Investigating the later stages of Irish acquisition

Iniúchadh ar shealbhú níos déanaí na Gaeilge

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Abstract

This research investigated the later stages of Irish acquisition, using multiple measures of receptive and productive marking of semantic and grammatical gender, in addition to measures of Irish and English vocabulary. The role of language experience in the home, in education and in the community was examined, along with consideration of structure complexity and form-function mapping. The sociolinguistic context of Irish was explored in order to cast light on the language experience of the adult and child participants. Adult use of grammatical gender was considered because the variability and change in adult usage, when offered to children as input, is likely to significantly impede children's acquisition and control of complex morphology. Irish is a minority language that is under increasing pressure from the dominant language English and from reduced domains of use for adults and children and is undergoing accelerated change.

A measure of language background was developed which allowed a rigorous categorisation of children's and adults' language history. Tests were developed to examine children's receptive and children's and adults' productive performance on semantic and grammatical gender in three contexts (Det + N, N + Adj and 3rd person possession). These tests were administered to a sample of Gaeltacht children aged 6-13 (n=306) and to adult proficient speakers (n=135). Standardised tests of receptive reading vocabulary in Irish and English with suitable norms were identified and administered to the child sample.

Adult performance on tests of gender marking showed lower levels of accuracy among adult native and moderately proficient L2 speakers than highly proficient L2 speakers, and accuracy was low among the youngest adults (under 25 years). Statistical analysis of children's performance on the tests of gender marking and vocabulary demonstrate that language exposure in the home significantly impacts on performance. Children aged 6-9 from homes in which Irish is the dominant language showed better performance on measures of Irish vocabulary and on some aspects of gender marking, and the difference between them and children from bilingual and English dominant homes was even greater in the 10-12 year age-group. Analyses also revealed a statistical effect of school language exposure. The results point to divergences between grammatical gender marking in the Standard and in current usage in the *Gaeltacht*. The profile of results across all participants points to children with higher levels of Irish exposure showing greater accuracy on a construction where adult input to them shows more consistency.

List of Abbreviations

L1 = first language

L2 = second language

NAT = native speaker

HP L2 = highly proficient second language speaker

MP L2 = moderately proficient second language speaker

NEW = new speaker

IDH = Irish Dominant Home

BH = Bilingual Home

EDH = English Dominant Home

B-LBQ = Brief-Language Background Questionnaire

C-LBQ = Child-Language Background Questionnaire

MIM = Measure of Irish Morphosyntax

RMIM = Receptive Measure of Irish Morphosyntax

TGD-G1 = Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge

DPRT-R = Drumcondra Primary Reading Test-Revised

WASI = Wechsler Abbreviated Scales of Intelligence

LITMUS MAIN = Language Impairment Testing in Multilingual Settings: Multilingual

Assessment Instrument for Narratives

ISCO = International Standard Classification of Occupations

SES = socio-economic status

n = number of participants

M = mean

SD = standard deviation

CI = Confidence Interval

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Statement of Original Authorship

"I, Siobhán Nic Fhlannchadha, hereby certify that the submitted work is my own work, was completed while registered as a candidate for the degree stated on the Title Page, and I have not obtained a degree elsewhere on the basis of the research presented in this submitted work".

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To my Indiana...

> *You're my downfall,*
> *You're my muse,*
> *My worst distraction,*
> *My rhythm and blues*

I couldn't have done it without you.

Chapter 1 Input and experience in later first language and bilingual acquisition

OVERVIEW OF THE THESIS

This research investigated the later stages of Irish acquisition, using multiple measures of receptive and productive marking of semantic and grammatical gender, in addition to measures of Irish and English vocabulary. The role of language experience in the home, in education and in the community was scrutinised, along with consideration of structure complexity. When offered to children as input, variability and change in adult usage is likely to significantly impede their control of complex morphology, and therefore consideration of adult use of grammatical gender was pertinent to the study. The sociolinguistic context of Irish was also explored in order to cast light on the language experience of the adult and child participants.

This thesis is composed of ten chapters. Chapter 1 considers theories of language acquisition and the issues of input and exposure in language acquisition. The Irish grammatical gender system and findings of previous research exploring the acquisition of grammatical gender in Irish and in other languages is outlined in Chapter 2. Chapter 3 explores the importance of minority language research and presents the Irish sociolinguistic context. A number of measures had to be developed for the purposes of the research and these are detailed in Chapter 4. A sample of proficient adult speakers of Irish completed the measure of grammatical gender, and their performance is detailed in Chapter 5, providing the necessary contextualisation for assessing child performance. Chapter 6 offers a qualitative study of attitudes to accuracy and authority in Irish among both native and non-native Irish speaker adults, which aims to illuminate both the adult results of Chapter 5, and also the children's wider sociolinguistic context.

Looking next to the child participants, Chapter 7 presents the results of the measures of gender marking in a large sample of children aged 6-13. Chapter 8 examines their results on measures of Irish and English vocabulary and Chapter 9 presents analysis of the Irish dominant children's natural language in a picture description task. Finally, Chapter 10 contains an overall discussion, conclusions and recommendations for future research and for possible application of the research results.

OVERVIEW OF THE CHAPTER

Chapter 1 considers the importance of crosslinguistic research for theories of L1 acquisition, and discusses the constructivist/ usage-based approach, which forms the theoretical framework for this study of Irish acquisition. A brief consideration of the nature of bilingualism is followed by a discussion of language experience and its influence on qualitative differences in input.

Crosslinguistic Research

The crosslinguistic tradition initiated by Slobin in the 1960s underscores the importance of viewing language acquisition through a wider lens than the monolingual, Anglocentric view which had previously prevailed (Slobin, 2006; Berman, 2014). Crosslinguistic research offered a way of testing theories regarding an innate language acquisition capacity and Universal Grammar (UG). For instance, Gentner's (1982) proposal of a noun bias in early language acquisition gained currency as children acquiring English did appear to acquire a relatively greater number of nouns than verbs or function words. However, Bates, Dale and Thal (1995) disputed this claim, citing evidence of a greater influence of patterns in the input, thereby implicating child-external factors, while Gopnik and Choi (1995) showed that Korean infants acquire nouns and verbs at an equal rate, possibly due to verbs' salience in Korean and their prominence in Child Directed Speech due to the frequent omission of subject and object. Similarly, crosslinguistic research has enlarged our understanding of how children acquire word order: Hickey (1990b) demonstrated that arguments that SVO is cognitively the most 'natural' word order needed to be reviewed in light of evidence on word order acquisition in languages with VSO word orders such as Irish, showing that the word order used by the three Irish children strongly reflected the order of elements in their input, rather than supporting the view that SVO word order is the natural order with consequent delays in the acquisition of languages with other word orders.

Slobin (1985) argued that the crosslinguistic method reveals both developmental patterns and language-specific processes in the interaction of form and content. He highlighted the value of examining children's errors types, the ways in which child speech regularly and systematically deviates from input, and the timing of developments in the acquisition process, as illuminating our understanding of that process. Slobin (1973; 1985) also proposed the Operating Principles approach, whereby children have a set of procedures for analysing linguistic input, which represent an interaction between more general cognitive

procedures and the input. This theory implicated the relative difficulty of specific language features in a given language and how the child copes with this complexity in acquisition. Yet as Bowerman (1985) observed, the empirical testing of this theory has been very difficult, and cognitive and linguistic complexity are not the only two factors which affect acquisition: relative pragmatic usefulness and frequency in the input of a given structure are also implicated.

Karmiloff-Smith (1986; 1979), Elman et al (1996), Bates and MacWhinney (1988) and Tomasello (2003) also sought to move past the nature-nurture dichotomy to a position which recognises the contribution of both innate domain-relevant capacities for language, and also language experience and input in interaction. The Constructivist approach (Tomasello, 2003) emphasises the interaction between the child's developing cognitive and social skills and language input: language development is a gradual process facilitated by the combination of these abilities. While this is also known as the usage-based approach (see Lieven, 2014) and is related to the Emergentist approach (Bates & MacWhinney, 1988) and to the Connectionist approach (Elman et al, 1996), 'constructivist approach' is mainly used here.

The constructivist approach

Children share attention with others, follow their eyegaze and learn from imitation of their behaviour and conventions (Lieven & Tomasello, 2008; Tomasello, 2003). Intention reading, attention sharing and cultural learning (the holistic, non-linguistic aspects of language and culture-specific language use that only come from contextual language input and imitation of that input) form the first main pillar of Tomasello's constructivist approach. Gathercole, Pérez-Tattam, Stadthagen-González and Thomas (2014) argue that children's understanding of language is embedded in the context of use and their language experience. The second pillar of Tomasello's approach is the identification of patterns in that input, allowing the child to collect a body of exemplars of a particular language feature and draw out, not only the function of a feature but also an abstract understanding of 'rules' governing use of that feature (Akhtar, 2004). Tomasello proposes that adult-like, abstract schemas emerge only gradually and in a piecemeal fashion. The components of this theory will be addressed in more detail below.

Distributional learning: Schematisation

Information that is assimilated from the senses is perceived and interpreted by the mind, thereby engaging the child in active cognitive process of constructing their language (Cattell, 2000). The "domain-general learning capacities" that humans have at their disposal are argued by Saffran and Thiessen (2009, p. 69) to be necessary in acquiring language as "statistical learning can be more broadly construed as attention to regularities in the environment" (p.74). Children recognise patterns in the input they receive from others and form perceptual and conceptual categories through a process called schematisation. They do this by identifying repeated strings of speech and attempting to deduce the function of each identified item, which Lieven and Tomasello (2008) also called a "functionally-based distributional analysis" (p. 169).

In order to be able to do this, children depend on the context in which they acquire a novel item and Gathercole (2007b) noted that they may use the item in the original context only, until they are able to use it independently of that context through a process of pattern extraction (Gathercole & Hoff, 2007). As their grammar develops, they become more capable of increasing the complexity and abstractness of their constructions (Dabrowska, 2004), and shift from their early constructions which are tied to specific lexical items to more abstract constructions and concepts (Saxton, 2010; Gathercole et al, 2014). Thus, rather than hypothesising the use of innate linguistic categories, Tomasello argued that gradually over time, structure emerges from the accumulated knowledge, based on the need for communication.

The overgeneralisation errors made by infants as they begin to produce a wider range of utterances which they could not have heard in adult input, for example *don't giggle me* and *she falled me down*, lend support to Tomasello's arguments. Children rarely produce these types of overgeneralisations before the age of 3, demonstrating that the abstraction of linguistic categories and schemas is an ongoing process that proceeds over years of language acquisition. Furthermore, these overgeneralisation errors demonstrate children's attempt to find patterns in their language. For example, the child may have abstracted from accumulated exposure that the suffix "–ed" is applied to a verb to refer to something that has already happened, and may inaccurately apply that abstraction to irregular verbs such as eat or go, resulting in inaccurate utterances such as *eated and *goed. Gathercole (2007b) observed that a child may use 'going', 'went' and 'gone', in separate contexts before gaining an abstract understanding of each being a related usages of the verb 'go', for which they

need access to a large amount of accurate, consistent and clear input. As Akhtar (2004) noted, echoing Slobin (1985), the study of children's errors is as useful as studying their accuracy as it provides insight into the child's construction of her language.

One type of distributional information which facilitates children's acquisition of grammatical categories is 'flexible frames' (St Clair, Monaghan & Christiansen, 2010). Flexible frames are structures in which a linguistic slot may be identified either by a consistent preceding element (e.g. aX) or a succeeding element (e.g. Xb). Mintz (2003) had previously observed the existence of 'frequent frames', in which both a consistent preceding and succeeding element are identified (e.g. aXb). St. Clair et al. (2010) carried out computational modelling and showed that flexible frames lead to more successful grammatical categorisation because they are more informative in their scope, due to their higher frequency and the requirement of one consistent element as opposed to two, which increased their distribution across the language.

Complexity

It has long been known that not all features of language are acquired at the same rate (Brown, 1973). As Lieven and Tomasello (2008, p.171) noted "consistency aids learning and complexity impedes it". Some features are more complex than others and require a substantial length of time to acquire them. Within-language components of complexity which are believed to influence the rate of acquisition of a given feature include its *formal complexity* (Paradis, Tremblay & Crago, 2014; Paradis, 2010; 2011b; Lieven, 2006), its *frequency of use* (Paradis, Nicoladis, Crago & Genesee, 2011; Lieven, 2010), the transparency of the *form-function mapping* and the *function* itself (Karmiloff-Smith, 1979). If a language provides clear cues to the meaning of grammatical structures, it has been found that children tend to be able to use those structures more productively and at an earlier stage than structures which have complex structures, low frequency or an opaque form-function (Bavin, 1995). These three components (complexity, frequency and form-function mapping) will be considered in turn.

Formal complexity

Looking first to formal complexity, Kusters (2008) distinguishes between "absolute complexity" and "relative complexity". Absolute complexity accounts for the various types of structural complexities in the language itself, while relative complexity takes into account

the acquisition process of the language learner with respect to what they find to be complex and more difficult to acquire. Thus input factors, such as relative exposure to each of their languages for a bilingual, as well as the complexity of the specific language feature are also highlighted by Paradis (2010) as being particularly important for morphosyntactic development. As noted, the comparative perspective is an important element in constructivist research on acquisition, as a system that is acquired with ease in one language (or by one type of language learner) may require protracted acquisition in another language or by another type of learner. This demonstrates that it may not be the specific aspects of morphosyntax which trigger a compulsory protracted development. Rather, the unique encoding of that specific aspect of morphosyntax in Language A may facilitate or impede acquisition as compared with acquisition of the same feature in Language B, and to varying degrees depending on the language experience of the learner.

