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Retention of Irish skills: A longitudinal study of a school-acquired second language

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Abstract

This paper describes a study of retention of school-acquired Irish among school leavers. The initial group selected represented final year secondary school students from three different instructional categories: ordinary level Irish, advanced level Irish and immersion school students. Participants were interviewed and their language skills assessed as they completed their study of Irish and again 18 months after they had left secondary school. Proficiency was measured in terms of scores on a communicative test of spoken Irish and a C-test in Irish. Background information collected included participants' self-assessed ability in spoken Irish, attitude/motivation in relation to learning Irish and their out-of-school use of Irish.

Test results did not indicate any attrition of Irish language skills over time, despite participants' general feelings of loss. This outcome matches findings from similar studies of second language attrition elsewhere, for example, Weltens, 1989. The results also indicated a general decline in opportunity to use Irish among participants from all three instructional backgrounds. The ex-immersion school participants, however, were the most likely to continue speaking the language. A small but significant gain on one particular Irish speaking subtest which was noted in this ex-immersion group may be attributed, in part at least, to these participants' greater access to Irish language-speaking networks.

Key words

Irish skills

longitudinal

retention

1 Introduction

All school-going children in Ireland study Irish from when they enter primary school until they complete their secondary education. The teaching of Irish continues to be the main way in which the State aims to promote its objective of societal bilingualism. There is little doubt that the inclusion of Irish in the school syllabus has ensured the production of substantial numbers of Irish speakers in society. However, it has been considered much less successful in reproducing sequential generations of bilinguals who use it regularly. One of the difficulties lies in the fact that, in the case of the majority of school leavers, Irish, along with many other school subjects, is abandoned once they leave secondary school. Furthermore, the sparse distribution of Irish language-speaking networks outside of the traditional Irish-speaking areas (*Gaeltacht*) means that those who would like to use the language informally will find few opportunities to do so.

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Irish census data reveal that though an individual is classified as an Irish speaker it does not always follow that s(he) speaks the language with any degree of regularity. Responses to a new question on “Irish use” in the 1996 census indicate such a mismatch between ability in Irish and use. While 41.1% of the total population are classified as “Irish speakers,” only 10.2% of the total population speak the language “daily” and 3.6% speak it “weekly” (Central Statistics Office, 1998, p. 56). Not unexpectedly, frequency of speaking Irish is highest in the school-going population. For example, in the 10–14 age cohort 36% are reported as speaking Irish “daily.” The corresponding percentage falls to 24.2% in the 15–19 age cohort and in the 20–24 age cohort only 2.8% are reported as using the language daily. The reported daily use in the 20–24 age group probably best reflects actual use of Irish in society in general — outside of the school situation. The 1996 census data indicate that of the nonschool going population (3–4 years, > 20 years) *outside* of the *Gaeltacht*, only 2.2% ($n = 54,863$) speak Irish on a daily basis. (The corresponding figure for the *Gaeltacht* is 35% or 20,899 speakers.) The low level of spoken Irish use in the 20–24 age cohort is striking given that the majority of these individuals would only have ceased to study Irish within a few years of the census. Thus, it appears that once students finish their formal study of Irish, they are no more likely to use the language than the rest of the adult population.

As young secondary school graduates mature into adulthood, some at least may wish to resume learning the language, for example, in adult learners’ classes. This may happen for cultural or ideological reasons or if, for example, they wish to help with their children’s Irish schoolwork. In this context, it is of interest to ascertain how enduring school-acquired Irish language skills can be in a predominantly English-speaking environment. The present study set out to measure the extent of attrition or retention by assessing achievement in Irish as students came to the end of their secondary schooling and again 18 months after they had completed the final state school examination known as the Leaving Certificate Examination.

Before describing the study in more detail it may be useful to present some general background information on the instructional background in Irish of Leaving Certificate students including a brief review of immersion education in Ireland. This will be followed by an overview of three relevant studies which have also assessed second language retention over time among secondary school graduates.

1.1

Irish in the Leaving Certificate Program and Examination

It can be calculated that the total time spent learning Irish in secondary school is almost a half of that in primary school (Murtagh, 2003). The 452 hours estimate for secondary (Department of Education & Science, 2002) is based on an average of three hours Irish per week ($\times 66$ weeks) at the two years of senior level and two hours and 40 mins a week ($\times 99$ weeks) at junior level (3 years).

At present, there are three course levels or Irish syllabuses which a secondary school student can choose from in the Leaving Certificate program — Foundation Level, Ordinary level, and Higher Level. At all levels, an integrated communicative approach to teaching the language is advocated and it is recommended that grammar be taught within a communicative context. The Foundation level course is aimed at students of low ability in Irish.

In the Ordinary Level Irish syllabus, the main teaching objectives are (i) understanding speech, written text and literature (ii) developing spoken Irish skills in relation to listed topics (iii) writing in Irish (letters, stories, accounts) and (iv) reading and appreciating a selection of Irish prose and poetry. A wider variety of topics and a greater emphasis on Irish culture and Irish literature is found in the Higher Level Irish syllabus. This latter course is intended to help learners of Irish in mainstream (English-medium) schools become competent Irish users and speakers and to help native or native-like speakers become more sophisticated users of the language (Department of Education, 1995).

In the Leaving Certificate Examination in Irish at both Ordinary and Higher level, a half of the total marks are awarded for the oral and aural examinations combined. The remainder is split between two written papers, one focusing on knowledge of the language and the other on knowledge of the prescribed texts.

In summer 2000, a total of 54,553 candidates took Irish in the Leaving Certificate Examination. The percentages at each of the three levels were: Foundation Level — 10.5%; Ordinary Level — 58.4% and Higher Level — 31.1%. It should be noted that almost twice as many females (65%) as males (35%) took Higher Level Irish. A small minority of students outside of the *Gaeltacht* attend immersion schools and it is generally accepted that these students study Higher Level Irish.

1.2

Immersion education in Ireland

During the 1940's when the State's revivalist policy via the school system was at its peak, 12% of primary schools and 28% of secondary schools in English-speaking areas were using Irish as a medium of instruction (Ó Buachalla, 1988, p. 65). However, the immersion effort began to weaken during the 1950's and especially following the introduction of non-fee paying secondary education. By 1972 there were fewer than 20 "all-Irish" schools, the majority of which were primary schools. However, during the 1980's the numbers began to increase once again. Figures for the Year 2000 (Gaelscoileanna, 2001) show 145 "all-Irish" schools (114 primary; 31 postprimary) operating outside of the *Gaeltacht*. This turn-around was due mainly to the activity of a new "all-Irish" school movement of individuals and parents concerned with the provision of immersion education. It is worth bearing in mind, however, that Irish immersion schools still account for a very small proportion of the total number of schools nationally (Total primary = 3,172; Total secondary = 750).

There is evidence to show that "all-Irish" primary school pupils have a much higher level of achievement (Irish reading and spoken Irish) than those in mainstream (English-medium) schools (Cummins, 1982; Harris, 1984) and as high as their counterparts in *Gaeltacht* schools (Harris & Murtagh, 1987). A recent study (Kavanagh, 1999) which compared final year students in five "all-Irish" secondary schools in the Dublin area with a matched sample of classes from mainstream (English-medium) schools also showed substantially higher levels of self-assessed ability in Irish and higher examination grades among immersion students. There are likely to be other more far reaching benefits associated with immersion education than higher student achievement alone. For example, a backwash effect has been noted in terms of increased use of Irish in the homes of immersion pupils (preschool and primary) and increased participation

in Irish-speaking networks among parents of “all-Irish” school children (Hickey, 1997, p. 67; Ó Riagáin & Ó Gliasáin, 1979).

