Certificate results for Irish and Mathematics. The Junior Certificate is a national examination sat at the end of the third year of secondary school. Irish immersion students follow the same curriculum and receive the same examination as students in English-medium schools, except that they are taught and examined through Irish. Students also completed a brief language background questionnaire concerning their use of Irish in the home and outside of school.

Achievement in Mathematics

The results in Junior Certificate Mathematics were used as a measure of general academic achievement, in order to estimate whether there are differences in general ability between the early and late immersion pupils in the fourth-year sample.

Achievement in Irish

The Junior Certificate Irish results were used as a measure of academic Irish ability and listening comprehension (as there is an aural component to the Irish Junior Certificate exam) in the fourth-year sample. There is no oral test in this examination.

Proficiency in Irish: The C-test

While national examination results offer a general measure of Irish achievement, it is possible that these tests, which are designed to measure the full range of Irish achievement, are not sufficiently sensitive to show the

differences between students at the upper end of the achievement range. It was therefore decided to include a C-test measure of Irish proficiency among the early and late immersion students in fourth year, in order to assess whether there are, in fact, more subtle differences between early and late immersion students in terms of Irish ability. C-test data are also reported from the first-year sample in order to explore whether a sample of first-year early and late immersion students do, in fact, differ significantly in Irish proficiency on entry to immersion secondary school. Background data on Irish use in the home and outside school were also collected from this group.

As in the study by Murtagh (2003), the C-test was used here as a fine-grained measure of Irish proficiency. The C-test is a development on the cloze test, and is based on the same concept of reduced redundancy. The second half of every second word is removed, with the first and last word of each sentence left intact for context. The participant is instructed to complete the incomplete words. Both the piloting and overall construction of these tests were under- taken according to the instructions of Raatz and Klein-Braley (1998), with texts chosen from graded readers at appropriate levels. Details of the texts used are provided in Table 1.

During administration, one minute was given to read instructions and five minutes were permitted per text for completion. C-test deletions were scored as correct, correct with acceptable alternative or incorrect. C-test data are considered interval data (Raatz & Klein-Braley, 1998). C-tests aimed at the sample of first-year students were piloted on 6th class (final year of primary school) Irish immersion students in order to ensure they were accessible. C-tests aimed at the fourth-year sample were piloted on a sample of young adult ex-immersion students who were not engaged in further study of Irish. All tests were also checked with native Irish speakers according to Raatz and Klein-Braley's instructions.

Measure of attitudes and anxiety: The student questionnaire

Attitudes to learning Irish among pupils in the first- and fourth-year samples were measured using a student questionnaire. The first section of the questionnaire consisted of background information on their Irish use and education. The other sections were made up of subscales of Gardner's Attitude and Motivation Test Battery (AMTB) as adapted by Harris and Murtagh (1999) for use with an Irish sample of children aged about 11 years. The first of these (Section 2) contained two motivational subscales from the AMTB, Motiva- tional Intensity (10 items) and Desire to Learn Irish (10 items). Section 3 contained three subscales: Attitudes towards Learning Irish (10 items), Parental Encouragement (10 items) and Irish Class Anxiety (5 items). The Irish-lesson anxiety items dealt with students' feelings of embarrassment, nervousness and insecurity regarding their use of Irish in their class, and their perception of their proficiency relative to other students. AMTB data are considered interval data (Gardner, 1985), and have been interpreted as such using an Irish sample (Murtagh, 2003).

Insert Table 1 About here

Reliabilities and procedure

As Table 2 shows, the C-tests had good reliability between the three selected texts at each level, as measured by Cronbach's a (0.85). Reliabilities for the various subscales on the Irish Student Questionnaire were moderate to high (0.69 – 0.86). The reliabilities for these subscales as recorded by Murtagh (2003) (who used an older secondary school sample of students in Ireland) and Harris and Murtagh (1999) (who used a younger primary school sample of pupils in Ireland) are also included in Table 2.

Insert Table 2 about here

Pupils were tested near the end of their first term in fourth/first year. Some weeks before testing the first researcher visited the schools involved and handed out consent forms and guardian permission slips. Return of permis- sion forms was very high.