C. Chomsky (1969) provided one of the first clear demonstrations of the delay complex systems can cause for language acquisition by drawing from within-language and between-language differences. She compared within-language differential rates of acquisition for pronominalisation and acquisition of the verb 'ask' in English and concluded that pronominalisation is a basic tool of the English language and is acquired early and with ease. On the other hand, the syntactic complexity of the verb 'ask' and its associated structures is increased because the two understandings of the verb, 'ask as a request' and 'ask as a question', are packaged into one lexical item in English and this correlates with a longer period of acquisition for monolingual children than she measured for pronominalisation. She attributed this delay to the relatively greater form-function mapping complexity of 'ask' in English, and supported her argument by considering also between-language differences in rate and ease of acquisition. Both meanings of the verb 'ask' are distinguished lexically in German and Russian and both appear to be acquired with ease in German and Russian.

Frequency

The relative strength of the cue depends not only on its complexity (Royle & Valois, 2010, discussed further in Chapter 2), but also on the frequency of that cue in the input, leading to the conclusion that the frequency of a structure has an impact on the ease of its acquisition. Token frequency is a measure of how often an individual word/ morpheme/ construction is used in the input (Paradis et al, 2014). The token frequency of common nouns is typically

very high in most languages and are therefore among the first to be acquired by children and proceed to be used most frequently in their use. Lieven and Tomasello (2008) identified 'what's this' as a token produced early by children, which they attributed to its high frequency in input to children. Hickey (1993) identified the formula, *n'fheadar* /n'adər/ in the spoken language of an Irish L1 child the age of 1;9. This is the contracted form of the Neg+ V + synthetic first-person marker *ni fheadar* /ni: adər/ (not know/ I don't know). The child always pronounced this is in the contracted form, in line with the typical usage of adults. This example demonstrates the impact of frequency on acquisition as the child acquired the form that was more frequent in the input.

Type frequency was distinguished from token frequency by Bybee (1995) as it is the frequency with which a particular structure occurs in the same slot. For instance, the past tense inflection '-ed' on 'walked' is a much more frequent type in English use than the inflection on 'crept', as is the plural marker '-s' on 'doors' compared to the one on 'cacti'. Consequently, 'walked' and 'doors' are more likely to be acquired before 'crept' and 'cacti' as children depend on type frequency in their efforts to form meaningful, useful schema from the input they receive and construct their organised grammatical system. The overextension of the more frequent suffix "–ed" on regular verbs to irregular verbs has already been discussed.

Paradis et al (2010) considered the impact of type frequency and token frequency on the acquisition of the past tense in English and French among bilingual children of differing dominance in Canada. When they controlled for differences of language dominance, input and experience, they found a significant difference between monolingual and English-dominant bilingual children for English irregular verbs, which have high token frequency but low type frequency. It was to this difference that they attributed the finding that even English-dominant bilinguals lagged behind matched monolinguals, as the bilinguals had more difficulty acquiring the individual irregular tokens than they did acquiring the regular types. Contrasting results were found for regular verbs, which have high type and token frequency, and both monolingual and English-dominant bilinguals acquired and used them with ease. These results were mirrored for acquisition of French verbs by monolinguals and French-dominant children as regular verbs have high type and token frequency. While French irregular verbs have low type frequency, they also have low token frequency, making them less frequent in use. Paradis (2010) followed up on this study with children aged 6 years and found evidence that this difficulty had been overcome in the older children.

Finally, a third study by Paradis et al (2014) recruited an even older group (6 to 11 year olds). They measured French direct object clitics, believed to be relatively difficult to acquire due to the difficulty of the form-function mapping as well as the inconsistent plurifunctionality of 'les' as both a direct object clitic and plural definite article. The token frequency of 'les' is much higher for its use as a plural definite article than as a direct object clitic (both form-function mapping and plurifunctionality will be discussed further below). Despite this complexity, results indicated that direct object clitics are an aspect of French grammar mastered by the age of 11, which the authors argue is due to the functional importance of this specific construction in constructing meaningful utterances. The complexity of the feature of the language has a significant affect on the rate of acquisition, and may explain why some language features require more acquisition beyond the age of 5 than others, but Paradis et al's (2014) results indicate that the function of the specific form also has an impact on the speed of acquisition.

Function for the child

Karmiloff-Smith (1979) took a functional approach to the consideration of later language acquisition and emphasised the purpose a given features serves for the language acquiring child as a probable explanation for differential rates of acquisition of some features and the need for a longer period of acquisition for some features. Theakston, Lieven, Pine and Rowland (2005) emphasised the centrality of the function of language in the constructivist approach by demonstrating that the pragmatic usefulness of a given feature for the child constructing a grammar affects their ability to productively use that feature, a finding previously highlighted by Bowerman (1985).

The function of a given feature of language is often disregarded in explanations of its acquisition, for example Blom (2010) in her study of the relation between finiteness and subject use in Dutch-Turkish bilinguals considered differences in the input to the children, and the complexity of that particular feature of Dutch and Turkish and also the potential for crosslinguistic transfer. However, she did not consider the contexts in which the subjects were realised or not realised, according to finiteness in the manner appropriate to the language, nor the function this served when used accurately. Karmiloff-Smith's (1979) seminal results offer insight into the relative strength of the cues provided by natural gender, the gender marked indefinite article and the suffix for children acquiring French and these will be considered further in Chapter 2.

Form-function mapping

The transparency of the form-function mapping is a component of complexity and refers to the way in which a given form, a linguistic representation of a real world concept, is linked to a given function (see Goldberg, 1995). Such form-function mappings are initially opaque to children and it takes time for them to abstract the mapping for each discrete component of the construction (Lieven & Tomasello, 2008). Children may initially use a construction such as *See baby* or *See mommy* as individual formulaic items acquired as a whole. When the child acquires sufficient examples of this construction for her to form an abstract *See X* schema (a flexible frame), in which any object can fill the X slot, she will become productive in forming constructions of this type (Ambridge & Lieven, 2011; Lieven & Brandt, 2011; Dabrowska, 2011; Hickey, 1993). This process requires the development of representations of the patterns of distribution between and within constructions.

The role of Child Directed Speech (CDS) has been extensively debated in terms of its contribution to acquisition (see Snow & Ferguson, 1977; Clark, 2009). It is characterised by exaggerated intonation, short and clear sentence structure, restricted lexical diversity and a focus on the tangible rather than the abstract. Child Directed Speech is central to the constructivist approach as it demonstrates that the input tailored to the needs of children acquiring a first language is sufficiently rich, clear and accurate to facilitate childrens' construction of their grammatical system. Cameron and Hickey (2011) examined form-function mapping in input in a corpus of Child Directed Speech (CDS) to young child acquiring Irish, and identified a prevalence of item-based frames, whereby 70% of the non-interrogative, multiword utterances were accounted for by only 35 item-based frames. The strictest form-function mapping was used to map function only for certain forms, for example the copula was used to mark joint focus agreement or disagreement in 86% of the utterances. No other form showed this level of restriction in form-function mapping but many others did show a sufficiently high level of predictability of the functional intent to support the view that there is a high level of lexical specificity in the language addressed to young children. This facilitates children's abstraction of grammatical rules from the input in their construction of their language. While the lexically limited and repetitive nature of CDS is ideal for early development, it is not sufficient for successful acquisition of the more complex features of the language such as the *plurifunctional* form-function mapping of grammatical gender, as children need a large mass of input to provide them with sufficient examples of rarer, more complex constructions.

Plurifunctionality

Karmiloff-Smith (1979) described as 'plurifunctional' those forms which mark several unrelated functions or functions which may be marked using more than one form. In Irish and Welsh, the initial mutation system is plurifunctional because the mutation used to mark singular feminine nouns is also used to mark masculine third person possession and a range of other functions, being pervasive in a variety of lexical and syntactic contexts. Gathercole (2007b) concluded that the opacity and plurifunctionality of the form-function mapping significantly increases the time needed to fully acquire gender marking in Welsh. By definition, plurifunctional markers are intrinsically more complex because they defy the one-to-one mapping of form and function which is more transparent for children to acquire. They generate redundancy, which is repeated formal marking on multiple components of a phrase without any additional semantic informativeness (Audring, 2014). For example, some languages mark grammatical gender on elements other than the noun such as the definite article, adjectives, pronouns and verb inflection, which creates complexity but does not increase the semantic information.

Ambridge and Lieven (2011) and Lieven and Brandt (2011) discussed the impact of plurifunctionality: if a particular grammatical function can be enacted using multiple forms, or a specific language form can signal multiple functions, depending on fine-grained decisions made by the speaker, acquisition will be prolonged as the learner will need an extended period of acquisition to abstract the rules for every form-function mapping possibility, potentially on an item-by-item basis. In making these decisions, Bates and MacWhinney (1982) and MacWhinney and Bates (1989) proposed the Competition Model, which predicts that, in cases where there is competition in relation to the understanding that can be drawn from the link between form and function, the relative strength of the form-function mapping can predict the outcome. MacWhinney (2005) pointed to the relative strength of the cues that predict the outcome of competition in form-function mapping. Cues are distributional privileges and the strength of these cues differs across languages (Lieven, 2010) which Thomas (2000) noted can act as good or fairly good predictors of specific features. The utility of cues will be considered further in Chapter 2 in relation to grammatical gender specifically.

Summary of Constructivist approach

The factors which have emerged as being central to the constructivist approach are gradual, item-by-item acquisition which is facilitated by qualities and quantity of the input. Tomasello (2006) reiterated children's need to recognise patterns in the speech they hear and to use these to segment language components, which they then need to create their own constructions. Thus, as stressed by Dabrowska (2011), the properties of children's grammars are strongly influenced by properties of the input. Particularly for multilinguals, input factors such as the relative exposure to each of their languages as well as the complexity of the language feature (Paradis, 2010) are particularly important for morphosyntactic development.

QUANTITATIVE AND QUALITATIVE DIFFERENCES IN INPUT: BILINGUALS' LANGUAGE EXPERIENCE

The complexity, frequency and form-function mapping of individual schema in the input affects both monolingual and bilingual acquisition. However, crosslinguistic influence is a feature of bilingual language not experienced by monolinguals. Taking a very general perspective, a bilingual is someone who actively uses two or more languages in their everyday life (Kroll, Dussias, Bice & Perrotti, 2015; Baker, 2011; Grosjean, 2010, see also McVeigh, 2012 for a review of the literature on the definition of bilingualism). Bilingual children receive input which has more than one possible interpretation because it could contain elements of more than one language, unlike monolingual input, which only contains elements of the grammar of the language in question. Qualitative differences in input will be considered in the following section and particular attention will be paid to bilingual acquisition as qualitative differences are very relevant to bilingual acquisition.

Researchers have turned their attention to variations in language input to bilinguals as they seek to understand differences in rate and success of different types of learners and for specific features of language. It has been demonstrated (for example by Thordardottir, 2014, 2011) that relative exposure to each of the two languages of the bilingual can have an impact on the relative strength of those two languages. Furthermore, Paradis and colleagues (2014; 2010) have demonstrated within-language differences, whereby less exposure to one language may be needed to acquire less complex features of that language, as well as showing that speakers with equal exposure to two languages may need more time to acquire some features of one language due to their greater complexity. Thus, there can be

differences in the timing of bilingual acquisition, depending on variables such as amount of exposure and complexity of the specific feature.

Bilinguals receive input in more than one language, and therefore they typically receive less input in each language than monolingual speakers of one of the languages do (Paradis, 2010). Grosjean (2010) described the language exposure of bilinguals as rarely equal, with regard to the people the child receives input from in each of the two languages and the number of domains in which the child can use them. Paradis (2010) added that the input received by bilingual children is more variable than that received by monolinguals. Consequently, Montrul and Foote (2014), Baker (2011) and Grosjean (2010) have all argued that it is rare for bilingual speakers to have perfectly balanced use or ability of their two languages, as one language is typically more *dominant* than the other. Bilinguals are often described on this continuum of dominance, whereby the bilingual's stronger language is referred to as their dominant language and the other as the non-dominant or weaker language (Pearson, 2012). This dominance is also subject to change, however, and is not fixed. The balance of the two languages can change depending on circumstances such as education, employment, marriage, relocation (Caldas, 2006; Valdés, 2005). Essentially, "the bilingual is an integrated whole which cannot easily be decomposed into two separate parts" (Grosjean, 1989, p.6).

Research in bilingual language acquisition has repeatedly found that proficiency in vocabulary and grammar in both of the bilingual's languages is significantly correlated with language input and experience (Gruter & Paradis, 2014; Paradis, 2011a; Gathercole & Thomas, 2009). The findings of this body of research are particularly important in supporting bilingual acquisition, as some researchers, such as Paradis (2011a), claim that children's sensitivity to input factors is greater for minority language than majority language, given the potentially reduced number of domains the minority language is used in compared to the majority language. Gathercole and Thomas (2009) have argued that, while the majority language will typically be acquired by all bilinguals, the same cannot be guaranteed for minority languages.

Thordardottir (2011) examined acquisition in children with differing levels of exposure to their two languages (French and English). She found that bilinguals with similar levels of exposure to two languages have similar levels of performance in both those languages, whereas children with unequal patterns of exposure perform considerably more strongly in the language to which they have been exposed more. Thordardottir (2014) found

that those with equal amounts of exposure to English and French, by the age of 5, could use several tenses other than the present productively, while these children with unequal exposure did not show productive use of regular or irregular English past tense.