1.3

Research on school-acquired second language skills

Harry P. Bahrck (1984) was the first to embark upon a large scale study of second language attrition. He assessed attrition in Spanish (L2) skills in a group of over 500 individuals whose instruction in the language had occurred from one to 50 years prior to being tested. One hundred and forty-six students who at the time of testing were enrolled in a high school or college Spanish course, were used as a control group. A variety of language tests were used to assess reading, vocabulary and idiom recall, and recognition. The results showed that a portion of the knowledge acquired in Spanish classes is lost within the first few years (3–6) after training but that the remainder “was immune to further losses for at least a quarter century” while much of the content was thought to survive for “50 years or longer” (Bahrck, 1984, p. 111).

Bahrck called L2 knowledge with a life span of over 25 years “permastore-content.” Grades received in courses continued to be valid predictors of performance for several decades after training and the more Spanish courses taken the greater the amount of content likely to be retained. Bahrck also found that “the total amount of content” to be forgotten during the first five years following training was relatively constant for individuals at different levels of training, but the amount lost became a progressively smaller portion of the individual’s “total” knowledge with higher levels of training. Attrition was also shown to affect smaller amounts of recognized vocabulary than of recall vocabulary. Recall of grammar declined most precipitously while recognition of grammar fared relatively better. Reading comprehension was maintained at a level determined by recognition vocabulary and grammar recognition. Finally, use of the second language or what Bahrck calls “rehearsal” (e.g., watching TV programs in Spanish or conversing in Spanish) seemed to have little influence on retention.

Bert Weltens’s (1989) study focused on attrition of French receptive skills among Dutch secondary school graduates after two and four years of nonuse. A combination of a longitudinal and a cross-sectional design was used. Two training levels were investigated representing four and six years of French training, respectively. Baseline data were collected from two groups of subjects who had just completed their study of French, one after four years and the other after six years. A variety of receptive tests were used: a test of general proficiency (cloze), listening and reading tests, and phonological, lexical and morphosyntactic subtests. Self-report data on attitude to French and proficiency were also collected.

The results showed a very small amount of attrition and there were even gains on some tests. General receptive proficiency was quite different for the two training levels but remained unchanged over the intervals investigated. The listening and reading tests also revealed highly significant effects for training level, and even an increase in proficiency over time, particularly for the subjects of four years training. The results of lexical tests showed a small decrease in scores on written items, and cognates were more resistant to loss than noncognates. Morphosyntactic skills showed the most attrition, in particular items that contrasted greatest with the L1. However, the attrition

was comparable for each training level and appeared in the first interval of two years. Interestingly, the self-rating data indicated that subjects at each training level overestimated the amount of actual loss which had occurred.

Commenting on the study Weltens, van Els and Schils (1989, p. 214) remarked on “the surprisingly small amount of attrition” even after four years of nonuse. Attrition on the lexical and grammatical tests was regarded as small in comparison to the gains on the listening and reading tests. They concluded that factors such as general cognitive maturation, further academic training and continued learning of other foreign languages have to be considered as potential explanations for this increase in global scores over time. The finding that attrition was independent of training level, fits in with Bahrck’s (1984) theory that a fixed amount of knowledge rather than a fixed proportion of knowledge is subject to attrition.

Weltens (1989) argued that larger falls in vocabulary scores might have been detected had there been a time pressure element in the tests. Marjon Grendel’s (1993) study tried out such a strategy. Adopting a research design similar to that used by Weltens, she used a lexical decision paradigm to investigate vocabulary loss among Dutch learners of French. A lexical decision task, with French words and pseudowords containing high and low-frequency clusters tested orthographic knowledge. A semantic priming task was used to test semantic knowledge. No attrition (decline in reaction times) was found in subjects’ sensitivity to the French orthographic rule system or in use of semantic knowledge. The apparent absence of attrition after four years lead both Weltens and Grendel (1993, p. 154) to conclude that the preoccupation with recognition in such studies may be misplaced and that “future studies of language attrition should focus on language production.”

It will be noted that certain assumptions about initial proficiency of subjects based on information from control groups have been made in the studies just described. It is assumed that the control groups represent baseline levels of proficiency equivalent to that of the target groups. By definition such cross-sectional designs are weaker in terms of reliability than purely longitudinal designs because the number of individual factors which can vary are much greater than in longitudinal studies. From a practical point of view, however, it is easy to understand the dearth of large scale longitudinal studies. Identifying suitable subjects to track can be quite problematic. And, it may be difficult to find language researchers or institutions willing to pursue such long term research projects. Longitudinal type studies measuring short term attrition over school holidays (e.g., Gardner, Lalonde, Moorcroft, & Evers, 1987) can provide useful feedback for both teachers and students in terms of the focus of instruction, learning strategies and so forth. However, the extent to which such findings can be generalized to the process of long term attrition is limited.

2 Methodology

2.1

Subjects

The present study used a longitudinal design where final year secondary school students were first interviewed, and tested in Irish, as they came towards the end of their formal

school instruction in Irish (Time 1) and, again approximately 18 months after they completed their Leaving Certificate Examination (Time 2). The main focus of the research was change in proficiency in Irish, in particular spoken Irish, over time. A secondary aim of the study was to assess initial proficiency and final proficiency in Irish of participants from three different instructional backgrounds and to ascertain the impact of motivation, home variables as well as general extraschool use of Irish on proficiency at both times of testing.

A simple way of ensuring a good mix of subjects in terms of proficiency and general use of Irish for real communication was to select Leaving Certificate students from three different instructional backgrounds in Irish. Instructional Category, is used to refer to this three-way grouping. The categories are:

- Instructional Category 1 (IC1): Ordinary Level Irish students in mainstream schools
- Instructional Category 2 (IC2): Higher Level Irish students in mainstream schools
- Instructional Category 3 (IC3): Higher Level Irish students in immersion (all-Irish) schools.

Though restricted to schools in the Dublin area, the final selection of 12 classes tried to ensure a good balance in terms of school location, social-economic background of the school and gender composition of class. However, fewer Ordinary Level Irish classes from mainstream schools volunteered ($n = 4$) than Higher Level Irish classes ($n = 6$). This Initial Sample ($n = 257$) comprised 75 students from IC1, 130 from IC2 and 52 from IC3.

Achievement data and background information collected from this Initial Sample was seen as providing a useful yardstick for assessing the representativeness of those participating in the follow-up study. Thus, data relating to general and spoken Irish proficiency as well as measures of attitude/motivation to learning Irish and use of Irish outside of school were collected from this larger group. All of the Initial Sample were given a listening test and a C-test in Irish. A smaller subsample ($n = 95$) who agreed to participate in the follow-up interview was also administered a speaking test. In the event, just 59 of this target group were able to participate in the interview at Time 2.

When contacted regarding the Time 2 interview, potential participants were not given any specific details relating to the actual content of that interview. However, they were advised not to allow self-perceived low ability in Irish or loss of Irish skills to discourage them from participating. A disproportionate number of Instructional Category 1 (compared to the other 2 categories) individuals did not make themselves available at Time 2. As more of them were already in full or part time employment, the monetary reward (€30) may not have been such a strong incentive for them.

All but one of the Final Sample were in third-level education courses. Three-quarters of participants were in University, a further 17% were in an Institute of Technology while the remainder were in either a Private College or doing a Post Leaving Certificate Course. Participants were well distributed across different fields of study, though the most common field of study by far in this group was Humanities (27.1%).