Results

Achievement in Mathematics

A chi-square analysis of the fourth-year sample's Junior Certificate Mathematics results was carried out, and no significant difference was found between the Mathematics scores of early and late immersion pupils ($x^2 = 0.09$; df = 3; p > 0.05). This measure of Mathematics achievement offers some indication that the late immersion group do not comprise a significantly more select sample than the early immersion group (although both groups may be of higher average ability than the average for their peers in non-immersion schools). These results are illustrated in Figure 1.

Insert Figure 1 about here

Achievement in Irish

Analysis of the Junior Certificate Irish results also showed no significant difference between the early and late immersion groups ($x^2 = 0.08$; df = 1; p > 0.05).[2] Figure 2 shows that the immersion students perform very well on this examination, and there appears to be a ceiling effect, with over 61% of immersion students overall achieving the highest grade (and 37% achieving the second highest), compared to only 11% nationally receiving an A grade.

Insert Figure 2 about here

Proficiency in Irish: C-test results

Given the lack of a significant difference between early and late immersion pupils' achievement in Irish in the Junior Certificate results, it is of interest to explore whether there are other differences between them in Irish proficiency as measured by the C-tests (see Table 3).

Insert Table 3 about here

First, the question arises as to differences between early and late immersion pupils on entry to immersion secondary school. A t-test was carried out on the

sample of first-year students' C-test results, which showed a significant difference in favour of the early immersion pupils on entry, as expected, given the fact that they were graduates of Irish-medium primary schools. These data support the survey results, which indicated that the late immersion pupils in the first-year sample did not have significant exposure to the language outside of school, which might compensate for their non-attendance at early immersion. The survey data collected on the fourth-year late immersion pupils also showed similar profiles of low use of Irish in the home and outside of primary school, indicating some comparability between the groups in their limited exposure to Irish outside of the second-level immersion school, and their dependence on the Irish learned as a single subject in their non-immersion primary schools.

As a ceiling effect was observed for Junior Certificate Irish scores among immersion students, C-test results offered more detailed assessment of relative Irish proficiency in the fourth-year early and late immersion sample. An independent samples t-test was carried out on the C-test data and a significant difference was found between the fourth-year early and late immersion samples ($t = 14.502$; $df = 1$; $p < 0.05$). Thus, the early immersion students in the fourth-year sample performed significantly better than the late immersion students on this more challenging test of Irish proficiency.

The student attitudes and anxiety questionnaire:
Desire to learn Irish, attitude to learning Irish and parental encouragement
The fourth-year pupils' responses to the subscales on Gardner's Attitude and Motivational Test Battery were tested using independent sample t-tests (see Table 4 for summary statistics of the scores). No significant difference was found between the early and late immersion pupils in either fourth-year or first-year with regard to the Desire to Learn Irish or the Attitudes to Learning Irish subscales.[3] Regarding the Parental Encouragement subscale, the fourth-year early immersion sample scored higher, on average, than the late immersion fourth-years, though as this difference was only approaching significance (a =

0.053), no significance can be taken from this. It is noteworthy that there was no significant difference with regard to Parental Encouragement between the early and late immersion pupils in the first-year sample. However, significant differences were found overall between the first-year and fourth-year groups with regard to Parental Encouragement ($F = 20.743$; df $= 1$; $p < 0.05$), with the first-year samples having higher Parental Encour- agement scores on average than the fourth-year samples.

Insert Table 4 about here

Irish class anxiety

Significant differences were found between the early and late immersion pupils with regard to Irish Class Anxiety. The fourth-year late immersion pupils had significantly higher anxiety scores (t $= 4.68$; df $= 54$; $p < 0.05$) than the early immersion sample (see Table 3), giving more negative responses to statements measuring anxiety, such as: 'I never feel quite sure of myself when I am speaking in our Irish class' or 'I am afraid the other students will laugh at me when I speak Irish'. Similarly, the first-year late immersion pupils also had significantly higher class anxiety scores than the early immersion first- years (t $= 4.33$; df $= 75$; $p < 0.05$). Thus, these cross-sectional data give some indication that Irish Class Anxiety is higher in both these groups of late immersion pupils. It is noteworthy that even the fourth-year late immersion pupils' high achievement in Irish in the Junior Certificate examination did not offset their higher anxiety relative to the early immersion pupils in fourth-year.