Paradis et al (2014) found that the formal complexity of specific within-language features influences the rate of acquisition, which could account for the differences found by Thordardottir (2014). As noted earlier, Paradis et al (2010) found that even English-dominant bilinguals had more difficulty acquiring the individual irregular verb tokens in English than they did acquiring the regular types, as English-dominant bilinguals manipulated them with ease. The complexity of specific features of the language has a significant affect on the rate of acquisition, and may explain why the successful acquisition of some language features requires more time than others.

Unsworth (2013a) examined the relationship between amount of language exposure and language development and emphasised cumulative exposure in bilingual experience. She argued that one year of bilingual language exposure and one year of monolingual exposure are not comparable and that cumulative exposure was more important than the age at which acquisition began. Finally, it should also be noted that there is evidence of within-language individual differences in acquisition: Gathercole, Sebastián and Soto (2002) found that the three L1 Spanish children in their study acquired person inflections on verbs by different routes of acquisition, thereby challenging theories of uniformity across children in acquisition.

Vocabulary vs morphosyntactic acquisition

As discussed by Bialystok (2009) and Oller and Pearson (2002), the conclusion of developmental research on bilinguals is that bilingual children control a smaller vocabulary in each language than their monolingual peers. As vocabulary size often serves as a proxy for linguistic ability in research, and even intelligence, this led to the widespread belief throughout most of the 20th century that bilingual children showed academic or intellectual deficiencies (Oller & Pearson, 2002). Studies of bilingual vocabulary development which measured the total vocabulary in one language had found that they lagged behind their monolingual peers, but research by Hoff, Core, Place, Rumiche, Senor and Parra (2012), Thordardottir (2014; 2011) and Oller and Pearson (2002) has since shown bilinguals to have labels for the same number of concepts when *both* of their languages are considered

together, and Pearson, Fernandez and Oller (1993) found bilinguals' combined vocabularies to be larger than monolinguals'.

Gathercole (2002b) observed that bilingual speakers have the same number of concepts labelled (Conceptual Vocabulary) when the two languages are considered together, but may not have a word for each concept in both of their languages: this is the "distributed characteristic" (p. 248) of bilingual vocabulary acquisition. This characteristic is a product of the domain specificity of bilingual language acquisition and use. Bilingual children are not always exposed to both languages in all social or private domains and their acquisition can therefore be quite context dependent.

Thordardottir (2014) also considered that amount of input may interact differently with lexical and morphosyntactic acquisition, whereby morphosyntactic acquisition may be more dependent on rule-based strategies than vocabulary acquisition. The author found that for vocabulary acquisition of bilingual French-English speakers aged 3-5 years in Montreal, 40-60% input in either language was required to achieve receptive skills within the monolingual range and over 70% was required for productive skills within the monolingual range. At these points little further increase in acquisition was seen in those with relatively more input in either language. For grammatical development, analysis of the diversity and accuracy of grammatical morphology revealed that those with the least exposure to either language made the most errors, which is evidence of the influence of (quantity of) language exposure on grammatical development as well as vocabulary development, in line with the expectations of usage-based theory of language acquisition (see Paradis, 2011b).

Gathercole and Thomas (2009) found that differences in language background contributed to difference in accuracy in Welsh. The children with the most Welsh exposure were the most accurate on both the measure of Welsh receptive vocabulary and receptive morphosyntax. This is supported by Gathercole's (2002a) findings with Spanish monolingual and Spanish-English bilinguals that input was the greatest predictor of proficiency; the author found that the monolinguals outperformed bilinguals and, within the bilinguals, those who spoke only Spanish at home and were attending Spanish-English schools outperformed the other groups of bilinguals. However, Gathercole and Thomas (2009) also found that these differences evened out in later years and that Welsh English Home children came to look more like Only Welsh Home children.

One conclusion from the body of research on bilinguals is that bilingual children's performance on a measure of vocabulary in one of their languages may not be a valid

indication of their overall lexical development or their lexical development in their other language. Marchman, Martínez-Sussman and Dale (2004) found evidence of a lexical-grammatical continuity in the trajectory of acquisition, whereby vocabulary development in Spanish was the greatest predictor of Spanish morphosyntactic development and vocabulary development in English was the greatest predictor of English morphosyntactic development. The acquisition trajectory of one language did not predict the other. This was supported by the results of Gathercole, Thomas, Roberts, Hughes and Hughes (2013), though they found a greater correlation between vocabulary acquisition in both languages in the teens, which they argued could be due to the greater influence of general vocabulary learning ability at this age.

Crosslinguistic influence within bilinguals

One of the earliest theories put forward to answer the question of how two languages are acquired simultaneously in the first years of life was by Volterra and Taeschner (1978), who proposed the unitary language system hypothesis: while a bilingual may acquire two languages, the underlying representation of language competence is the same. Thomas, Cantone, Davies and Shadrova (2014) noted that this theory appeared to be supported by naturalistic studies of early language use, in which instances of unsystematic language mixing were prevalent.

This theory has been opposed by the Independent Development Hypothesis (Bergman, 1976), the Separate Development Hypothesis (de Houwer, 2005) and the Differentiation Hypothesis (Meisel, 1989), all of which are based on the theory that infants who hear two languages from birth differentiate between their two languages and develop two independent systems for those two languages. Genesee (2001), Lleó and Kehoe (2002) and Grosjean (1989) cite children's pragmatic differentiation of their languages, from an early age and with a variety of interlocutors, as evidence of differentiation of linguistic representations in the mind. De Houwer (2009) has shown that the early language produced by children simultaneously acquiring more than one language does not show a high proportion of blended words from the two languages or frequent use of bound morphemes, which she argued was evidence of underlying differentiation of two systems, such that successful acquisition of a feature of Language A is not dependent on acquisition of the same feature in Language B.

However, separate does not mean isolated as has been pointed out by a number of theorists (Nicoladis & Marchak, 2011; Genesee & Nicoladis, 2007; Muller & Hulk, 2000). Paradis and Navarro argued that (2003, p. 372): "in order to claim that a bilingual child can have separate but non-autonomous systems, we need to show that crosslinguistic interference is not random, but instead is a controlled and systematic phenomenon." Study of crosslinguistic interference in bilinguals would help to reconcile theories of separate development of two linguistic systems and the frequent occurrence of transfer from one language to another.

The Competition Model was proposed by Bates and MacWhinney (1982) to account for cases where there is competition in relation to the understanding that can be drawn from the link between form and function, where the outcome is determined by the relative strength of the cues. Muller and Hulk (2001) highlighted the confusion and delay this causes; if a cue represents several possible functions, the form-function mapping is complex and the acquisition of the productive use of that cue is likely to be delayed. They argued that aspects of the grammar are more vulnerable in each language, not that it is the weaker language itself that is vulnerable, and that this is mediated by the degree of similarity between features of the bilingual's two languages. The higher the degree of similarity in how a feature is handled in both languages, the higher the likelihood of crosslinguistic transfer happening. Hulk and Muller (2000) found that cross-linguistic syntactic influence is more likely to occur between the two systems if there is surface level overlap, specifically at the point where discourse-pragmatic context influences choices of syntactic structure, also known as the pragmatics/ syntax interface (Paradis & Navarro, 2003). There needs to be competition between how a feature is marked in both languages in order for this overlap to lead to crosslinguistic influence.

Crosslinguistic influence can affect bilingual acquisition by accelerating acquisition for specific aspects, for example finite verb forms in French (Paradis & Genesee, 1997), while Kupisch, Muller and Cantone (2002) found that it can delay acquisition of other features, in particular those which are not compatible in the two languages. The results of Paradis and Kirova (2014) reveal easier acquisition in the second language of features already acquired in the first language, coupled with less advanced skills in features not present in the first language which need to be understood anew for the second language.

Paradis and Nicoladis (2007) found evidence of pragmatic awareness among bilingual two-year olds, whereby the children had more flexibility in relation to their language choices

with bilinguals and their choices tended to reflect language dominance. The French-dominant children used only English in the English-monolingual context and mostly French in the bilingual context. The English-dominant children used mostly English in bilingual contexts as these contexts afforded them a choice of languages to speak and they tended to choose their dominant language. The authors argued that this was due to sensitivity to the context rather than an inability to control crosslinguistic influence.

Argyri and Sorace (2007) examined accuracy in the use of null and overt pronominal subjects, preverbal and postverbal subjects, object pronouns and the structure of wh-embedded interrogatives by eight year old English-Greek simultaneous bilinguals. They found mixed results in terms of the direction and prevalence of crosslinguistic influence. For example, the English-dominant bilinguals showed more crosslinguistic influence of English in their Greek than the Greek-dominant bilinguals. However, the same pattern was not seen for Greek-dominant bilinguals in their English. Furthermore, this pattern was not evident for all language features tested. It is evident that additional research is required to probe further.

Codemixing

Codemixing[1], the combined use of aspects of two different languages or dialects in the same utterance, is a very obvious manifestation of crosslinguistic influence. Codemixing among bilinguals is a topic that has been the subject of a vast research literature which cannot be reviewed here (see Sankoff, 2011; Mahootian, 2006; Mougeon & Beniak, 1994; Poplack, 1980). Codemixing requires compliance with the underlying structure and grammatical restraints of one of the languages in conjunction with elements of another language. This is modeled by Myers-Scotton (1993) in her Matrix Language Hypothesis, where the underlying matrix language is Language A but the utterance contains embedded surface elements, called Embedded Language constituents, from Language B. According to this hypothesis, codemixing is systematic, whereby one language provides the underlying structure and elements of the second language are embedded into that structure.

Genesee (2001) concurred that codemixing is not random but can reveal a number of bilingual competencies. Bilinguals use elements of their dominant language to fill lexical gaps

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[1] The term codemixing will be used consistently, though Poplack (1980) does distinguish between intersential switching, which involves a switch at a clause or sentence boundary, and intrasential switching, which involves a switch within the clause or sentence boundary.

in the weaker language (Grosjean, 2010; Genesee, 1989). Muller (1998) called this a relief strategy, whereby a bilingual child who encounters a single particular type of construction with multiple interpretations due to an ambiguity in the input will use parts of the analysis of that particular construction in one language to relieve the pressure on the need for interpretation in the other language. Codemixing also reveals linguistic sophistication: in Allen's (2007) study of use of Inuktitut, 95% of the codemixing was grammatical, in both languages of the bilingual and even in the youngest age groups. These bilingual children exhibit advanced executive control and advanced linguistic capacity, as opposed to the restricted or stunted linguistic capacity which Lawson and Sachdev (2000) reported was associated with codemixing. Gathercole (2007b) also asserted that the most balanced Spanish-English and Welsh-English bilinguals were the most likely to codemix.

De Houwer (2009) found that if bilingual children's primary caregivers are tolerant of crosslinguistic influence in their speech, the children's language output will show corresponding evidence of codemixing, which is evidence that patterns in the input received by children shape their output. Nevertheless, Paradis and Nicoladis (2007) found a significant difference between the frequency of codemixing by English-dominant and French-dominant preschools in their French and in their English output but did not find an associated difference in the codemixing of the adults who provided input to the children and in this case concluded that the difference in the children was due to language dominance of English in French. However, Paradis and Nicoladis (2007) acknowledged that attitudes towards codemixing are generally not positive in the area of Canada in which the research was conducted and it is possible that the parents were making a conscious effort not to codemix in front of the researcher.

Nevertheless, Crystal (2002) has voiced concern that high levels of codemixing in a minority language is typically an indication of increased pressure on that language by the majority language and does not bode well for the vitality of the minority language. This issue is discussed further in Chapter 3 in relation to Irish specifically.

Timing of bilingual acquisition

Gathercole (2007b) hypothesised that bilinguals lag behind their monolingual peers, in vocabulary acquisition in morphosyntactic development, as a consequence of those differences between monolingual and bilingual acquisition discussed above and cited by Grosjean (2010), Baker (2011) and Paradis (2010). Nicoladis, Palmer, and Marentette (2007)

also found that French-English bilingual 4-year-olds lagged behind French and English monolinguals in their acquisition of past tense morphology in both languages, but the authors did not consider differences within the bilinguals in terms of their dominant language. The importance of the consideration of language experience and exposure is demonstrated in Paradis, Nicoladis and Crago (2007) as they also found that 4 year old bilinguals lagged behind monolinguals in their acquisition of past tense morphology but observed that this difference only applied to the bilinguals' non-dominant language, while acquisition in their majority language was equivalent with monolingual norms. Nicoladis and Marchak (2011) argued that such results demonstrate that bilingualism does not lead to a global language acquisition delay, and also that children's knowledge of another language can bolster their ability to take advantage of limited input.

The Critical Mass Hypothesis

Gathercole and Thomas (2009) differentiated between bilinguals according to their levels of exposure in each language and they found that consistent lags between monolinguals and bilinguals in acquisition could be attributed to reduced exposure to that language on a daily basis. They argued that this shows the need for a quantitative "critical mass" of speech in order for children to draw the necessary formal, abstract understanding from a piecemeal, item-by-item constructive approach and particularly to successfully master the later-acquired and more complex aspects of the language (see also Marchman & Bates, 1994, where the need for a critical mass of input is discussed).

In this framework, given the pre-requisite condition of a critical mass of input, any differences between older and younger children should even out by middle childhood as by then, even children with less input at home should have amassed a sufficient number of exemplars from which to distil their understanding. However, the critical mass needed to acquire features of a language varies from language feature to feature and may depend not only on the complexity of a specific feature but also on the transparency and reliability in the input.