2.2

Language tests

As there were no existing standardized objective tests of proficiency in spoken Irish suitable for secondary school students, a test was designed which aimed to assess candidates' competence in relation to some basic communicative (listening and speaking) objectives in spoken Irish as defined in the Leaving Certificate Irish syllabus. This Test of Proficiency in Spoken Irish (TPSI) contained a separate listening and a speaking section (see Murtagh, 2003, p. 52). The "listening" test consists of multiple-choice/true-false items in which candidates listen to samples of discourse and indicate their response preferences by ticking the appropriate box. Samples of speech from different types of oral Irish discourse were used (telephone conversation, news broadcasts/reports and interviews). The maximum score attainable on the listening test is 34.

The maximum score on the Irish speaking test is 66. This means that the TPSI is heavily weighted in favor of the productive aspect of spoken Irish. The speaking test consists of six subtests, the first testing pronunciation and the remaining five tasks assessing the candidate's ability to react appropriately, describe an event, give opinions, describe objects, and give advice/instructions. A semidirect interviewing format was employed, a method first used in the 1980's in the United States (ETS, 1982). A live interviewer is not required in such tests, thus eliminating the possibility of interviewer bias. The candidate listens to audio-recorded sample items and instructions relating to tasks and items. In the case of the Irish speaking test, a test booklet contains the same information along with visual images (line drawings) for five tasks. The candidate's oral responses are tape recorded so that performance can be assessed retrospectively by trained raters.

While change in spoken Irish over time was to be the main focus of this study, it was also decided to measure change in general proficiency in Irish. One type of test which is relatively inexpensive to design, and regarded as a good overall measure of general second-language proficiency is the C-test (Ratz & Klein-Braley, 1985). It is a modified version of the Cloze test based on the same theoretical principle of reduced redundancy. In the C-test, however, the second half of every second word is deleted. The Irish C-Test (ICT), designed for the purposes of the present study, consists of three short texts together requiring 88 restorations. The first and last sentence of each piece of text are left intact. Restorations were coded according to categories similar to those used by Grotjahn (1987). Two of these categories were scored as correct (i) original words without spelling errors and (ii) "acceptable alternatives" without spelling error and containing the same number of letters as the original word. "Acceptable alternatives" are defined as "orthographically and morphosyntactically well-formed and semantically appropriate" words (Little & Singleton, 1992, p. 177).

2.3

The questionnaires

At Time 1, students in the Initial Sample filled in a questionnaire which collected background information on self-assessed ability in spoken Irish, use of Irish outside of school and attitude/motivation to learning Irish. The first 70 of the 78 items in the questionnaire correspond closely to items in the Attitude Motivation Test Battery (AMTB) used

by Gardner (1985). But, as with that used by Harris and Murtagh (1999) at primary school, adapted for an Irish learning context. Items relating to three AMTB-based scales — Attitude to Learning Irish (10 items), Irish Class Anxiety (5 items) and Parental Encouragement (10 items) were randomly presented followed by a seven-point Likert response format (Likert, 1932) ranging from “strongly disagree” to “strongly agree.” Attitude to Learning Irish assesses students sentiments (positive or negative) in relation to the learning of Irish. Irish Class Anxiety reflects students’ degree of discomfort while participating in the Irish lesson. Parental Encouragement measures the extent to which students feel their parents support them in their study of Irish. Twenty multiple-choice type items represented the two remaining motivation scales — Motivational Intensity (10 items) and Desire to Learn Irish (10 items). The former assesses the intensity of a student’s motivation to learn Irish in terms of classroom participation, effort in coursework, future plans to make use of or study the language. A high score on the Desire to Learn Irish scale expresses a strong desire to learn and speak Irish as much as possible. Along with Attitude to Learning Irish these two scales give an overall index of student motivation in relation to learning Irish (Motivation Index).

Section 3 of the Student Questionnaire evaluated students’ ideas and impressions of the Irish course. Each item was scored on a seven point semantic differential scale. The overall measure of Irish Course Evaluation was composed of four course-related factors: Utility, Evaluation, Interest and Difficulty.

In the last section of the questionnaire, information was sought on student self-assessed ability in spoken Irish and their use of Irish outside of school. Students were asked to assess their ability in spoken Irish on a scale which has been used in various national surveys of use and ability in Irish and how often Irish was used by anyone in their home. Another question collected information relating to opportunity to speak Irish outside of school.

At Time 2, a short Participant’s Questionnaire was administered to the Final Sample. They were asked once again to rate their ability to speak Irish, and to give information in relation to use of Irish in the home, opportunity to use Irish since leaving school and use of Irish in each of the four skill areas — listening, speaking, reading, and writing. Six relevant items from the 10 item Desire to Learn Irish scale administered at Time 1 were also included. The six multiple choice items assessed how often participants read Irish magazines and newspapers, watch Irish T.V. programs or listen to Irish radio programs, or if they had the opportunity speak Irish, go see an Irish drama or join an Irish club. The maximum score on this reduced scale is 18.

2.4

Reliability

Reliability statistics were computed for all three Irish language tests as well as for the attitude/motivation scales in the Student Questionnaire. The reliability coefficients for attitude/motivation scales were acceptable and compared favorably with comparable scales used in other second-language learning studies (see Murtagh, 2003, p. 62). Classical item analyses and Rasch models indicated that all tests had adequate to good reliability estimates. The inter-rater reliability coefficient for the speaking test was also high ($\alpha = .99$). In addition, at Time 1, for the target group of subjects ($n = 95$), the

three test scores were found to correlate significantly ($p < .01$) with each other as well as with Irish grade awarded in the Leaving Certificate Examination (LCE). The Pearson “ r ” correlation between the listening and speaking sections of the TPSI was .74, while the total TPSI test had a correlation of .87 with the Irish C-test (ICT) and of .91 with LCE Irish grade. The “ r ” value between the C-test and (i) the Listening test was .72 (ii) the Speaking test was .86 and (iii) LCE Irish grade was .90.

2.5

Procedure

At Time 1, language testing commenced in the Spring of 2000, approximately two to three months before the Leaving Certificate Examination. As the latter is a high stakes examination with important consequences for students in terms of future study and career options it would have been inappropriate to conduct testing any closer to the examination itself when students were under pressure studying and revising coursework. A week or so, prior to testing, the Student Questionnaire was distributed to all students and returned in sealed envelopes to the class teacher. On selected dates from late January through early February 2000, the specially designed listening test followed by the C-test were administered to all students present during the usual Irish lesson. The Irish speaking test was individually administered on dates from late February through early March 2000. In each of the 12 classes, samples of approximately one-third of students who were considered suitable for inclusion in the follow-up study were administered the speaking test. For example, students who reported in the Student Questionnaire that they planned to continue the study of Irish as a main subject in the following academic year (e.g., at third level) were not selected. Unfortunately, two of these speaking test recordings were damaged.

At Time 2, individual interviews took place during November and December 2001. The listening section of the Test of Proficiency in Spoken Irish (TPSI) was administered first because the oral discourse contained in the tasks was considered to be a good warm up for the subsequent speaking section. The Irish C-test was the last test to be administered. During the last 15 mins of the interview session participants completed the short Participant’s Questionnaire.

3 Results

3.1

Background information

This section examines how stable Final Sample participants’ self-reported ability to speak Irish and home/societal use of Irish has remained over time. The last column in each table provides comparative Time 1 data for the remainder of the Initial Sample.