The C-test results and the anxiety scores indicate clear differences between the fourth-year early and late immersion pupils, and a correlation analysis between the two variables was therefore undertaken. A significant, though small, negative correlation was found between anxiety scores and C-test scores (r $= - 0.43$), showing a trend of decreasing Irish ability with increasing anxiety across both immersion groups.

Discussion

The analyses of the Junior Certificate results show that the late immersion pupils, after only three years in immersion, achieve high grades in Irish that are similar to those of early immersion pupils. However, this Junior Certificate Irish examination may not discriminate fully at the higher level, given its lack of an oral component, and it appears to show a ceiling effect for immersion pupils, with 61% of these immersion students achieving an A and 37% achieving a B. This is a far higher proportion achieving top grades than is found nationally, and suggests that the Junior Certificate Irish examination is probably not sensitive to more subtle differences between early and late immersion students. The C-test was found to be more discriminating, and showed a significant difference between the early and late immersion students both in the first-year sample at the beginning of secondary school, and three and a half years later. The better C-test results of the early immersion fourth- year pupils appear to support Dicks' (1994) finding that early immersion pupils maintained an advantage in their command of French over the late immersion group tested. Harley's (1991) review of early/late comparisons concluded that there was a tendency for late immersion pupils to catch up in reading and writing skills, while early immersion pupils maintain their advantage in listening and speaking French. This appears to be supported by these results showing that, in the absence of an oral component in the Junior Certificate, the late immersion pupils reach similar standards as the early immersion pupils in the Junior Certificate examination which tests their writing and reading comprehension skills. However, the C-test results of the fourth-year sample indicate that the late immersion group had not caught up with their early immersion peers on the more analytically challenging C-test. Thus, academic achievement in the state examination does not show the whole picture for these learners.

The possibility suggested by Harley and Hart (1997) that parents only choose late immersion for children of significantly higher than average ability led to the examination of scores on the Junior Cert Mathematics examination, to see if there appeared to be substantial differences on this measure between the

early and late immersion pupils. The lack of a significant difference on this measure between the early and late immersion groups is some indication that the early and late immersion groups had broadly similar general ability (though both early and late immersion pupils do appear to be more highly selected than the national average with regard to Mathematics). Additional study of this population would benefit from the inclusion of a language aptitude and IQ test, which would also allow comparison with Harley and Hart's (1997) findings that LI students' attainment is related to analytical language aptitude.

These data point to the need, not only to go beyond scores on national examinations to look at more fine-grained measures of Irish proficiency, but also to go beyond achievement to look at non-linguistic factors in language learning, such as anxiety about using the language in class. Immersion education has been adopted by language revitalisation movements in an effort to increase both actual and future language use, and in Ireland it aims to` produce both high levels of proficiency and high levels of Irish use. MacIntyre et al. (1998) have argued that non-linguistic factors may be better predictors of future use than academic scores in the language. The observation that the late immersion students had significantly higher Irish Class Anxiety scores than the early immersion students both in the first-year sample and in the fourth- year sample is some indication that anxiety remains an issue for late immersion pupils, even when they appear to be succeeding academically in scoring well above the national average in state examinations. Significant anxiety may impede their use of the most effective strategies in the initial stages of immersion, and may also result in students who are reluctant to use Irish outside of school, which further impacts on their acquisition. Furthermore, the finding of a significant, though small, negative correlation between anxiety scores and C-test scores in the fourth-year sample supports the negative effect of anxiety on language ability as proposed by MacIntyre et al. (1998). The higher anxiety noted in the late immersion students in Irish classroom situations could transfer into other situations which call for them to use their second language.

These results have practical implications for immersion education.