Unsworth (2013a), Arnon and Ramscar (2012) and Gathercole (2007b) have questioned whether the child-internal capacity for acquiring the critical mass is accessible throughout the lifespan, i.e. does the critical mass theory interact with the critical period hypothesis? It is possible that if critical mass is never consolidated in a way that facilitates grammatical rules to be abstracted, that some aspects of the grammatical structure of a

given language are never successfully acquired, even for children who have an overall high proficiency in that language. Gathercole (2007b) argued that acquisition of opaque features of language may therefore be timed "off the map" (p. 241-242) of typical acquisition (see also Gathercole et al, 2014). The critical mass theory brings together language factors and input factors in a very effective way but Ambridge and Lieven (2011) nevertheless question at what point the collection of itemised constructions becomes a "critical mass" and research is required to explore this question further.

Age of onset

Monolingual and bilingual acquisition's dependence on large amounts of grammatical, clear input is rarely disputed (Blom, 2010). However, the difference between monolingualism and bilingualism is that there is a range of combinations of language use patterns possible for bilingual children acquiring two languages either simultaneously or sequentially. Age of onset of language acquisition is a key but controversial variable in explaining the rate, sequence and eventual success of bilingual acquisition (Unsworth, Argyri, Cornips, Hulk, Sorace & Tsimpli, 2014; Pearson & Amaral, 2014) and L2 learning (Montrul & Foote, 2014).

Montrul (2008) defined simultaneous bilingualism, or bilingual first language acquisition (BFLA; De Houwer, 2009; also 2L1) as when a child is exposed to two languages from birth or before the age of 3. Sequential or consecutive bilingualism refers to bilinguals who acquired their languages at different ages. Formal second language learning describes the process of subsequent languages learned as L2. Typical simultaneous bilingual acquisition begins in the home and the home remains an extremely important source of input.

For decades, theorists have debated the relative importance of the child-internal processes such as developing cognitive, social-cognitive and innate abilities and the environment for language acquisition. Simultaneous bilinguals form an interesting and relatively under-researched body of speakers for researchers seeking to understand how bilingual acquisition happens because their mind forms a natural laboratory where between-child differences can be held constant within one child and environmental influences can be explored. The language input environment of the home will be considered, following discussion of child level factors in the next section of this chapter.

Child level factors in acquisition

A range of child and family-level factors have been identified as impacting on children's language development. Child level factors which affect language development include intelligence, birth order (see Hoff, Welsh, Place & Ribot, 2014; Hart & Risley, 1999), sibling usage patterns (see Barron-Hauwaert, 2011) and socio-economic status (SES). Socio-economic status (SES) is a major aspect of the child's early experience which has been acknowledged to have a significant influence on intellectual development since the seminal research of Hart and Risley (1995), and to influence the rate of language acquisition. The body of research which has considered SES as a variable of language experience and input in crosslinguistic research is quite small, which Gathercole, Kennedy and Thomas (in press) emphasise is further complicated by the difficulty of separating effects of bilingualism from effects of SES. Thordardottir (2011) also found that SES exerts an influence on language acquisition but does this in part by systematically affecting the amount of language input that children receive. Scheele, Leseman and Mayo (2010) have shown that children in higher SES receive more input and also the 'right' kind of input needed for successful acquisition: high SES children were more likely to participate in home literacy activities such as shared book reading, and therefore benefited from the rich vocabulary, complex sentences and semantically connected discourse characteristic of adults and children engage in when reading together.

Gathercole et al (in press) examined cognitive measures and measures of receptive vocabulary and grammar for differences according to SES and the results were quite mixed. SES did not account for the greatest portion of the variance for any age group on the measure of Welsh vocabulary, though it did predict some of the variance for the four year olds, the five year olds and the teens. For each of these age groups language background was the stronger predictor of variance. Thus SES interacts with other aspects of language acquisition experience, such as quantity and qualities of the input, to influence acquisition.

Language input environment in the home

There is a range of combinations of language use patterns possible in the diverse context of the bilingual home, depending on whether or not both parents speak both of the languages the child is being raised with, which language each individual parent (or other caregiver) speaks with the child and the language(s) the parents/ caregivers speak with each other (see De Houwer, 2009; Caldas, 2006; Cruz-Ferreira, 2006).

De Houwer (2009; 2007) conducted studies of the outcomes of parental language presentation patterns and found that the one-parent one-language pattern resulted in successful productive acquisition of both languages by the child in approximately 75% of families. Parents who spoke both languages, and mostly the minority language in the case of situations where one of the languages was the minority language, had a slightly better (approx 80%) chance of raising bilingual children (see also Yamamoto, 2001). The One Parent One Language strategy, previously regarded by Muller (1998) to be a necessary condition for the successful acquisition of two differentiated language systems, has been shown in some studies not to provide sufficient input for a child to acquire a minority language that is not well represented in the greater society, as was shown by Macleod, Fabiano-Smith, Boegner-Pagé and Fontolliet (2013) in a study of French-German bilingual pre-schoolers in a predominantly French-speaking area of Canada. Pearson and Amaral, (2014) and Caldas (2006) found that minority language use in the home does not automatically lead to children's active use of the minority language and the effects may be more significant in acquisition and maintenance of a minority language.

Grosjean (2010) describes an alternative strategy, which is the "one-language- first" strategy, which Bangma and Riemersma (2011) pointed to as being particularly useful in a minority language context. Using this strategy, caregivers ensure that all contact the child has with primary caregivers, other family members, friends and the media is through the medium of the minority language. Following the early monolingual acquisition of the minority language, the majority language will be acquired with ease. However, Bangma and Riersma (2011) caution that this strategy is most successful when the family has access to a large minority language speaking community where the child can receive input from extended family and peers in that language, which is not compatible with the communities in which speakers of many minority languages, lesser-spoken indigenous languages in particular, live.

Smith Christmas (2014) drew attention to the need to consider language planning policies at the level of the family in studying minority languages. She considered the family language policy (FLP) in the context of an extended bilingual Gaelic-English family on the Isle of Skye, Scotland. She discussed the risk of 'talking language shift into being' (Gafaranga, 2011), which can happen if parents capitulate to children's preference for the majority language. In this study, the grandmother and mother in the family resorted to a 'dual-lingual paradigm', whereby they consistently spoke Gaelic and other family members consistently

spoke English (all members of the family could understand both languages). This appeared to exert greater pressure on the Gaelic speakers, which they found "demoralising" (p. 515). The lack of support from other adult family members increased their isolation: most of the father's uses of Gaelic occurred in disciplining the children, which the author speculated would not strengthen the children's positive associations with Gaelic. Paradis (2011a) and Grosjean (2010) have observed that children's sensitivity to input factors in terms of acquisition of specific features is greater for minority languages than for majority languages. The results of Smith Christmas (2014) and others such as Wong Fillmore (2000; 1991) go one step further, and demonstrate the very significant effect of family language attitudes and choice of language use policies in the home can have on acquisition.

Input from a non-native speaker parent

Paradis (2011b), Place & Hoff (2011) and Gathercole, Thomas, Williams & Deuchar (2007), have also considered the effects of parents speaking a language that is an L2 for one or even both parents, such as in the context of minority language use in language revitalisation contexts or majority language use by newcomers in a country in which the majority language is not the family's L1, leading to extensive non-native input for the child.

Place and Hoff (2011) considered the influence of parental language input in their L2 for the L1 acquisition of the child. They found that children with a native English speaking mother had larger vocabularies in English than children with two non-native English speaking parents, which they interpreted as evidence that non-native input is a negative predictor of language skill. However, they cautioned that a number of limitations limited the inferences that could be drawn in relation to the effects of extensive non-native input on language acquisition. Hoff et al (2014) suggested that native speaker input was more valuable to children for acquisition than non-native speaker input, but were also cautious not to extrapolate too much from a body of research that is still small.

In a study of L2 speakers of English among newcomer families to Canada, Paradis (2011b) did not find that English use in the home was a significant predictor of children's English vocabulary or morphological development. She speculated that, as the mothers were L2 speakers of English who did not rate their own English highly, input in English from them did not accelerate the child's acquisition. She cautioned against encouraging newcomer families to use the L2 as much as possible, given its possible low value for the children, together with evidence by Montrul (2008) and Wong Fillmore (2000; 1991) that early onset

of L2 acquisition and L2 use at home could undermine maintenance of the L1. The results to date seem to point to native speaker input being more valuable than non-native input for the child's language experience in acquiring their L1. The next section focuses on issues that are particular to acquisition of a heritage language.

Heritage speakers

Discussion of qualitative difference in input and language experience is particularly relevant to heritage language speakers. Valdés (2005) described a heritage speaker as a language speaker who speaks a non-majority language in the home and whose proficiency may vary from developed to receptive proficiency only. Heritage speakers may be born into an environment in which the dominant language is a language other than their L1 or relocate into such an environment, which can often lead to a significant shift in their language use. A significant amount of research has been conducted by Montrul and colleagues (see Montrul, 2008) on Spanish heritage speakers in America.

Heritage speakers typically begin acquisition at birth and should therefore be similar to monolingual speakers and simultaneous bilinguals, given Unsworth et al's (2014) and Pearson and Amaral's (2014) emphasis on the importance of age of onset in explaining the rate, sequence and eventual success of bilingual acquisition. However, the language-learning experience, i.e. the context, quantity and quality of the input and opportunities for language use, of heritage speakers is very different from monolinguals' acquisition trajectory. Montrul (2008) has shown that heritage speakers do not follow the acquisition trajectory of monolingual speakers of that L1, and therefore age of onset cannot be the primary predictor of successful acquisition.

Montrul, Foote and Perpinán (2008) compared the errors made by Spanish second language (L2) learners and heritage speakers in marking gender agreement. Alarcón (2011) found that grammatical gender is acquired between 3 and 4 years of age in children acquiring Spanish as their L1, but in Montrul et al's (2008) study, both the bilinguals and the L2 learners showed more laboured acquisition. Here, bilingual-bilingual comparisons within the same language shed light on the heterogeneity of bilinguals and the impact this has on sequence, speed and eventual success of bilingual acquisition. Montrul et al (2008) concluded that the errors made by both groups of speakers were due to a masculine default strategy and the existence of a masculine default has been asserted for a number of other languages (Boloh & Iberon, 2013). This issue will be returned to in Chapter 7.

Studies of heritage speakers of Bulgarian (Slavkov, in press), Russian (Polinsky & Kagan (2007), Portuguese (Flores, 2015) and Cantonese (Wong Fillmore, 2000, 1991) also exist. Polinsky and Kagan (2007) found that, in the case of Russian which has a very complex case-marking system, heritage speakers do not successfully acquire complete mastery of the system and instead substitute it with their own simplified system.

Some studies of heritage speakers' L1 and L2 acquisition have informed theories of incomplete acquisition and subtractive bilingualism. Examination of later language acquisition is necessary for complex features with protracted trajectories of acquisition, in order to follow these trajectories to their end. However, Montrul (2008) has argued that the end of the acquisition trajectory is not always successful acquisition, and that incomplete acquisition and attrition may also be possibilities.

Meisel (2007) proposed that if a child simultaneously acquiring two languages from birth were to achieve only partial grammatical acquisition (where one language emerged as the weaker language) that this is evidence of deficiencies in the critical period hypothesis: irrefutable evidence against child-internal maturational restraints as the *only* predictor of successful bilingual acquisition (given that acquisition of both languages started at the same time). Blom (2010) demonstrated that the less-dominant language of 2-3 year old Turkish-Dutch bilinguals can also have grammatical and lexical weaknesses, for example underutilisation of verbs and difficulties in establishing the relation between grammatical subjects and finiteness in Dutch, which initially appeared to be evidence of incomplete acquisition. However, the authors argue that the bilinguals did not make errors associated with L2 learners, which they attributed to language exposure and input: the bilinguals lagged behind monolingual norms in their non-dominant language in terms of rate of acquisition but did not display qualitatively different acquisition patterns. Nance (2013) disputed the functionality of the concept of 'incomplete acquisition'; speakers may have fully acquired the language to the extent they need and this also affects the speech sounds they use to achieve this communication.

An alternative possibility is that acquisition is complete but may undergo language attrition, which Landry and Allard (1985) called subtractive bilingualism. Previously successfully acquired features of a given language may be overridden by alternative options in the L2, leading to attrition in the L1. Attrition could be demonstrated if older bilingual children were showing a non-pathological decline in their accuracy as compared to the high proficiency they exhibited earlier in life, as claimed by Anderson (1999) and which Tsimpli,

Sorace, Heycock and Filiaci (2004) found evidence of in their examination of the distribution and interpretation of overt pronominal subjects.

Montrul and Foote (2014) argued that if speakers' L1 is not fully developed before they are exposed to the more dominant L2, which is often the case for heritage speakers who move to a new country at a young age, they are vulnerable to language convergence in this high contact context, which then makes them more susceptible to language attrition, particularly in lexical access. Montrul and Potowski (2007) drew attention to the finding that a major shift in majority language use can lead to a decline in the critical mass needed to acquire the more complex aspects of the minority language. The language may never be completely acquired in childhood and may stabilise in an incomplete state in adulthood, and/ or experience attrition (also see Bianchi, 2013). This study by Montrul and Potowski (2007) was cross-sectional, which prevents conclusive inferences from being drawn.

Flores (2015), on the other hand, conducted a longitudinal study of attrition in an individual Portuguese-German child's L2 (German) following the family's return to Portugal. The author found that by 18 months without regular exposure to German, the child's German had undergone attrition in all aspects of language examined by the author, though not all aspects of language underwent attrition at the same rate. Furthermore, the author noted that in no case was there total loss of knowledge. Indeed, Bianchi (2013) found that intensive exposure to the previously weaker language can activate the target-like use of features of language previously incompletely acquired.