The data in the fourth column of Table 1 indicates that, in general, Final Sample participants’ self ratings of ability to speak Irish are somewhat lower at Time 2 than at Time 1. A paired samples t -test shows that the overall difference from Time 1 to Time 2 is significant ($t = -4.5$, $df = 58$, $p < .01$).

Table 1

Time 1 & Time 2: Self-assessed Ability to Speak Irish (SASI)

How would you describe your ability to <i>speak</i> Irish?	Percentage of participants				
	(Final Sample) Instructional Category			Final Sample	"Rest" of Initial Sample
	IC1 (<i>n</i> = 10)	IC2 (<i>n</i> = 38)	IC3 (<i>n</i> = 11)	Total <i>n</i> = 59	(<i>n</i> = 180)
TIME 1: SASI – 1					
1 No Irish	10.0	–	–	1.7	0.6
2 Only the odd word	–	–	–	–	1.1
3 A few simple sentences	50.0	5.3	–	11.9	11.7
4 Parts of conversations	30.0	44.7	–	33.9	39.4
5 Most conversations	10.0	50.0	27.3	39.0	26.1
6 Native speaker ability	–	–	72.7	13.6	21.1
TIME 2: SASI – 2					
1 No Irish	–	–	–	–	n.a.
2 Only the odd word	40.0	5.3	–	10.2	n.a.
3 A few simple sentences	50.0	15.8	–	18.6	n.a.
4 Parts of conversations	10.0	42.1	–	28.8	n.a.
5 Most conversations	–	36.8	54.5	33.9	n.a.
6 Native speaker ability	–	–	45.5	8.5	n.a.

n.a. = not applicable

The pattern of decline can be seen most clearly in Instructional Category 2 and Instructional Category 3. The proportion of Instructional Category 3 participants who see themselves as having native-speaker ability declined from 72.7% at Time 1 to 45.5% at Time 2. At the other end of the self-assessment scale, only 5.3% of Instructional Category 2 rated their speaking ability at the level of “a few simple sentences” or lower at Time 1 but at Time 2 the corresponding proportion for this group was 21.1%.

At Time 1 self-reported use of Irish in the home was somewhat higher in the Final Sample than in the “Rest” of the Initial Sample. The data in Table 2 show that at that time 42.4% of the Final Sample reported at least “occasional” use of Irish by someone in the home.

Table 2, however, also indicates a small decline in the use of Irish in these homes since that time: only 25.4% at Time 2 reported the same level of use (“occasionally” or more frequent). However, a paired samples *t*-test using these ratings shows that the *t* value ($t = 1.73$; $df = 58$; NS) just falls short of statistical significance. It will be noted that in the case of IC3 subjects in the Final Sample, only 18.2% ($n = 2$) used Irish frequently (often/very often) in the home at Time 1 and at Time 2.

The data in Table 3 suggest that once young adults leave secondary school the general opportunity to speak Irish decreases. This can be seen from comparisons of data in the top and bottom of the fourth column in Table 3. While 30.5% of Final Sample participants reported substantial opportunity (“quite a bit/a great amount”) to speak Irish (outside school) at Time 1, the “corresponding” proportion for Time 2 has dropped to 11.9%. A paired samples *t*-test shows that the difference from Time 1 to Time 2 on

Table 2

Time 1 & Time 2: Use of Irish in the Home (UIH)

Frequency with which Irish is used by anyone in the home at present?	Percentage of participants				
	(Final Sample) Instructional Category			Final Sample	"Rest" of Initial Sample
	IC1 (n = 10)	IC2 (n = 38)	IC3 (n = 11)	Total n = 59	Sample (n = 180)
TIME 1: UIH – 1					
1 Never	30.0	31.6	27.3	30.5	43.3
2 Seldom	20.0	31.6	18.2	27.1	25.6
3 Occasionally	20.0	31.6	36.4	30.5	18.9
4 Often	30.0	5.3	9.1	10.2	7.8
5 Very often	–	–	9.1	1.7	4.4
TIME 2: UIH – 2					
1 Never	10.0	39.5	18.2	30.5	n.a.
2 Seldom	50.0	44.7	36.4	44.1	n.a.
3 Occasionally	30.0	13.2	27.3	18.6	n.a.
4 Often	10.0	2.6	–	3.4	n.a.
5 Very often	–	–	18.2	3.4	n.a.

n.a. = not applicable

Table 3

Time 1 & Time 2: Opportunity to Speak Irish (OSI)

During the past year how much opportunity have you had to speak Irish? ...	Percentage of participants				
	(Final Sample) Instructional Category			Final Sample	"Rest" of Initial Sample
	IC1 (n = 10)	IC2 (n = 38)	IC3 (n = 11)	Total n = 59	Sample (n = 180)
..... outside of school?					
TIME 1: OSI – 1					
1 None at all	30.0	34.2	–	27.1	34.4
2 Not very much	60.0	23.7	9.1	27.1	17.2
3 A little	–	15.8	27.3	15.3	21.7
4 Quite a bit	10.0	23.7	45.5	25.4	17.2
5 A great amount	–	2.6	18.2	5.1	9.4
TIME 2: OSI – 2					
1. None at all	30.0	36.8	–	28.8	n.a.
2. Not very much	30.0	44.7	27.3	39.0	n.a.
3. A little	40.0	10.5	36.4	20.3	n.a.
4. Quite a bit	–	7.9	18.2	8.5	n.a.
5. A great amount	–	–	–	3.4	n.a.

n.a. = not applicable

this variable is significant ($t = -2.23$, $df = 58$, $p < .05$). The decline in opportunity to use Irish is evident in the case of all instructional categories.

The six-item reduced Desire to Learn Irish (DTLI) scale was used to measure participants' change in overall desire to maintain or continue learning as much Irish as possible. A comparison of these totals (data not shown in table) showed no significant change over time on this reduced DTLI scale (mean DTLI – 1 score = 11.9; mean DTLI – 2 score = 11.8; $t = .405$; $df = 58$; NS).

3.2

Use of Irish in four skill areas at Time 2

Open-ended questions from the Participant's Questionnaire sought information from respondents relating to the kinds of situations in which they would normally "use" Irish (since leaving school) for listening, speaking, reading, and writing (Tables 4a – 4d). In order to quantify this data, responses were grouped into "high," "medium," and "low" use within the various skill areas. These three levels of use should be interpreted only in the context of use within this particular group of participants. A "low" label usually indicates "no" use or a "negligible amount" of use of the skill in question. A "medium" level of use refers to at least some, if infrequent, use of the skill area in question. A "high" label signifies a level of use which is more frequent than the average use of that skill in the Final Sample (i.e., occasional-regular use). Four new quantitative variables or summary scores, Listening Use (L-USE), Speaking-Use (S-Use), Reading-Use (R-Use), and Writing-Use (W-Use) were computed using these three levels of use (1 = low, 2 = medium, and 3 = high). These four summary scores facilitate the matching of the information on skill area use with data on achievement in Irish and other background variables.

Comparing data in Table 4a – 4d it can be seen that "listening" is, by far, the most frequent mode through which these young adults maintain contact with Irish and this is done mainly through watching TV programs (78%) or listening to radio programs (45.8%) in Irish. "Listening" via conversations with friends (11.9%) or family (5.1%) is reported by substantially fewer respondents. However, even in Instructional Category 1 only two of the 10 respondents report that they "never" listen to Irish in any form while half of the respondents in this category (Table 4b) still speak "the odd word" of Irish with family or friends.