Harley and Jean (2000) have noted that naturalistic second language acquisition, as experienced by early immersion students, may not be as appropriate for late immersion students. Instead, as Johnson and Swain (1994) and Harley and Jean (2000) argue, more overt language tuition may be beneficial initially for these learners, allowing them to take advantage of the more advanced learning strategies available to them at age 12 than those available to their peers at 5 years. Harley and Jean (2000) found late immersion students to have (or need) higher second language word analysis skills. If this is true, it might be worthwhile to promote these skills in specific classes tailored for the late immersion students, and as they will have relatively low Irish ability initially when compared to early immersion students, it might be useful to give some such tuition in English at the outset at least. Swain and Lapkin (2005) have discussed a greater role for the students' L1 in late immersion, and Johnson and Swain (1994) discussed the need for 'bridging programmes' to cross the gap between late immersion students' language proficiency and learning needs.

Canadian programmes are tailored according to when the student begins immersion education. This is not practical in the Irish context, as the total of late immersion students is relatively low, and there is no special streaming into different programmes based on the age of immersion for these students, unlike the Canadian system. In terms of academic achievement, this does not appear to have any significantly damaging effect, given that these students perform as well as their early immersed peers and do significantly better than the national average. Read (1996), however, commenting on 'cold start' late immersion programmes in Australia, suggests that their success (which she notes has not been fully evaluated) may depend in some part on the fact that they tend to attract highly committed and able students who are prepared to work hard to bridge the gap in the early months of their late immersion. This factor may play a significant role in the success of the late immersed pupils here, but may also contribute to the lack of expansion of the second-level immersion sector. Perhaps linked to their high levels of commitment, the late immersion pupils experience high levels of Irish class anxiety, which are high at

the beginning of late immersion and remain high even in fourth year, at a point where the language gap appears to have been bridged, at least in terms of examination success. It would appear to be worth exploring whether a bridging programme of special provision for the late immersion students would better support their transition to immersion. The higher anxiety of the late immersion students in the Irish class environment may impose an unnecessary burden that impedes initial progress in Irish acquisition, and may impact more generally on their self-confidence at a very vulnerable point in adolescence. At the beginning of late immersion, these students have noticeably poorer Irish skills than the early immersion students, and this may result in their feeling less comfortable speaking in class initially. When they do speak in class, they may receive more correction, which in turn increases anxiety. This is, in essence, the vicious circle described by Baker and MacIntyre (2000), supported here by the correlation between higher anxiety scores and lower C-test scores in the fourth-year group. The option of providing some classes specifically offering effective language learning strategies and tackling the needs of late immersion students in the first year in all-Irish schools is one that needs to be explored, in an effort to lessen their class anxiety and increase their willingness to use the language in the short and long term.

Thus, at least some short-term or intermittent grouping of these late immersion pupils for targeted provision could be beneficial at the beginning of their immersion education, as proposed by Johnson and Swain (1994) for Canadian late immersion students, and as provided in more elaborate programmes in Wales for 'latecomer' non-Welsh speaking children who move into Welsh speaking areas. In the Irish setting, this could be a structured method of targeted learning, with the aim of integrating the late immersion students with the early immersion students after a set period, but allowing some use of their first language, for a time, as a means of accelerating their progress in Irish, and moderating their anxiety. Alternatively it could also be a short period of intense Irish immersion, as is the case in the Welsh 'centre for latecomers' model. However, this would differ from submersion with early immersion

students, given that all the late immersion students in the course would be at around the same level of Irish ability, and this, in itself, might make them more comfortable speaking the target language. Bridging support for late immersion students at the beginning of immersion should be evaluated, not only in terms of examination performance, but in terms of more subtle measures of language proficiency (such as C-tests) and im- portantly, in terms, also, of class anxiety and willingness to use the target language outside of school. Nor should the focus be exclusively on linguistic and academic effects: it would also be interesting to test whether such programmes would offer social or personal benefits in terms of self-esteem and helping late immersion pupils to integrate socially into their class in the currently the case, and assist the Irish-medium sector in expanding the number of second-level schools.