Pires and Rothman (2009) propose missing surface competence divergence as an alternative possibility, and this is based on features of the input. Heritage speakers whose input does not contain a specific feature will not be triggered to acquire that feature. They studied dialectally different heritage speakers of European Portuguese and Brazilian Portuguese, both groups of whom had acquired their two L1's (English and Portuguese) while living in the USA. They accentuated the value of heritage speakers in tracking language change: "Linguistic properties that have been lost from colloquial grammars (instantiated primarily in spoken registers) are sometimes partially maintained in standard dialects (evident primarily in written language), masking on the surface a more dynamic situation of linguistic change" (p. 214-215). The study of heritage speakers has shed some light on this question and further research has implications for theories of the impact of age of onset on language acquisition, as well as the stability of critical mass and vulnerability to attrition once consolidation appears to have happened.

Conclusion

Crosslinguistic research has contributed very significantly to our understanding of what is universal and what is language specific in the acquisition of typologically similar and dissimilar languages. This has led to greater recognition, in some quarters at least, of the fact that features of the language, aspects of the input and the child's own developing cognitive abilities intertwine as the child constructs her own language according to what she needs to be able to communicate with others.

It is now largely accepted in usage-based theories that achieving L1 proficiency requires more time than is available from birth (or before) until the age of 5, and had also been emphasised by Slobin: "Linguistic forms may emerge in childhood, but full realisation of their rhetorical functions has a long developmental history" (Berman & Nir Sagiv, 2009, p. 150; paraphrasing Slobin). Later language development is comparatively slower and more subtle than the rapid and salient acquisition of infants and pre-school children, particularly later syntactic development. Rhys & Thomas (2013) observed that the child's ability to multiply their lexicon four-fold across the lifespan facilitates and is facilitated by equally gradual and ongoing semantic, pragmatic and literacy development. Neverthless, Unsworth (2013b) and Berman (2007) observed that later acquisition remains relatively under-researched compared to the significant body of work exploring early monolingual and multilingual language acquisition, despite evidence of protracted trajectories of acquisition for complex features of language and the need to examine later acquisition of these features to follow these trajectories to their end.

Rather than being burdensome or disruptive to development, it has become clear that bilingualism is a demonstration of the human capacity for language acquisition (Genesee, 2001). Recent research has shown less emphasis on monolingual-bilingual comparisons and more bilingual-bilingual comparisons which take more into account differences in language input and experience. This emphasis on bilingual-bilingual comparisons is supported by De Houwer (2009), Thomas and Gathercole (2007), Oller and Eilers (2002), Montrul, de la Fuente, Davidson and Foote (2012) and Gruter and Paradis (2014), among others. Bilinguals form an extremely heterogenous and fluid group due to differences in age of acquisition, language preference, language proficiency and context of acquisition; as put by Gathercole (2014), "one size does not fit all" (p. 359).

AIMS OF THE RESEARCH

The aim of this research is to explore the impact of differences in language background and age on the acquisition and use of gender marking and vocabulary in Irish, an endangered minority language. The five studies in this research had aims radiating from this central aim.

Adult Study 1: Current usage of grammatical gender among adult proficient Irish speakers

No study of Irish to date has examined the use of the same feature by child and adult speakers in investigating the impact of language experience on acquisition. Following Bowerman's (1985) admonition regarding the need to "study the actual input, not our idea of it" (p. 1265) Adult Study 1 tested adult performance on tests of grammatical gender, collecting data from proficient Irish speakers who reported that they are regular users of Irish, thereby forming part of the pool of speakers who provide input to children acquiring Irish. The primary aim of Adult Study 1 was to examine adult performance in marking grammatical gender in three contexts: following the definite article, in noun-adjective combinations and in marking third person possession on animate and inanimate nouns. Differences according to language background and age were considered. A secondary aim was to explore the strategies used by speakers in these contexts of grammatical gender use. The research questions addressed in Adult Study 1 are:

1. Do proficient adult speakers mark grammatical gender accurately in productive use as measured by a written test?
2. Does accuracy differ for specific functions of grammatical gender?
3. Do proficient adult speakers use a strategy in assigning grammatical gender?

Adult Study 2: Attitudes towards Irish among adult speakers

The second adult study aimed to explore the attitudes and experiences of native and L2 speakers of Irish, with particular attention to their views on authenticity, accuracy, ownership and authority. The power distributions among native and L2 speakers were considered in seeking to understand the dynamic and multi-faceted experience of being a speaker of an endangered minority language. The research questions addressed in Adult Study 2 are as follows:

1. How do native and new speakers of Irish view their own accuracy?
2. What are the new and native speakers' views of language ownership and authority?

Child Study Part 1: Acquisition of grammatical gender

The Child Study adopted a multi-rater, multi-measure approach to achieve a triangulated exploration of Irish acquisition in middle childhood. Child Study Part 1 aimed to assess the receptive and productive performance of children aged 6 – 12 years on tests of Irish gender marking and possession. The assessment of gender marking required the development of specific tests to assess receptive and productive control of grammatical gender in children aged between 7 and 12 years. In addition to age, and in light of the sociolinguistic context, detailed consideration was given to the child's language background. This was explored in conjunction with other relevant background variables including language input in school, parents' and teachers' language background (including proficiency). The research questions addressed in the Child Study Part 1 are as follows:

1. Are there differences between children from different language backgrounds and at different ages in their accuracy in receptive understanding of and productive marking of gender?
2. Does accuracy differ for specific functions of grammatical gender?
3. Are there differences in children's accuracy in marking animate and inanimate nouns?
4. Are there differences in children's accuracy in marking masculine and feminine nouns?
5. Do children use a strategy in assigning grammatical gender?

Child Study Part 2: Acquisition of vocabulary

The aim of Child Study Part 2 was to examine acquisition of Irish and English vocabulary by children from different language backgrounds, ages and school types. Examination of development in both Irish and English was necessary as the participants were bilinguals of varying exposure to English and Irish. The research questions addressed in the Child Study Part 2 are:

1. Are there differences between children on measures of Irish and English vocabulary?
2. Are parent and teacher ratings of children's Irish and English proficiency in line with actual performance on a measure of Irish vocabulary and a measure of English vocabulary?

Child Study Part 3: Picture description task

This study aimed to collect data which would allow participants to be compared in relation to their ability to use language productively. A series of pictures was used to elicit a natural

language sample which was assessed for fluency and lexical diversity (but not narrative coherence). The second aim of the study was to examine spontaneous use of the features under scrutiny in the previous chapter, i.e. grammatical gender following the definite article, in noun-adjective combinations and in marking third person possession, were used in natural speech. These data complement the data analysed in Chapter 7 as they were generated in a less formal context and are more representative of normal use of these features. The research questions addressed in Child Study Part 3 are:

1. Are there differences among children from different language backgrounds and at different ages in their picture descriptions?

2. Can children from Irish Dominant Homes mark grammatical gender accurately in elicited speech?

Chapter 2 Acquiring grammatical gender and the Irish gender system

OVERVIEW OF THE CHAPTER

The acquisition of grammatical gender is considered in this chapter. First, the formal rule system of assigning gender to nouns in Irish and marking this gender morphosyntactically is outlined. Then the results of studies which have examined early and later L1 acquisition of grammatical gender are discussed. The discussion centres on factors which affect the rate of acquisition, including the complexity of the system, the function grammatical gender serves and the influence of language experience in bilingual acquisition.

The acquisition of Irish offers an interesting case for examination as its grammatical gender system is opaque and undergoing change due to convergence compared to other languages which mark grammatical gender. Due to a number of factors, including the complexity of the Irish system in gender assignment, in marking output and in the cues available (all of which will be discussed further), it is hypothesised that in Irish, an extended period of acquisition is required for successful acquisition of the grammatical gender system.

GENDER ASSIGNMENT

Most Indo-European languages mark gender to some extent. English has natural gender, which means that gender is semantically marked on nouns that refer to humans (Corbett, 2006). 'Father' is a masculine noun because it refers to a male human and 'mother' is a feminine noun because it refers to a female human. Languages which have grammatical gender typically categorise both animate and inanimate nouns into a number of classes based on information other than the sex of the nouns' referent (Corbett, 2006; Thomas, 2000). Spanish, Welsh, Dutch and Irish are among the languages which have two gender classes (masculine and feminine in the cases of Spanish, Welsh and Irish, and common and neuter in the case of Dutch). German and Russian are examples of languages which have three gender classes (masculine, feminine and neuter). Corbett (2006) provides an account of the grammatical gender systems of many more diverse languages, some of which have up to 20 different noun classes depending on the dialect, for example Fula, a Niger-Congo language.

Gender assignment in Irish

Frenda (2011a, 2011b) conducted a linguistic analysis of the Irish gender system, noting that Irish noun gender assignment is inherent in the noun at the lexical level. Gender is semantically motivated in the case of animate nouns, based on their biological sex, whereas for inanimate nouns it is assigned in a grammatical and semantically arbitrary way. Ó Siadhail (1984) observed that semantic gender is highly predictable In Irish, but with some notable exceptions such as are *cailín* ('girl', semantically feminine but grammatically masculine) and *stail* ('stallion', semantically masculine and grammatically feminine). Pronouns are marked for subject and object case, and agree semantically while noun-phrase internal features agree syntactically.

Frenda notes that "certain morphological and/or phonological features of Irish nouns permit, more or less reliably, [prediction of] their gender, and it is common to describe gender assignment in terms of inflectional paradigms" (2011b, p. 114-116). Traditionally, Irish nouns have been divided into five declensions (Ó Dochartaigh, 1992; Mac Eoin, 1993; New Irish Grammar [NIG], 2004, Frenda 2011), distinguished by the forms of the nominative and genitive singular. Table 2.1 is taken from Frenda (2011b).

Table 2.1 Noun Declensions in Irish (from Frenda, 2011b, p. 115)

Decl.	Ending		Gender	Example	Gloss
	Nom. sg.	**Gen. sg.**			
I	C	C'	m. only	crann, crainn	tree
II	C or C'	C' +/ə/	f. only	cearc, circe	hen
III	C or C'	C + /ə/	m. and f.	dochtúir, dochtúra	doctor
IV	/i:n'/ or V	= nom. sg.	m. and f.	buille	stroke
V (a)	/l', r', n'/	/l, r, n/ (+ /əx/)	mostly f.	riail, rialach	rule
V (b)	V	V (+ /n/ or /d/)	mostly f.	pearsa, pearsan	person

Table 2.1 shows that nouns in the first declension are masculine and nouns in the second declension are feminine, exclusively, and most fifth-declension nouns are also feminine. Within the third declension, it is possible to tell masculine from feminine nouns on a morphological or phonological basis (number of syllables and shape of word ending; NIG, 2004): nouns ending in the agentive suffixes <-aeir> /ər'/, <-eoir> /o:r'/ or <-éir> /e:r'/ are masculine (e.g. *rinceoir* 'dancer'); polysyllables ending in <-acht> or <-ocht> /əxt/ are feminine; monosyllables tend to be feminine if they end in a palatalized consonant, and masculine if they end in a non-palatalized one.

In the fourth declension, nouns ending in <-ín> /iːn'/ are normally masculine, except when <-ín> is used as a diminutive, in which case the gender of the lexical primitive is retained, e.g. *beainín* `little woman' (*bean* `woman', feminine; Ó Siadhail, 1989). If the derived noun is not a diminutive of the base, its gender will be masculine, e.g. *céirín* (masculine)`poultice' (*céir* `wax', feminine).

Particularly pertinent to the gender system is the fact that, in contemporary spoken Irish, the marking of the genitive has been reported by Hughes (1994) and Ó hUiginn (1994) to have become rare in all dialects, although it is still obligatory in the *Caighdeán* or Standard written language. Since the five declensions cannot be kept distinct in the absence of genitive marking, Frenda (2011b) argued that the total collapse of the case system would make morphological gender assignment no longer possible, and claimed that there are indications that phonology-based gender re-assignment may be underway in some native varieties.

In sum, gender assignment in Irish is heavily dependent on the declension of the noun. The suffix of the noun is the most salient cue to the declension in which a noun belongs. This is not a strong cue as there are many suffixes which are characteristic of either feminine or masculine gender, and exceptions in most cases.

Irish grammars have devoted considerable effort to outlining the basis for gender assignment for inanimate nouns. The following is an excerpt from Ó Siadhail's (1989) exposition, in which he outlines the general principles of Irish gender assignment.

> "There is no absolute rule for determining gender. There are, however, some general principles:
> 1. Nouns describing males (of humans and, where the distinction is made, of animals), e.g. *Máirtín* (man's name), *uncail* (uncle), *tarbh* (bull), and occupations originally associated with males, e.g. *sagart* (priest) are all masculine
> 2. Nouns describing females, e.g. *Cáit* (woman's name), *bean* (woman), *cearc* (hen). and names of countries and languages, e.g. *Éirinn, Gaeilge* are almost all feminine.
> 3. Otherwise, nouns ending in a broad consonant tend to be masculine, e.g. *gasúr* (child) and ending in a slender consonant are feminine, e.g. *muintir* (people).
> 4. Apart from those general principles:
> a. Nouns with the following endings are consistently masculine: -án, -ín, -úr, -ún, -as, -ar, -(ái)ste, -óir/-eoir, -aire, -éara, -aí, -adh, -amh, -a (with two syllables, e.g. *cóta*), -ach (derived from noun, e.g. *Éireannach*), -cht (with one syllable)
> b. Nouns with the following endings are consistently feminine: -óig/-eoig, -áil, -aíl, -acht (more than two syllables e.g. *Gaeltacht*), -ach (mass nouns), -seach".