Instructional Category 3 (ex-immersion) respondents are much more likely than the other two categories to report that they still speak Irish with friends. Over a half of them (54.5%) report such social use compared to 15.8% of Instructional Category 2. IC3 respondents are also more likely to report speaking Irish in other social domains for example, when meeting teachers from their "old" school (27.3%) or when in an Irish club (18.2%). Undoubtedly, proficiency plays an important factor in determining how often a respondent speaks Irish but these findings suggest that access to Irish speaking social networks is another key factor.

The kinds of situations in which respondents read Irish at Time 2 are outlined in Table 4c. Sixty percent of Instructional Category 1 participants report that since leaving secondary school they no longer read in Irish. For those in Instructional Category 2 the most frequent type of Irish reading (47.4%) involved short functional texts such as

Table 4a

Time 2: Situations in which participants "listen" to Irish (since leaving school)

Response categories	Percentage of participants				
	Instructional Category			Final Sample n = 59	
	IC1 (n = 10)	IC2 (n = 38)	IC3 (n = 11)		
No response / "Never"	20.0	7.9	–	8.5	
1. TV programs (e.g., <i>Nuacht*</i> , Rugby)	60.0	86.8	63.6	78.0	
2. Radio programs (e.g., <i>Nuacht</i>)	30.0	47.4	54.5	45.8	
3. Friends who speak Irish	10.0	5.3	36.4	11.9	
4. Family members who speak Irish	20.0	–	9.1	5.1	
5. Other: Irish language Mass, music, "grinds"	–	2.6	18.2	5.1	
6. In Irish language club or college society	–	2.6	9.1	3.4	
7. Conversations in Irish generally for example, bus, café	–	2.6	9.1	3.4	
8. Helping younger siblings with Irish schoolwork	–	2.6	–	1.7	
9. Odd word used with family / friends	–	2.6	–	1.7	
10. In course-related work	–	2.6	–	1.7	
<i>Summary</i>	High	–	5.3	36.4	10.2
L-USE (Listening: Use since school)	Medium	50.0	71.1	63.6	66.1
	Low	50.0	23.7	–	23.7

*News in Irish

Table 4b

Time 2: Situations in which participants generally "speak" Irish (since leaving school)

Response categories	Percentage of participants				
	Instructional Category			Final Sample n = 59	
	IC1 (n = 10)	IC2 (n = 38)	IC3 (n = 11)		
No response / "Never"	10.0	23.7	–	16.9	
Speak it very rarely	10.0	7.9	18.2	10.2	
1. Friends who speak Irish	10.0	15.8	54.5	22.0	
2. Odd word / phrase with family / friends	50.0	15.8	–	18.6	
3. In company of non-Irish speakers for example, secret code	10.0	15.8	18.2	15.3	
4. Irish speakers met socially for example, school teachers	–	10.5	27.3	11.9	
5. Family members who speak Irish	10.0	7.9	18.2	10.2	
6. Helping younger siblings with Irish schoolwork	10.0	13.2	–	10.2	
8. Irish language club for example, <i>Club an Chonradh</i>	–	5.3	18.2	6.8	
9. In <i>Gaeltacht</i> or Irish college	–	5.3	–	3.4	
10. In college / course-related work	–	2.6	–	1.7	
11. Miscellaneous: give Irish "grinds," work on Irish language radio station	–	2.6	9.1	3.4	
<i>Summary</i>	High	–	2.6	63.6	13.6
S-USE (Speaking: Use since school)	Medium	20.0	39.5	27.3	33.9
	Low	80.0	57.9	9.1	52.5

Table 4c

Time 2: Situations in which participants “read” Irish (since leaving school)

Response categories	Percentage of participants				
	Instructional Category			Final Sample n = 59	
	IC1 (n = 10)	IC2 (n = 38)	IC3 (n = 11)		
No response/Unmatched2quote“Never’	60.0	31.6	–	30.5	
Rarely read in Irish	10.0	7.9	9.1	8.5	
1. Notices/posters/signs in Irish for example, bus/shop/college	–	47.4	36.4	37.3	
2. Irish language articles in daily/weekly newspaper	10.0	18.4	45.5	22.0	
3. Irish language newspaper for example, <i>Foinse</i>	–	13.2	36.4	15.3	
4. Letters, Irish documents	–	5.3	18.2	6.8	
5. Helping younger siblings with Irish homework	10.0	2.6	9.1	5.1	
6. Class/college related texts in Irish	10.0	2.6	9.1	5.1	
7. Use Irish language option on ATM*	–	7.9	–	5.1	
8. Literary texts for pleasure for example, novels, short stories	–	–	18.2	3.4	
<i>Summary</i>					
	High	–	5.3	27.3	8.5
R-Use (Reading: Use since school)	Medium	30.0	26.3	54.5	32.2
	Low	70.0	68.4	18.2	59.3

*Automatic Teller Machine

Table 4d

Time 2: Situations in which participants “write” in Irish (since leaving school)

Response categories	Percentage of participants				
	Instructional Category			Final Sample n = 59	
	IC1 (n = 10)	IC2 (n = 38)	IC3 (n = 11)		
No response/“Never”	70.0	78.9	27.3	67.8	
Hardly ever/rarely	–	–	27.3	5.1	
Lack of opportunity/need to write it	10.0	5.3	–	5.1	
1. Writing letters, e-mails	–	2.6	27.3	6.8	
2. Helping siblings with Irish written homework	10.0	5.3	–	5.1	
3. For college/course related reasons	–	2.6	9.1	3.4	
4. Odd time — write name in Irish, sign letter in Irish	–	5.3	–	3.4	
5. Irish language exam preparation for example, Law Society	–	–	9.1	1.7	
6. Write short stories in Irish	–	–	9.1	1.7	
7. Taking notes sometimes	10.0	–	–	1.7	
<i>Summary</i>					
	High	–	5.3	27.3	8.5
W-USE (Writing: Use since school)	Medium	20.0	10.5	18.2	13.6
	Low	80.0	84.2	54.5	78.0

those found in notices, posters and so forth. The reading of articles in Irish in “daily or weekly newspapers” is most frequently reported by Instructional Category 3 respondents (45.5%). The corresponding percentages for Instructional Categories 1 and 2 are 10% and 18.4% respectively. Only two participants, both from Instructional Category 3, report that they read novels or short stories in Irish. Reading letters or documents in Irish is also rare (3 participants overall, 2 from Instructional Category 3).

Finally, the data in Table 4d show that “writing” is the skill area least likely to be engaged in. Between 70% – 79% of respondents from Instructional Categories 1 and 2 never write anything in Irish, and of those from these categories who do, it is at a fairly basic level such as helping siblings with homework or signing their own name in Irish. Instructional Category 3 respondents report the highest level of “sustained” writing: three of the 11 respondents in this category report that they write letters or e-mails in Irish while one even writes some short stories in Irish.

3.3

Comparing achievement at Time 1 and Time 2

The extent and significance of any changes (loss or gain) over time in Irish language skills will now be assessed in the case of each test, using Paired Samples *t*-tests. Variation in scores according to Instructional Category will also be examined. Repeated Measurement Analysis of Variance, a statistical procedure which is particularly suited to measuring such change over time within subjects as well as assessing “between-subject” effects, was considered. Unfortunately, it could not be used because all, or more than one, of the three basic assumptions underlying the design were violated. For example, in the case of the one-factor repeated measurement analysis using Instructional Category as the independent variable, not only were there unequal groups but the Box’s test of equality of covariance within groups was also rejected (Box $M = 18.4$; $F = 2.819$; $df = 6, 6514$; $p < .01$). Notwithstanding these restrictions, it is worthwhile examining some of the interaction plots which exploratory analyses produced.