Conclusion

This study indicates that while late immersion students catch up, on average, with their early immersion peers in terms of state examination results in Irish and Mathematics after three years, they do differ from early immersion students in terms of their finer control of Irish grammar, and, importantly, in terms of their class anxiety. This points to the value of introducing and evaluating some transitional interventions for late immersion students so that they can make optimal progress in the target language in order to integrate better with early immersion students in terms of language ability and confidence in their language ability. Such an intervention programme could be developed for a number of schools and 'pooled' between different schools; this is the method in Wales. Future research could focus on the establishment of such a trial intervention and evaluate its effect, if any, on late immersion students' language proficiency, second language use, anxiety levels, social coping and self-esteem, as well as academic achievement. An evaluation of this type is important, as attempts to increase the number of post-primary Irish-medium schools, and the attrition of pupils from primary Irish-medium schools into

mainstream English speaking secondary schools will mean that there will continue to be a stream of late immersion pupils in Irish-medium education. Rather than concentrating only on academic outcome in terms of examination results from these students, efforts earlier in the process to address their particular needs and ease their transition could lead to higher target language proficiency and lower anxiety for these students and make late immersion a less arduous and a more attractive option for them and their families.

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Notes

1. With a minimum school year (Department of Education and Science, 1995a) of 183 days (of 4.6 hours' duration for two years and 5.6 hours for six years) in primary school, the early immersion pupils would have had approximately 7930 hours of Irish-medium instruction in primary, plus 2138 of Irish-medium instruction in three years of secondary (based on a secondary school year of 167 days according to the Department of Education and Science (1995b), with 4.26 hours per day after omitting English and foreign language instruction, by three years), totalling 10,068 hours for the early immersion pupils at the time of testing. In contrast, the late immersion pupils would have had a minimum of approximately 1464 hours of Irish in primary school (based on a school year of 183 days, and with approximately one hour of Irish per day for eight years), although individual immersion, totalling 3602 hours of Irish instruction, though some of this was in
Irish as a subject, rather than Irish-medium instruction.
2. The single C grade here was merged with the B grade for the purpose of this analysis. Analysis of the data from males and females showed no gender differences in the Junior Certificate scores in Irish in this immersion sample.
3. However, significant differences were found between males and females ($F = 4.666$; $df = 1$; $p < 0.05$), with the female students having higher average scores on the Desire to Learn Irish subscale.

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Table 1 Breakdown of C-test texts

	Fourth-Year Texts			First-year Texts		
	Text 1	Text 2	Text 3	Text 1	Text 2	Text 3
Text Length	116	132	103	98	100	116
Mean Sentence Length	16.6	26.4	17.2	8.9	16.7	16.6
No. Deletions	36	35	35	39	26	36

Table 2 Instrument reliability (Cronbach's a)

	Current Sample	Murtagh (2003)	Harris & Murtagh (1999)
Irish Class Anxiety	0.77	0.88	0.77
Parental Encouragement	0.78	0.88	0.88
Desire to Learn Irish	0.69	0.89	0.82
Attitude towards Learning Irish	0.86	0.95	0.93
C-test (fourth-year)	0.85	N/A	N/A
C-test (first-year)	0.83	N/A	N/A

Table 3 Summary data for C-test results by immersion type and year

Level	Immersion	Mean	Std. Deviation	N
4th	*Early*	.658	.173	64
4th	*Late*	.528	.183	35
1st	*Early*	.717	.132	57
1st	*Late*	.579	.129	20