Not all suffixes are included in the lists above as they are not consistently associated with either masculine or feminine gender. Clearly, while there are some patterns or regularities in the system that stem from either phonological cues (e.g. final consonant) or morphological

cues (agentive suffix), there is also a great deal of 'noise' in the system. While children do have a cue to noun gender assignment in the form of the suffix of the noun, the range of suffixes to be aware of is relatively greater than in languages like Spanish and Italian. How nouns are marked for grammatical gender is discussed in the following section.

Marking grammatical gender

Languages with grammatical gender require morphosyntactic concord across the elements of the sentence (Gathercole, 1995) but there are between-language differences in which specific elements must be marked. The following two French examples demonstrate this agreement according to gender on the definite article and the adjective:

1. **Le** grand magasin
   The big shop
2. **La** grand**e** maison
   The big house

In French, the definite article *le* is used for masculine nouns and *la* is used for feminine nouns. Secondly, agreement is required on the adjective. In the case of *le grand magasin*, the adjective stem *grand* does not change. However, in the case of *la grande maison*, the adjective is inflected through the addition of –e in order to achieve agreement with the feminine noun it describes.

Marking grammatical gender in Irish

Irish is somewhat unusual among the languages which have a grammatical gender system as gender is not marked on the definite or indefinite article (the same is true of Welsh): instead gender in Irish is marked using initial mutations, a set of morphophonological changes to the initial phoneme of words depending on the morphosyntactic context (Hickey, 2012; 1990a). These initial mutations have been discussed in Celtic languages, including Welsh (Gathercole & Thomas, 2005) and Irish (Hickey, 2012; 1990a; Hickey & Stenson, 2011; R. Hickey, 2011). Various particles, such as definite articles, possessives, questions, prepositions and negative particles, govern the initial consonant of words (see Stenson, 1981).

In Irish, initial mutations are applied in one of four ways: lenition, eclipsis, /t-/ prefixing and /h-/ prefixing. The following outline draws on Hickey (2012) and Stenson and Hickey (forthcoming 2016). Lenition is an inflectional affix applied to the initial phoneme of a noun whereby stops and the nasal [m] are replaced by fricatives usually agreeing in articulation, and fricatives are treated as follows: [f]+O, [s]+[h]. Orthographically, this is

marked by the letter 'h' following the lenited consonant (e.g. *cóta* 'a coat' *mo chóta* 'my coat'). Of the 13 consonants used in Irish, only b, c, f, g, m and p can be lenited (see Hickey and Stenson, 2011). While it is phonetically possible for d and t to be lenited, they tend not to be lenited in many contexts (Frenda, 2011b), and it is not possible for h, l, n, or r to be lenited, and /s/ initial nouns are marked idiosyncratically following the definite article. With eclipsis, a voiced segment becomes nasalized, a voiceless segment voiced, marked orthographically by writing the eclipsing consonant before the eclipsed one (e.g. *gort* 'a field' *i ngort* 'in a field'). Eclipsis is used to achieve agreement in some contexts of grammatical gender marking following the definite article and in marking third person possession. Vowel-initial and /s/ initial nouns are marked for grammatical gender through the use of /t-/ prefixing, and for third person possession through the use of /h-/ prefixing.

Table 2.2 from Stenson and Hickey (forthcoming, 2016) summarises the phonetic changes brought about by lenition and eclipsis in Irish, and shows how each mutation is represented orthographically.

Table 2.2 Initial mutations in Irish (from Stenson and Hickey, forthcoming, 2016)

	Voiceless stops	**Voiced stops**	**Fricatives**
Lenition	\<p \>→ \<ph> /f/	\<b>→ \<bh>/v/, /w/[1] \<m>→ \<mh>/v/, /w/	\<f> → \<fh> (silent)
	\<t>→ \<th> /h/ \<c>→ \<ch> /x/	\<d>→ \<dh> /ɣ/ \<g>→ \<gh> /ɣ/	\<s>→\<sh> /h/
Eclipsis	\<p>→ \<bp> /b/ \<t>→ \<dt> /d/ \<c>→ \<gc> /g/	\<b>→ \<mb> /m/ \<d>→ \<nd> /n/ \<g>→ \<ng> /ŋ/	\<f>→ \<bhf > /v/, /w/ \<s>→ \<ts> /t/

1. The choice between /v/ and /w/ depends partly on dialect and partly on consonant quality. In dialects north of the Shannon, the lenited broad consonant is phonetically closer to /w/ than to /v/.

Contexts of use

Lenition is used on nouns when marking grammatical and semantic gender, possession, the genitive, quantity, following some prepositions, and when counting. This section outlines its use in three contexts of grammatical gender: following the definite article, in noun-adjective combinations and in marking third person possession.

When used to signal grammatical gender following the definite article, the unmarked masculine noun is the default and the feminine noun is lenited:

Teach (house; masc) → *an teach* (Det N masc)

Fuinneog (window; **fem**) → ***an fhuinneog*** (Det N fem - <u>lenited</u>)

In the case of /s/-initial nouns, the masculine remains the unmarked default, while /t-/ prefixing is used to mark feminine /s/-initial noun gender following the definite article, marked orthographically as follows:

Sionnach (fox, masc) → *an sionnach* (Det N masc)

*Sráid (*street, **fem**) → ***an tsráid*** (Det N fem - /t-/ prefixed)

The rule is reversed in the case of vowel-initial nouns, where it is feminine nouns that are unmarked, while /t-/ prefixing is applied to masculine vowel-initial nouns following the definite article, marked orthographically with a /t-/ prefix:

Uisce (water, **masc)** → ***an t-uisce*** (Det N masc - /t-/ prefixed)

Ubh (egg, fem) → *an ubh* (Det N fem)

Noun Adjective Combinations

When a consonant-initial adjective follows a singular feminine noun in the noun phrase, agreement is required, and the initial phoneme of such a (consonant-initial) adjective is also subject to lenition (Frenda, 2011a; Hickey, 2012):

Teach (house, masc) + *bán* (white) → *an teach bán* (Det N masc and adj)

Fiacail (tooth, **fem**) + *bán (*white*)* → ***an fhiacail bhán*** (Det N fem and Adj-lenited)

Vowel-initial adjectives do not undergo any mutation, resulting in gender being marked only on the preceding feminine noun. When a masculine vowel-initial noun (which undergoes /t/-prefixing when preceded by the definite article) is followed by a consonant-initial adjective, the adjective does not change, as shown below. Thus, some complexities emerge, as when a feminine vowel-initial noun (which does not change when preceded by the definite article) is followed by a consonant-initial adjective (which *does* undergo lenition when preceded by a feminine noun).

Uisce (water, **masc**) + *bán* → ***an t-uisce bán*** (Det N masc and Adj)

Ubh (egg, **fem**) + *bán* → ***an ubh bhán*** (Det N fem and Adj - lenited)

Possessive Marking

Lenition is not uniquely used to mark feminine noun gender, but is also used to mark masculine third person possession. Third person possession in Irish uses a gender-neutral possessive pronoun 'a' (<a X> 'his X' or 'her X'), and following this, it is the feminine that is the unmarked case, while lenition is applied to the consonant-initial possessed noun

(regardless of its gender) to signal masculine third person singular possession. Thus, lenition in Irish marks both feminine grammatical gender after the article and masculine third person singular possession (*inter alia*). In marking possession, lenition is applied to consonant-initial nouns possessed by masculine singular possessives as follows:

> *Seán* (**masc**) + *cóta* (coat) → ***a chóta*** (masc possessive + N - <u>lenited</u>) **'his coat'**

> *Máire* (fem) + *cóta* (coat) → *a cóta* (fem possessive + N) 'her coat'

This rule is also applied to all /s/ initial nouns:

> *Seán* (**masc**) + *sionnach (fox)* → ***a shionnach*** (masc poss + N - <u>lenited</u>) **'his fox'**

> *Máire* (fem) + *sionnach* (fox) → *a sionnach* (fem possessive + N) 'her fox'

The final exceptional case is marking third person possession on vowel-initial nouns. This is achieved through /h-/ prefixing on vowel-initial nouns possessed by a feminine singular noun as antecedent, thereby reversing the pattern and making the unmarked default the masculine possession of such nouns:

> *anam* (soul) + *Seán* (masc) → *a anam* (masc possessive +N) 'his soul'

> *anam* + *Máire* (**fem**) → ***a h-anam*** (fem possessive + N - <u>/h-/ prefixed</u>) **'her soul'**

In conclusion, it is evident that grammatical gender marking in Irish is complex and opaque. Lenition is applied to only half of the initial consonant sounds. Following the definite article, feminine consonant-initial nouns are lenited and masculine consonant-initial nouns are not. However, in the case of /s/ initial nouns, /t-/ prefixing is applied instead of lenition. Furthermore, in the case of vowel-initial nouns, it is the *masculine* vowel-initial nouns which are marked after the article, also with /t-/ prefixing, and such feminine vowel-initial nouns are not marked after the article. Complexities arise in noun-adjective combinations, since only consonant-initial adjectives following feminine nouns are lenited, but no change is applied to vowel-initial adjectives after feminine nouns, or to consonant-initial adjectives after masculine nouns.

This opaque system is further complicated by plurifunctionality. The pattern whereby lenition is used to mark grammatical gender on feminine nouns following the definite article is reversed in the context of third person possession marking, where lenition marks third person *masculine* possession. Thus, for third person possessives, consonant-initial nouns possessed by masculine nouns undergo lenition (regardless of the gender of the possessed noun) and consonant-initial nouns possessed by feminine nouns are unchanged.

This rule is re-reversed in the case of vowel-initial nouns: vowel-initial nouns possessed by feminine nouns are subject to /h-/ prefixing (again regardless of the gender of the possessed noun) and vowel-initial nouns possessed by masculine nouns are unchanged. Table 2.3 presents a summary of the marking in these contexts.

Table 2.3 Summary of mutations used to mark grammatical gender

1. Following the definite article:		
a) Consonant-initial feminine nouns		
Teach (house; masc)	an teach (Det N masc)	-
Fuinneog (window; fem)	an f<u>h</u>uinneog (Det N fem)	Fem. MARKED
b) /s/ initial feminine nouns		
Sionnach (fox, masc)	an sionnach (Det N masc)	-
Sráid (street, fem) →	an <u>t</u>sráid (Det N fem)	Fem. MARKED
c) Vowel-initial masculine nouns		
Uisce (water, masc)	an <u>t</u>-uisce (Det N masc)	Masc. MARKED
Ubh (egg, fem)	an ubh (Det N fem)	-
2. In noun-adjective combinations		
a) Consonant-initial nouns + Consonant-initial adjectives		
Teach and bán (white)	an teach bán (Det N masc and adj)	-
Fiacail and bán	an f<u>h</u>iacail b<u>h</u>án (Det N fem and adj)	Fem N Adj MARKED
b) Vowel-initial nouns and Consonant-initial adjectives		
Uisce bán	an <u>t</u>-uisce bán (Det N masc and adj)	Masc N. MARKED
Ubh bán	an ubh b<u>h</u>án (Det N fem and adj)	Fem Adj MARKED
3. To mark 3rd person possession		
a) Consonant-initial noun		
Cóta (coat) and Seán (masc)	a c<u>h</u>óta (masc possessive and noun)	Masc poss. MARKED
Cóta (coat) and Máire (fem)	a cóta (fem possessive and noun)	-
b) /s/ initial noun		
Sionnach and Seán (masc)	a s<u>h</u>ionnach (masc possessive and noun)	Masc poss. MARKED
Sionnach and Máire (fem)	a sionnach (fem possessive and noun)	-
c) Vowel-initial noun		
Uisce and Seán (masc)	a uisce (masc possessive and noun)	-
Uisce and Máire (fem)	a h-uisce (fem possessive and noun)	Fem poss. MARKED

Changes in the Irish grammatical gender system

Frenda compared the accuracy of use of grammatical gender in a corpus of recorded speech by older native speakers in Ros Muc, in the Connemara *Gaeltacht* recorded in 1964, to that of a contemporary corpus of recorded speech from *Raidió na Gaeltachta*, a radio station based in the *Gaeltacht*, and *Raidió na Life* and Newstalk, two radio stations based in Dublin. In the older corpus, the speakers used the expected form of the article and/or the expected mutation with 98% accuracy for masculine nouns and 97% accuracy for feminine nouns. In the contemporary corpus, the adult speakers had 97% accuracy with the masculine nouns and 88% accuracy with the feminine nouns. The difference in accuracy scores between masculine and feminine nouns in the contemporary corpus was statistically significant, as was the difference in accuracy scores between feminine nouns in the older and contemporary corpus. Thus, it appears that the accuracy of feminine noun marking in the contemporary corpus shows significant decline over time since the 1965 recording, and that accuracy on feminine nouns declined more significantly than on masculine nouns in the contemporary corpus.

Frenda (2011a) reported the same trend for noun-adjective agreement, but the difference in accuracy was greater. In the contemporary corpus, accuracy for masculine noun-adjective combinations was twice that for feminine noun-adjective combinations. The difference was evident diachonically as feminine noun-adjective agreement was approximately twice as likely in the older corpus than in the contemporary one. Mac Eoin (1993) has also argued that lenition on the adjective is being eroded in current usage and that its use is now associated with literary Irish only (using the Standard). Frenda (2011a) attributed the differences to a generational difference between the old and contemporary corpus, but does not report differences according to the native-non-native dichotomy that likely existed between the speakers on *Raidió na Gaeltachta* (likely native speakers) on the one hand and *Raidió na Life* and Newstalk on the other (likely to be mixed with proficient L2 speakers).