ICT score at Time 1 and Time 2. Table 5 shows mean percentage scores for both the Final Sample as a whole as well as for individual instructional categories on the Irish C-Test. The overall mean scores for Time 1 and Time 2 for the whole group are practically identical. A Paired Samples *t*-test indicated no significant difference in mean scores over time. Though the mean scores suggest a small gain (31.8 – 35.3) for Instructional Category 1 participants, a separate *t*-test for that particular group showed that the difference was not significant ($t = -1.37$; $df = 9$; NS). Table 5 and Figure 1 show that the pattern of ICT performance according to Instructional Category is similar from Time 1 to Time 2 with Instructional Category 3 participants scoring highest, followed by Instructional Category 2 and then Instructional Category 1 participants.

Table 5
Time 1 & Time 2: Comparing Irish C-Test (ICT) scores

Instructional Category	N	Mean % score	SD	SE	
TIME 2					
IC1 Instructional Category 1	10	35.3	11.9	3.8	
IC2 Instructional Category 2	38	69.8	17.8	2.9	
IC3 Instructional Category 3	11	87.4	8.8	2.7	
ICT – 2 Total	59	67.2	22.2	2.9	
ANOVA: $F = 30.5$; $df = 2,56$; $p < .001$					
TIME 1					
IC1 Instructional Category 1	10	31.8	13.1	4.2	
IC2 Instructional Category 2	38	71.7	16.2	2.6	
IC3 Instructional Category 3	11	86.5	15.3	4.6	
ICT – 1 Total	59	67.7	23.1	3.0	
ANOVA: $F = 35.87$; $df = 2,56$; $p < .001$					
Paired Samples t-test					
ICT Total score (Time 1 – Time 2)	Mean	SD	t	df	Sig
	.50	8.4	.46	58	NS

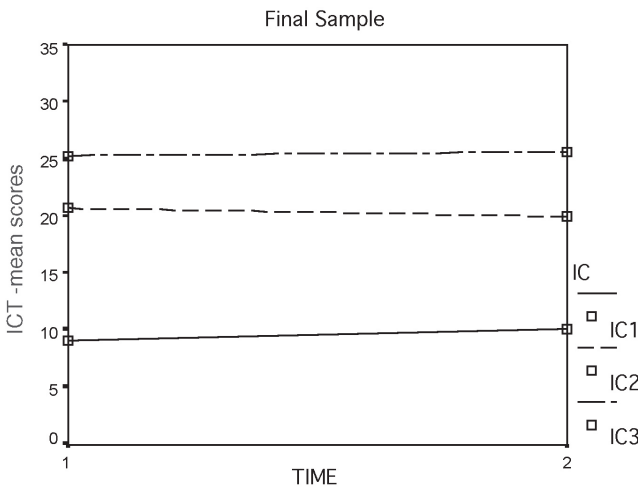


Figure 1
Mean scores on Irish C-Test (ICT) by Time and Instructional Category (IC)

TPSI scores at Time 1 and Time 2. Total scores on the Test of Proficiency in Spoken Irish (TPSI) at Time 1 and Time 2 are presented in Table 6. The data show no significant change over time in the Final Sample overall in terms of TPSI total score. (The same holds true for Listening test score and Speaking test score.) However, a small gain is indicated in TPSI total score in the case of Instructional Category 3 ($t = -2.64$; $df = 10$; $p < .05$).

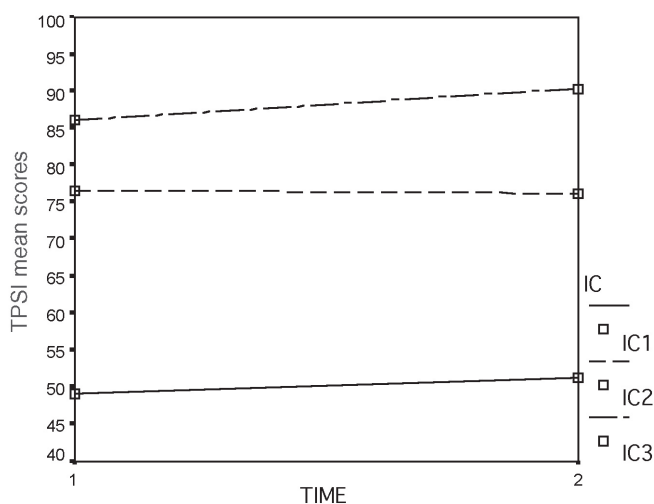
Paired Samples *t*-tests revealed a small, yet significant, gain in mean scores (Time 1 = 6.3; Time 2 = 7.1) only in the case of the “Tell a Story” subtest ($t = 3.12$; $df = 56$; $p < .001$). In this task (maximum score = 10) candidates had to describe an event based on a series of six pictures. Further analysis shows that though growth in mean scores

is found in each Instructional Category (IC1 = +0.6; IC2 = +0.3; IC3 = +2.1), the gain is only significant ($t = 4.08$; $df = 10$; $p < .01$) in the case of ex-immersion school students (IC3). The mean score of Instructional Category 3 on this subtest was 7.0 at Time 1 but increased to 9.1 at Time 2 (maximum score = 10).

Table 6**Time 1 & Time 2: Comparing TPSI* total scores**

Instructional Category	N	Mean % score	SD	SE	
TIME 2					
IC1 Instructional Category 1	10	51.4	12.7	4.0	
IC2 Instructional Category 2	36	76.2	8.7	1.5	
IC3 Instructional Category 3	11	90.4	2.9	0.9	
TPSI – 2 Total	57	74.6	14.9	2.0	
ANOVA $F = 52.6$; $df = 2, 54$; $p < .001$					
TIME 1					
IC1 Instructional Category 1	10	49.2	11.7	3.7	
IC2 Instructional Category 2	36	76.6	9.6	1.6	
IC3 Instructional Category 3	11	86.1	4.8	1.5	
TPSI – 1 Total	57	73.6	15.1	2.0	
ANOVA $F = 45.8$; $df = 2, 54$; $p < .001$					
Paired Samples <i>t</i> -test	Mean	SD	<i>t</i>	<i>df</i>	Sig
TPSI Total (Time 1 – Time 2)	-.93	5.8	-1.20	56	NS
Subtest: Telling a Story** (Time 1 – Time 2)	-.72	1.7	-3.12	56	.01
(Mean scores = 6.3; 7.1)					

* Test of Proficiency in Spoken Irish ** Only TPSI subtest which showed change over time

**Figure 2**

Mean scores on test of Proficiency in Spoken Irish (TPSI) by Time and Instructional Category (IC)

3.4

Achievement and the influence of background variables

The correlation data in Table 7 show how background factors relate to the participants' proficiency in Irish at Time 1 and Time 2. The largest measure of association is found in the case of Instructional Category and achievement. *Eta* values involving Instructional Category and total score on the Test of Proficiency in Spoken Irish at Time 1 and Time 2 are .79 and .81 respectively while the corresponding values for the Irish C-test are .76 and .73 respectively. Gender shows a small but significant correlation with Irish C-test scores at Time 1 ($r = .28$) with female students' scores being highest. Self-assessed Ability to Speak Irish (SASI) at Time 1 and at Time 2 is a very strong correlate of objective measures of achievement in spoken Irish (r values range from .72 to .85) as well as achievement on the C-test (r values range from .63 to .75).