Table 4 Summary response data for the student questionnaire

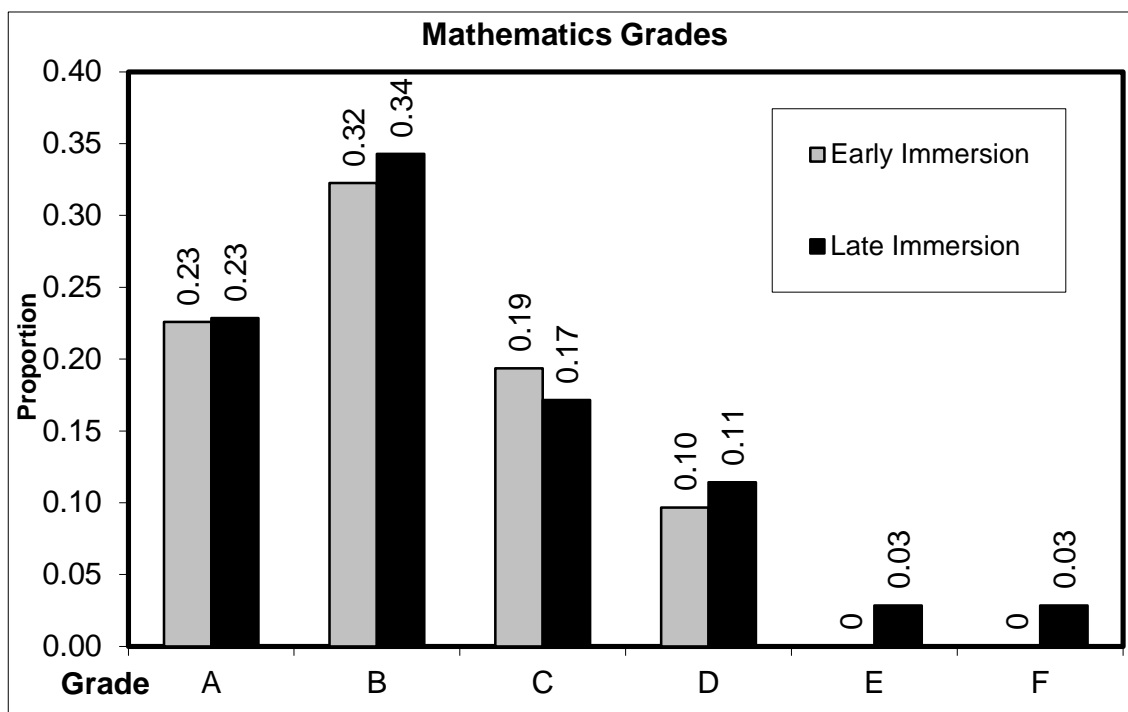| Subscale	Immersion Type	Fourth-year		First-Year	
		Mean	N	Mean	N
Desire to Learn Irish	Early	22.97	59	23.53	57
	Late	23.09	32	22.85	20
Parental Encouragement	Early	50.17	59	54.72	57
	Late	45.84	32	55.00	20
Attitude towards Learning Irish	Early	60.00	59	61.86	57
	Late	58.78	32	59.70	20
Irish Class Anxiety	Early	9.98	59	11.56	57
	Late	15.81	32	17.85	20

Figure 1. Proportional distribution of Junior Certificate Mathematics results among early and late immersion pupils
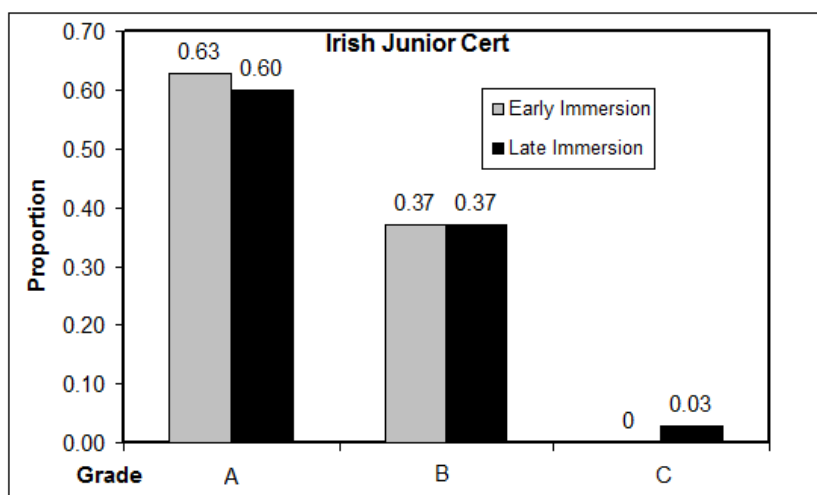
Figure 2. Proportional Distribution of Junior Certificate Irish Results in Early and Late Immersion Students