It should also be noted that changes in accuracy in marking grammatical gender in Irish could be due in part to gender assignment and agreement becoming less transparent due to language-internal phonetic and orthographic processes (R. Hickey (2011). Frenda (2011a) has predicted that the total collapse of the case system (which he claims will likely happen in the absence of genitive marking) would make morphological gender assignment impossible as the only remaining cue would be the phonological correlation between gender

and consonant quality, which is not sufficiently consistent to maintain the transmission of grammatical gender. Further data are required of both comprehension and productive use of grammatical gender in current usage by adults and children in order to understand what Frenda argues is a generational difference in the use of grammatical gender.

Irish only has one definite article for both masculine and feminine singular nouns, so only the mutation or absence of mutation on the noun or adjective marks the grammatical gender of the noun. In cases where no mutation is applied, a singular masculine noun should be assumed, but this cannot be done if mutation is not being applied to feminine nouns following the definite article to provide the contrast. Grammatical gender plays an important role in reference tracking (R. Hickey, 2011), particularly in third person possession as only one pronoun *a* is used to signal both masculine and feminine possession. Without varying the mutation on the following noun, the minimal phonetic form cannot distinguish gender. Given the necessity of this feature for communicative competence, additional research is needed to examine how speakers are currently acquiring and maintaining communicative competence if this feature is no longer being used.

ACQUISITION OF GRAMMATICAL GENDER

A number of early studies of grammatical gender acquisition suggested that children acquire the system with relative ease. Mills (1986) found that monolingual German speakers had successfully acquired the system by the age of five. Muller (2000), who examined the acquisition of grammatical gender by French-German speaking bilinguals, also observed that gender was acquired with ease by them, but only on nouns in which the gender could be easily predicted from the noun ending. For less transparent nouns, these children had relatively more difficulties with acquisition of the German system, in particular the neuter gender, compared to the acquisition of the French system. Muller (2000) attributed this to differences in how gender is marked in the two languages. Therefore the results of this study demonstrate between-language differences in the ease of the acquisition of grammatical gender, in addition to within-language differences in how gender is marked on some nouns. A significant body of research has continued to question the ealier assumptions that grammatical gender is acquired with ease in first language acquisition and has demonstrated a much more protracted trajectory of acquisition evident in languages with complex grammatical gender systems (Montanari, 2014; Bianchi, 2013; Boloh & Ibernon, 2013; Arnon & Ramscar, 2012; Eichler, Jansen & Muller, 2012).

This has even been shown for monolingual speakers of languages with relatively transparent grammatical gender systems such as French (Eichler, Jansen & Muller, 2012). Boloh and Ibernon (2013) showed that acquisition of some complex features of French does in fact continue into middle childhood and indeed, into adolescence, as even 12 year old monolingual French-acquiring children were at ceiling with animate masculine nonce nouns but below chance on animate feminine nouce nouns. Blom, Polisenska and Weerman (2008) found a pattern of inaccurate overuse of the common definite article in neuter contexts, even in seven year old monolingual speakers of Dutch, though their data did also show a developmental improvement between the three and seven year olds, indicative of ongoing, prolonged acquisition of this complex system of grammatical rules. Rodina and Westergaard (2013) presented a corpus study of the acquisition of grammatical gender in Norwegian by two monolingual and bilingual speakers. The Norwegian grammatical gender system is opaque and their results show evidence of considerable problems in gender agreement, so much so that they did not find any qualitative difference between the bilingual and monolingual participants in terms of their acquisition of the opaque grammatical gender system.

Semantically Motivated Theories of Gender Acquisition

Karmiloff-Smith (1979) carried out a pioneering study of grammatical gender acquisition in French. The first theory she put forward was a semantically motivated theory (the sexus theory), whereby semantic noun gender marking is extended to encompass inanimate nouns where no semantic link exists to the assigned grammatical gender. Yet examination of the results shows that children did not depend on the semantic gender only, otherwise they would have performed with a very high level of accuracy on tests in which the semantic gender cue was the only cue available, which was not supported by her results, even with the younger age-group of children aged 3-5 years. Karmiloff-Smith effectively illustrated the need to look at acquisition beyond the age of 5 but as observed by Boloh and Ibernon (2013) may have overemphasised the existence of an age-related shift from a process based on the semantic cues among the younger children to a process based on phonological cues among the older children.

Rodina and Westergaard (2012) investigated this questions further by examining the discord between natural gender cues and phonological gender cues in real words in Russian. Some Russian nouns have competing cues of feminine morphology and masculine

semantic gender but require agreement with the semantic gender and therefore take masculine agreement (or vice versa for semantically feminine nouns). In their study, target-like use was 92.4% when choosing the appropriate determiner to agree with semantically masculine but phonologically feminine nouns. The authors emphasised the occasional phonological/ morphological cue preference but examination of the data also showed consistent accuracy among the children in choosing a semantic gender-congruent determiner. Further research is needed to explore the significance of the low number of instances in which the morphological cue was favoured over the semantic cue.

Seigneuric, Zagar, Meunier and Spinelli (2007) found that semantic/ natural gender facilitated gender assignment, even for novel words. When the authors examined strategies across the age group (3 to 9 years) they found that older children attended more to the phonological structure of the word. The authors attributed this to the older children's greater exposure to French and their developing ability to note regularities in that exposure. As Karmiloff-Smith (1979) discussed, semantic cues are useful for animate nouns, but additional information is required in the context of inanimate nouns. Prediction of the grammatical gender is frequently impossible as inanimate objects rarely carry semantic gender information: semantic gender cannot account for the acquisition of grammatical gender for inanimate nouns.

Phonological/Morphologically Driven Acquisition of grammatical gender

An alternative explanation for the emergence of formal grammatical gender is that it is motivated by language-specific morphological and phonological functions and relations, whereby children attend to patterns in the phonology and morphology of masculine and feminine noun suffixes and attend less to the semantic gender. For instance, participants in Karmiloff-Smith's (1979) study were highly accurate in their identification of noun gender when the three cues of semantic gender, definite article and gender consistent noun-suffix were available, but initially the suffix-based cue appeared strongest. Lyster (2006) claimed that 81% of all feminine and 80% of all masculine nouns in French are rule governed, whereby the suffix is an accurate predictor of noun gender, and Tucker, Lambert and Rigault (1977) had argued that this could be even higher for specific suffixes (although Thomas, 2000, alluded to some disagreement about the strength of noun suffix as a cue in French).

Mariscal (2009) demonstrated lexical distributional learning based on morphology and phonology in Spanish grammatical gender acquisition. She examined the distributional

sources of information (the other words which occur systematically with the noun) and found that the most informative item was the definite article, as *el* always occurs before masculine consonant initial singular nouns and *la* always occurs before feminine consonant initial singular nouns. The consistency of the definite article as a flexible frames (St Clair, Monaghan & Christiansen, 2010) facilitates acquisition of nouns in Spanish which occur in this frame. Mariscal (2009) also described a sublexical source of information for gender assignment, which is the regularity of noun endings in Spanish. Arias-Trejo and Alva (2012) found that even toddlers used the inflection on adjectives in agreement with nouns to infer the word reference, which points to the value of the formal regularities of gender assignment in Spanish and also to children using this cue from a very young age. It appears semantic gender can function as a strong cue to gender when this cue is available and, while children's acquisition of grammatical gender "start[s] small" (Mariscal, 2009), more and more abstract representations emerge in line with the general linguistic and cognitive development discussed by Saxton (2010) and Dabrowska (2004), and this is seen in the increasing dependence on less transparent phonological and morphological cues such as definite article and noun suffix.

However, acknowledging that language users acquire a formal grammatical gender system is not the same as accepting that this system is acquired in a formal or rule-based way. Thomas and Gathercole (2007) argued that if a language has a complex grammatical gender system, acquisition may be tackled using a piecemeal, item by item approach, as opposed to a more systematic, rule-based approach. Boloh and Ibernon (2013) proposed the masculine default hypothesis as an explanation for how children cope with the complexity of their grammatical gender system, and a similar argument was put forward by Montrul, Perpinán and Foote (2008) in relation to Spanish grammatical gender. An unmarked default could signify that speakers do have a representation of grammatical gender in their lexicon but that the language they use in on-line production does not accurately represent their receptive knowledge, as proposed by the Missing Surface Inflection Hypothesis (MSIH; Haznedar, 2003; Prévost & White, 2000). For instance, Royle and Valois (2010) examined the acquisition by French L1 children aged 3-5 years of variable gendered adjective forms, in which gender is marked for agreement with feminine nouns and not when in combination with masculine nouns. The authors found that children had more difficulty in the acquisition of feminine adjective forms than masculine, and they attributed this to the feminine nouns

competing with the masculine nouns, which were retrieved more easily by children by virtue of being the unmarked default.

The alternative, that speakers do not have a representation of grammatical gender in their lexicon, is not usually considered by researchers in languages with clear grammatical gender systems such as French and Spanish. The following consideration of how the complexity and function of grammatical gender interact with acquisition of that system will illustrate why it is expected that children acquiring grammatical gender in Irish will do so using a piecemeal, item by item approach.

Complexity as a predictor of rate of acquisition

Tsimpli (2014) examined the evidence regarding grammatical gender acquisition in monolingual and bilinguals in a number of languages. She argued that reduced input does not always delay acquisition, citing Paradis & Genesee (1996) and Unsworth (2013a), who showed that children acquiring two languages simultaneously appear to reach linguistic milestones without significant delay, even though the amount of input they receive in each language is much lower than monolingual children's. Tsimpli's comparison of the acquisition of grammatical gender showed that it can be relatively early in Greek, Spanish and French; although tests using novel nouns indicate that this is based on phonological aspects of the gender feature rather than syntactic cues for gender assignment. Noting the very late acquisition of grammatical gender in Dutch (after age 7; see Blom et al, 2008, as cited above), she attributed this to the dearth of cues to gender in the input and the current flux in the Dutch gender system, which necessitates lengthy exposure to input before acquisition. She argues that it is also differences in the amount of input needed that account for differences between simultaneous bilinguals and early and late successive bilinguals, since gender attribution and gender agreement require significant exposure to morphological and lexical information in the input.

Tsimpli distinguished between micro and macro elements of gender, and argued that the macro elements, such as the knowledge that the language being acquired by the child has grammatical gender, are acquired with ease and need very little input. Gathercole and Sharp (2014) criticised Tsimpli's (2014) analysis on the basis that the level of difficulty encountered by speakers is not standard across varying language backgrounds, arguing that there may be other cases in which the grammatical gender system is sufficiently complex to delay or even prevent acquisition for all speakers, regardless of language background. They

discuss the theoretical difficulties of separating the knowledge that each noun belongs to one of two (or more classes) from the properties of those classes; what is masculine gender if not a class into which nouns that have masculine gender are grouped? They cited another study (Gathercole & Sharp, in preparation), in which the use of nouns across four contexts of grammatical gender use were examined for consistency in the marking of feminine grammatical gender. The results pointed to item-based acquisition of grammatical gender, whereby gender was marked on some feminine nouns in some contexts and not in other contexts, or on different feminine nouns in other contexts. Gathercole and Sharp (2014) disputed Tsimpli's macro-micro hypothesis as it did not account for this piecemeal acquisition, given that it indicated that the children were using grammatical gender inconsistently. They argued instead that this demonstrated ongoing construction of the grammatical gender system and not "the separability of pure, early syntax and later syntax in acquisition" (p. 335).

Audring (2014) identified the number of gender categories, the number and nature of assignment rules and the formal marking of gender in the morphology as the three components of grammatical gender marking which can increase the complexity of the system. She further identified redundancy as a facet of the complexity of the formal marking of gender in morphology. As noted in Chapter 1, redundancy refers to information that defies one-to-one mapping as it is marked on more elements of the phrase than is necessary to communicate the function: "the gender information belongs to the noun, yet it is expressed on other words within and beyond the noun phrase... The fact that gender appears overwhelmingly elsewhere – in fact, many languages do not mark it on the noun at all – illustrates its inherent complexity." (p.6)

Not all languages encode grammatical gender consistently in the phonology or morphosyntax of the language, as demonstrated by Eichler, Jansen and Muller (2012) in their examination of the monolingual and bilingual early acquisition of French, Italian, Spanish and German. The impact of complex grammatical gender systems on language acquisition is not yet fully understood and additional research using these typologically different languages is required. The value of crosslinguistic research, particularly of lesser-studied languages, is evident in that Irish is an example of one of the relatively few languages which does mark gender on the noun in the absence of redundant marking on the definite article. Gender is marked redundantly on the adjective, and on the possessed noun in the context of possession marking. From this perspective of redundancy, the process of

marking grammatical gender on the initial phoneme in Celtic languages is less opaque than other languages, where gender is marked on other components but not on the noun itself.