Table 7

Relating background variables (Instructional Category, Gender, Use of Irish, etc.) and measures of achievement in Irish in the Final Sample: *Eta* coefficients and Pearson correlations

Independent Variables	Achievement Variables			
	TPSI – 1	TPSI – 2	ICT – 1	ICT – 2
	<i>eta</i>			
IC Instructional Category	.79**	.81**	.76**	.73**
	Pearson "r"			
Gender	.15	.13	.28*	.24
SASI – 1 Self assessed Ability to Speak Irish	.80**	.85**	.68**	.75**
SASI – 2 Self assessed Ability to Speak Irish	.72**	.78**	.63**	.70**
UIH – 1 Use of Irish in the Home	.11	.12	-.03	.07
UIH – 2 Use of Irish in the Home	-.08	.02	-.10	-.03
OSI – 1 Opportunity to Speak Irish outside school	.51**	.53**	.42**	.56**
OSI – 2 Opportunity to Speak Irish since school	.22	.32**	.12	.21
MIndex Motivation Index (T1)	.47**	.54**	.44**	.50**
DTLI – 1 – Desire to Learn Irish (reduced scale)	.23	.28*	.41**	.39**
DTLI – 2 – Desire to Learn Irish (reduced scale)	.42**	.44**	.49**	.52**
ICA Irish Class Anxiety (T1)	-.55**	-.58**	-.40**	-.52**
PE Parental Encouragement (T1)	.31*	.42**	.19	.18
ICET Irish Course Evaluation Total (T1)	.32*	.33**	.31*	.36**
L-USE Listening: Use in past year	.44**	.46**	.37**	.41**
S-USE Speaking: Use in past year	.39**	.48**	.34**	.41**
R-USE Reading: Use in past year	.24	.31*	.16	.30*
W-USE Writing: Use in past year	.21	.27*	.16	.24

* Significant at the .05 level (2-tailed). ** Significant at the .01 level (2-tailed). T1 = Measured at Time 1 only.

Use of Irish in the Home is not significantly associated with achievement measures at any time. However, the more general index of informal use of Irish (Opportunity to Speak Irish) shows strong correlations with all achievement measures at Time 1 but only one significant correlation with achievement (spoken Irish) at Time 2 ($r = .32$ with TPSI). The more specific indicators of spoken Irish use since leaving secondary

school — Listening-Use and Speaking-Use — both have strong positive correlations with achievement at Time 1 and Time 2 (r values range from .37 to .48). Use of Irish in Reading since school is significant only in relation to TPSI and ICT scores at Time 2: more reading associated with higher scores. Use of Irish in Writing (W-Use) since leaving school had a significant positive correlation only with C-test score at Time 2.

Participants' scores on the three Irish-learning related factors at Time 1, Motivation Index, Irish Class Anxiety, and Irish Course Evaluation Total, all show significant correlations with achievement at Time 1 and Time 2. High Motivation scores are associated with high achievement on both tests (r values range from .44 to .54). In the case of Irish Class Anxiety there is a negative correlation with achievement: higher levels of anxiety in the Irish class at Time 1 associated with lower achievement on all four achievement measures (r values range from $-.40$ to $-.58$). The reduced form of the Desire to Learn Irish scale at Time 2 (DTLI – 2) also correlates significantly with spoken Irish and C-test measures: higher scores on the scale associated with higher achievement on both tests.

More positive evaluations of the Irish Course (ICET) is associated with higher achievement scores: significant correlations range from .31 to .36. Finally, Parental Encouragement in relation to learning Irish at Time 1 is also positively (and significantly) associated with TPSI scores at both Time 1 and Time 2 ($r = .31$ and $r = .42$). None of the correlations between Parental Encouragement and C-test scores, however, are significant.

Notwithstanding the limitations of a small sample, these simple correlations give some indication of the factors which may impact on achievement in Irish and its maintenance over time. However, many of these variables are highly intercorrelated. For example, participants' overall Evaluation of the Irish Course (ICET) at Time 1 is highly correlated ($r = .78$) with their overall Motivation in relation to learning Irish at that time (MIndex) while Motivation is itself, in turn, highly correlated with Irish Class Anxiety ($r = -.70$). Furthermore, these attitudinal variables are significantly correlated with variables measuring Use of Irish in the Home and Opportunity to Speak Irish outside of an instructional setting that is, the school. Motivation Index is also positively and significantly associated with Opportunity to Speak Irish at Time 1 ($r = .58$) and at Time 2 ($r = .46$). Such intercorrelations between independent variables may mask the true nature of relationships with achievement, exaggerating or suppressing effects.

3.5

Multiple regression analyses

Hierarchical inclusion methods of regression permit an assessment of the successive effects (R^2 change) of the different key independent variables on the criterion. An important general principle of regression analysis is that the fewer the independent variables in an equation, the fewer will be the hypotheses to be tested and, thus, the less chance there is of spurious significant outcomes. It should also be borne in mind that as these regression analyses are based on very small numbers of participants ($n = 57$) their predictive power is limited.

In causal models, independent variables which are considered logically prior to others are entered first. In the present case, achievement score at Time 1 (TPSI – 1 or

ICT – 1) is used as a measure of initial proficiency and is entered first. This is followed by Gender. Instructional Category is entered next because (i) the choice of a particular instructional program is most likely to be motivated by students' general ability in Irish or attendance at a particular type of school and (ii) the correlation analyses revealed very strong relationships between Instructional Category and all four measures of achievement in Irish. As Instructional Category is a nominal variable, a “*sheaf*” coefficient (Heise, 1972) and B-values (unstandardized regression coefficient) will be used to check for the strength of its effect. Two dummy variables (Cohen & Cohen, 1975, p. 174) are needed to represent Instructional Category, the third being represented implicitly.

“L-Use” which measures Listening use since Time 1 is used to predict TPSI scores while “R-Use” (Use of Irish for reading since Time 1) is used to predict ICT scores. “S-Use,” the measure of speaking use at Time 2, was not included since it was closely correlated with both Opportunity to Speak Irish at Time 2 (OSI – 2) as well as with “L-Use.” The causal chain is as follows.

- Achievement in Irish at Time 1 (TPSI – 1 or ICT – 1) → Gender
- Instructional Category (IC) → Parental Encouragement at Time 1 → (PE)
- Opportunity to Speak Irish at Time 2 (OSI – 2) plus L-Use/R-Use
- Desire to Learn Irish at Time 2 (DTLI – 2)
- Achievement in Irish (ICT or TPSI score)

Table 8a shows that ICT score at Time 1 explains 86.3% of the variance in Time 2 C-test scores. In the final model, with all variables in the equation, the *Beta* value is .893. The latter indicates both the magnitude and direction of this significant relationship. When initial general proficiency is controlled for in this way, the impact of the usually powerful Instructional Category factor diminishes greatly and the variance it accounts for when all variables are in the equation is not significant. “R-Use” (extent to which participant has read in Irish since leaving school) is the only other significant predictor (*Beta* = .141) of C-test scores at Time 2. The direction and nature of the relationship indicate that C-test scores of those participants who continue to read in Irish (since leaving secondary school) improve.

Looking at Table 8b it can be seen that overall score on the TPSI at Time 1 is by far the best predictor of achievement on that test at Time 2, explaining 85.6% of variance. The *Beta* value for this variable in the final analysis with all seven independent variables included is .726. The remaining variables only explain an additional 4.1% of variance. Gender has no effect at all on spoken Irish scores. The *Beta* value for the Instructional Category *sheaf* coefficient in the final equation (.205) shows that the R^2 change of 2.9% is significant. Parental Encouragement at Time 1 explained a very small (0.9%) but significant additional proportion of TPSI variance on the fourth step of the analysis. However, the addition of the two “use” of Irish variables in particular seems to give an interpretation of its effect and in the final analysis neither the contribution made by Parental Encouragement nor that by the combination OSI – 2 and L-Use is significant (see *Beta* coefficients in final column).

Table 8a

Regression of Irish C-Test (ICT-2) scores on key factors (individual, home, use and motivation)

Model	R	R ²	SE	R ²	F change	df1	df2	Sig. F change	B	se	Beta	Beta (All variables in equation)
(Constant)	–	–	–	–	–	–	–	–	6.91*	3.38	–	–
ICT - 1 score	.929	.863	8.24	.863	339.85	1	54	.001	.89	.05	.929**	.893**
Gender	.929	.864	8.29	.001	.31	1	53	NS	–1.30	2.33	–.030	–.030
IC ^φ Dummy IC1	–	–	–	–	–	–	–	–	–6.29	5.45	–.110	–.110
Dummy IC2	.934	.873	8.17	.009	1.79	2	51	NS	–5.89	3.12	–.131	–.131
IC sheaf	–	–	–	–	–	–	–	–	–	–	–	.006
PE (Time 1)	.935	.874	8.21	.001	.47	1	50	NS	–.07	.11	–.039	–.054
OSI - 2	–	–	–	–	–	–	–	–	.97	1.19	.047	.036
R-USE	.945	.893	7.73	.019	4.23	2	48	.05	4.73*	1.89	.142*	.141**
DTLI - 2	.946	.895	7.72	.002	1.07	1	47	NS	2.80	2.80	.065	.065

* $p < .05$; ** $p < .01$; ^φIC3 is the reference category**Table 8b**

Regression of test of Proficiency in Spoken Irish (TPSI-2) scores on key factors (individual, home, use and motivation)

Model	R	R ²	SE	R ² change	F change	df1	df2	Sig. F change	B	se	Beta	Beta (All variables in equation)
(Constant)	–	–	–	–	–	–	–	–	7.09	3.84	–	–
TPSI - 1 score	.925	.856	5.74	.856	319.84	1	54	.001	.92	.05	.925**	.726**
Gender	.925	.856	5.80	.000	.01	1	53	NS	–.18	1.57	–.006	.005
IC ^φ Dummy IC1	–	–	–	–	–	–	–	–	–10.58**	3.68	–.273**	–.273**
Dummy IC2	.940	.885	5.29	.029	6.39	2	51	.01	–6.92**	1.99	–.225**	–.225**
IC sheaf	–	–	–	–	–	–	–	–	–	–	–	.205**
PE (Time 1)	.945	.893	5.13	.009	4.21	1	50	.05	.14*	.07	.111*	.105
OSI - 2	–	–	–	–	–	–	–	–	.83	.91	.059	.062
L-USE	.947	.896	5.17	.003	.63	2	48	NS	.12	1.64	.005	.006
DTLI - 2	.947	.897	5.21	.000	.15	1	47	NS	–.72	1.86	–.024	–.024

* $p < .05$; ** $p < .01$; ^φIC3 is the reference category

4 Discussion and Conclusion

The findings showed that even while at school Instructional Category 3 (immersion school) participants had an overall advantage over other participants in the Final Sample in terms of their informal contact with the Irish language outside of school. They used Irish more frequently in social situations and received higher levels of parental encouragement in relation to learning Irish. Given these advantages it is not surprising that they also demonstrated higher levels of motivation in learning Irish and lower levels of Irish class anxiety than their counterparts in mainstream schools at that time.

A decline in opportunity to use the language over the period of the study was noted in the case of participants from all three instructional backgrounds. The majority of participants at all levels continue to have some contact with the language. For participants who had attended mainstream secondary schools, this usually involves the more passive activities of watching Irish TV programs or listening to radio news bulletins in Irish. Less than one-fifth of them speak Irish and for Instructional Category 1 participants (those who studied Ordinary Level Irish) this typically involves using just the odd word or phrase with family or friends. Somewhat similar proportions of ex-mainstream school students say they continue to use Irish as a secret code that is, when they do not want others (e.g., foreigners) to understand them.

Ex-immersion students (Instructional Category 3) are the most likely to report having conversations in Irish. About a half still choose to use Irish with Irish-speaking friends or former school contacts. However, even this group also perceived less opportunity to use Irish socially than when they were still at secondary school. This raises the question of the durability of school associated Irish-speaking networks over time.

Ex-immersion students are also the most likely to continue to read newspaper articles in Irish. The results of the regression analyses suggest that such reading activity can be important for the maintenance of general proficiency in Irish. The role of literacy in the development of academic language proficiency has also been stressed by Cummins (2000). Acquiring such decontextualized language skills are considered to assist independent or autonomous learning which will increase the likelihood of language maintenance. Hansen (1999, p. 16) also concluded that literacy is important in the area of second language retention as it helps to “anchor linguistic knowledge.”

In general, participants’ perceptions of a decline in spoken Irish ability since Time 1 is not supported by the test data. All of the test score comparisons indicated no significant change in spoken and general Irish skills in this group 18 months after formal learning of the language had ceased. Only in the case of one (speaking) subtest was there any indication of a significant, if small, change and this was an increase in scores on the “Tell a Story” subtest, an increase which occurred mainly among participants who had attended an all-Irish medium secondary school. The *t*-test comparing Irish C-test scores at Time 1 and Time 2 indicates no significant change at a more general level of proficiency in Irish.

The lack of evidence to indicate attrition in the present study is not unusual when compared with the outcomes of the three studies described earlier which also assessed retention of school-learned second languages (Bahrck, 1984; Grendel, 1993; Weltens, 1989). Weltens (1989) also noted some gains in receptive skills mainly. The small, but significant, gain in speaking score among ex-immersion students in the present study may be explained in terms of their continued contact with the language. Profiles of those IC3 participants who made gains suggest that their increased performance may be attributed, in part at least, to their high levels of use of spoken Irish in the meantime. Interestingly, the minority of participants generally who reported having no difficulties with tests at Time 2 were the most likely to remain stable in terms of test scores or even show some small gain on the test of spoken Irish.

It may be worth noting that gains found in Cohen’s (1975) study of second language attrition was attributed to a phenomenon of “additional” or “residual learning.” Cohen

suggested that a period of nonuse may be also be seen as a settling-in process where information becomes more retrievable (Cohen, 1986, p. 147) and where unlearning of incorrect patterns can take place. However, it must be acknowledged that Cohen's conclusions were based on retention over a period of a summer vacation only.

It must be concluded that the retention period of 18 months in the present study has been too short to yield decisive patterns of change in proficiency. It will be recalled that Bahrck (1984) reported most second language attrition (including recall skills) in his study occurring between 3 – 5 years after learning of that language ceased. Extending the retention interval by another two years would be more likely to yield significant attrition, in particular among lower initial proficiency participants.

It is also possible that the tests used in the present study, despite good reliability and power to discriminate between participants, may not have been sensitive enough to reveal more subtle changes in an individual's second language processing capacity. Participants' lower self-ratings of ability in spoken Irish at Time 2 compared to Time 1 and their general comments after test administration suggest a decline in skill, at some level, having occurred in the intervening period.

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