Cues to grammatical gender

Lieven and Tomasello (2008, p. 171) were quoted in Chapter 1 as having asserted that "consistency aids learning and complexity impedes it". Consistent cues to grammatical gender are an important aid to children as they acquire the grammatical gender marking system. When marking gender in a determiner phrase, some languages make use of individual definite articles for each of the gender classes, for example *le* for masculine and *la* for feminine nouns in French or *de* for common and *het* for neuter nouns in Dutch. The use of *el* and *la* in Spanish was noted earlier (see Mariscal, 2009). This is a very valuable cue (Taft & Meunier, 1998). Hebrew is an example of a language in which the definite article does not change (Gollan & Frost, 2001), as well as the Celtic languages Welsh and Irish, as already noted. This means that for children acquiring Irish, or Welsh, this cue is not available in the definite article. However, it also has implications for the salience of grammatical gender for these children. If a bilingual Spanish-English speaker were to be asked to translate the definite article 'the' from English to Spanish, their response would likely be that it depends on the gender of the noun following the definite article, thereby making noun gender very salient to the speaker. A bilingual Irish-English speaker would respond "*an*", thereby not overtly linking the determiner to the gender assignment of that noun.

The strength of the suffix as a cue is language-specific. Spanish and Italian have what has been described as a transparent system. In Spanish, all nouns are classed as either masculine or feminine: nouns ending in '–a' are feminine 96.3% of the time, and nouns ending in '–o' are masculine 99.87% of the time (Alarcón, 2011; Teschner & Russell, 1984). The same cue applies to Italian as nouns ending in '–a' are feminine, and nouns ending in '–o' are masculine (Vigliocco & Franck, 1999). As previously noted, the suffix as a cue to grammatical gender is a strong cue for French (Lyster, 2006). This transparency aids acquisition as children can generalise what they know about a small number of noun categories to all new additions to that category in a rule-based, systematic way. Even for adult learners, Gollan and Frost (2001) found that for Hebrew, a language permeated by gender on several components, adults had higher accuracy in identifying gender when nouns had a gender-specific suffix and identified regular-suffix masculine nouns more frequently than regular or irregular-suffix feminine nouns. These results point to morphological

pathways being implicated in gender identification and speakers depending on the noun suffix in gender identification. Not all languages provide such consistent cues to grammatical gender. Montanari (2014) pointed out that noun suffix is not a highly salient cue for learners of German, and Maratos (1993; as cited in Thomas, 2000) identified Polish and Russian as languages with complex suffix systems.

A final cue to grammatical gender not frequently identified is the grammatical gender of dimunitives. Diminutives are morphological derivations (e.g. doggie, Mikey) which indicate smallness, and are often associated with endearment and affection. The use of dimunitives by children aged 2-4 in Russian and Serbian was investigated by Seva et al (2007). In languages such as Dutch, Finnish, Greek and Polish, dimunitives can be derived from nearly all nouns. In Russian and Serbian, dimunitives can also be derived from adjectives. The authors found that Russian L1 children and Serbian L1 children made fewer gender-agreement errors with diminutive nouns than with their simplex counterparts, despite the lower frequency of diminutives in Serbian Child Directed Speech compared to Russian. They concluded that diminutives facilitate the acquisition of grammatical gender and this was also found by Kempe and Brooks (2001) for gender acquisition in Russian. The equivalent results for Russian and Serbian demonstrated that advantage is not dependent on the frequency of dimunitives in Child Directed Speech.

Children acquiring Irish face a significant challenge in identifying the grammatical gender of nouns as 1) the noun suffix is the only cue to noun gender available to Irish speakers in identifying the gender of inanimate nouns, and 2) the number of suffixes associated with either gender is high, and many exceptions exist. Studies of Welsh, which has a similarly opaque grammatical gender system, have not found the presence or strength of a cue to grammatical gender to be helpful for children acquiring the system (Sharp, 2013; Thomas & Gathercole, 2007). Thomas and Gathecole (2007) provided children with cues to grammatical gender for some items and compared their accuracy on these items to their accuracy on items without cues. They hypothesised that significantly more accuracy on the cued items would be evidence of rule-based learning. However, they found that the younger children were less accurate for the cued items than the non-cued, which they attributed to children overgeneralising the mutation used in the cue to the target item. It appeared that the cue served as a distractor because the children did not know how to extract the necessary information from it.

Function as a predictor of ease of acquisition

Despite the evidence of difficulty in acquiring grammatical gender in some languages, it appears that the functional necessity of gender for reference and cohesion requires speakers to acquire the system. Lenition in Irish is plurifunctional as it is used to signal feminine grammatical gender following the definite article and to signal masculine gender in third person possession (as well as being used after prepositions and in a myriad of other contexts such as after negative and interrogative particles). With respect to the function of grammatical gender marking in Irish, one of its functions is to distinguish between masculine and feminine third person possession following the non-gender specific pronoun /a/.

Paradis, Tremblay and Crago (2014) examined the form-function mapping of French direct object clitics among French-English bilingual children of differing dominance, and monolingual English L1 children, aged 6 and 11 in Canada. French direct object clitics are believed to be relatively difficult to acquire due to the inconsistent plurifunctionality of '*les'* as both a direct object clitic and plural definite article. The token frequency of '*les'* is much higher for its use as a plural definite article than as a direct object. However, the authors argued that the functional importance of this specific construction in constructing meaningful utterances compensates for its low frequency in input and they found mastery of this feature by the age of 11 (which is, nevertheless, quite late). Paradis et al's (2014) results indicate that the function of the specific form has an impact on the speed of acquisition. Slobin (1985) argued that the interaction of complexity and a function means that if the form-function mapping of a given feature is not clear, or if the feature is not important for communicative clarity and/ or if there is optionality in its use, it is very probable that the acquisition of this feature will not be prioritised in acquisition. Applying this to Irish, it could be argued that, given the plurifunctionality in Irish of lenition in a wide range of contexts including marking gender following the definite article and in marking third person possession, consistent grammatical gender marking in both of these contexts is likely to be delayed as children construct an accurate representation of this system. However, it is predicted that the communicative function of third person possession marking will compensate for this plurifunctionality and be acquired sooner than for agreement across the noun phrase.

Within-language differences interact with differences in language experience and input as more complex schema require both a greater quantity of input, and qualitatively more accurate and varied input, than less complex structures (Paradis, 2010). Children

depend on the input to provide them with a critical mass of usage in order for them to schematize what they hear into a structured collection of constructions (Gathercole, Pérez-Tattam, Stadthagen-González, & Thomas, 2014; Ambridge & Lieven, 2011; Gathercole and Thomas, 2009). Language experience and input will be considered in the next section.

The influence of language experience and patterns in the input

Given the evidence of protracted trajectory of gender acquisition discussed in this chapter, examination of the later stages of acquisition is necessary in the case of the more complex aspects of language, particularly in the context of bilingual acquisition. The degree of success in the acquisition of grammatical gender of L2 learners has received attention in recent years, both for older children (Chondrogianni & Marinis, 2011; Unsworth, 2008; Cornips, van der Hoek & Verwer, 2006) and also adults who had acquired their L2 some time in their youth (Gruter, Lew-Williams & Fernald, 2012; Bassetti, 2011; Paolieri, Cubelli, Macizo, Bajo, Lotto & Job, 2010). Unsworth (2008) found evidence of fossilisation in acquisition of the correct usage of the article *het* and *de* among child and L2 learners, but not across the board. Some adults and children were able to use the two articles accurately, which they tentatively attributed to differences in the amount of input received by these participants, despite some adults and children who had received extensive input overgeneralising *het* to contexts requiring *de*. Meanwhile, the acquisition of the same features in simultaneous bilinguals has been largely overlooked.

Thomas and Gathercole (2007) observed that acquisition of an opaque grammatical gender system such as the one found in Welsh is a protracted process which is affected by complexity of the process involved, the frequency with which one response was required compared to the other, and the typical usage norms of proficient adults who provided input to the children of varying backgrounds acquiring this feature of Welsh. They argued that the productive control that Welsh-English bilingual children aged 7-11 had on grammatical gender was indicative of item-based learning and a piecemeal approach to grammatical gender marking, and that children did not adopt a rule-based approach in the use of this feature of Welsh.

An additional finding by Thomas and Gathercole (2007) was that not one of the Welsh-dominant simultaneous bilingual participants in their study appropriately mutated vowel-initial nouns in reference to a feminine antecedent in complex distant gender constructs used to mark third person possession. When they compared this to adult use of

the same feature, they found that even proficient Welsh-English bilingual adults only did this accurately 14% of the time. The children evidently heard variability in the input on this feature and reflected that in their output (a similar finding was documented by Anderssen, Bentzen, Rodina & Westergaard, 2011). Thomas and Gathercole (2007; Gathercole and Thomas, 2009) demonstrated that acquisition of the Welsh grammatical gender system is protracted and attributed this to its complexity and the fact that aspects of it are used inconsistently and/ or infrequently in adult input. This results in a piecemeal approach being used for parts of the system by children, until a critical mass of input can be amassed and morphosyntactic rules abstracted.

Unsworth (2014; 2013a) predicted that input would influence accuracy in grammatical gender attribution but agreement would be more influenced by abstract, rule-based proficiency and would therefore be less influenced by input factors. The author found no main effect of group, i.e. monolinguals did not outperform bilinguals (though only limited comparisons could be made due to the data available). For the bilingual group as a whole, there was a significant difference between the five year olds and each of the eight, nine, 10, 12 and 13 year old groups, and performance was more accurate for common nouns than neuter. The results point to protracted acquisition of grammatical gender in Dutch, well beyond the age of 5, particularly for the more complex neuter nouns, but are inconclusive in relation to the strategies used to acquire productive use of the system.

Examination of grammatical gender acquisition in languages such as Spanish would suggest that accurate acquisition of the system happens easily and quickly, early in life, possibly due to the systematic way in which noun gender is assigned to nouns (Gathercole, 2002a). As noted previously, the Spanish system is a substantially less opaque system than Welsh or Irish; for example all nouns ending in '–a' are feminine 96.3% of the time, and nouns ending in '–o' are masculine 99.8% of the time (Alarcón, 2011). However, Montrul and Potoswki (2007) challenge this assumption as their evidence suggests that even these systems may not be fully in place. They also looked beyond initial acquisition to the impact of language contact on that acquisition.

Montrul and Potowski (2007) examined the language of heritage speakers in a Spanish-English bilingual Hispanic community in Chicago: a community which they argued was unstable and where the language was under pressure from the majority language English. Heritage speakers of a majority language are similar to children acquiring a minority language as their L1 because their acquisition is also affected by variation in language use in

the home with parents, siblings and extended family, language use at schools and language use in greater society, all sociolinguistic factors speakers of minority languages must contend with too. When the children start going to school, even in Spanish-English immersion schools, there is a major shift to the majority language, which the authors observed can lead to a disruption of acquisition of the more complex aspects of the minority language.

Montrul and Potowski (2007) showed that all participants performed very close to ceiling for grammatical gender in the narrative task, with some errors made by L2 learners. In the adjective agreement task, performance was less accurate on feminine adjectives for both groups of bilinguals and for the L2 learners. The results of this study do show a positive correlation between proficiency and Spanish use at home, based on which the authors conclude that there were differences according to language background even for a language with a transparent grammatical gender system. However, given the small sample sizes and the large standard deviations, replication is needed before the conclusions drawn by Montrul and Potowski (2007) can be accepted. It is also plausible, based on the results of this study, that monolingual, bilingual and L2 learners of Spanish do acquire the grammatical gender system, but their accuracy is vulnerable in the context of feminine noun-adjective agreement. However, in Gathercole (2002a), bilingual Spanish-English and monolingual Spanish speaking children's receptive knowledge of noun gender in more idiosyncratic contexts was assessed and the increase in accuracy found across the age range points to protracted acquisition. More recently, Gathercole and Sharp (2014) stressed that "close examination of early use of agreement in Spanish by monolingual children has revealed, however, that the process of acquiring agreement is protracted" (p. 332).

In a study of adult L2 learners of Spanish and heritage speakers, Montrul et al (2008) found that the acquisition of grammatical gender among heritage language speakers of Spanish showed incomplete acquisition of gender which the authors suggested was due to their Spanish not being fully developed before they were exposed to English, making them vulnerable to language convergence in this high contact Spanish-English context. Montrul, Davidson, de la Fuenta and Foote's (2014) results were more mixed; the heritage speakers performed more like L2 learners than monolingual Spanish L1 speakers on the measure of non-canonical ending nouns from declarative memory but showed an opposite pattern for non-word repetition. Alarcón's (2011) study of highly proficient Spanish heritage speakers adults and highly proficient L2 learners showed both groups to be consistently close to ceiling on measures of grammatical gender comprehension and production. The

heritage speakers outperformed the L2 learners for the oral tasks in particular. The key difference between Alarcón's (2011) study and Montrul and colleagues' (2008) study is that Alarcón recruited the most highly proficient heritage speakers available, and the results show that their comprehension and production of grammatical gender is nearly indistinguishable from L1 speakers of Spanish. In the context of speakers who have acquired a high degree of proficiency, language acquisition experience may not be the greatest predictor of their proficiency as they have acquired enough of the language to catch up with monolingual L1 speakers.

In sum, because the morphosyntactic system which controls grammatical gender attribution and agreement within constructions is complex, acquisition is more prolonged and protracted relative to other language features. The relatively clear gender system in Spanish accounts for the differential acquisition of Spanish and Welsh and Dutch, but further research is needed given that the latest findings from Spanish dispute the conclusion that Spanish grammatical gender is acquired with total ease.

Language experience and the acquisition of grammatical gender in Irish

Children acquiring Irish and English constitute an interesting group as they are acquiring a grammatical gender system in Irish which is very different from the system in English, whereby grammatical gender is marked in Irish but is not in English. The possibility that lack of marking in English re-inforces optionality in the use of grammatical gender in Irish will be considered. Thomas, Cantone, Davies and Shadrova (2014) considered the implications of crosslinguistic influence in the acquisition of grammatical gender by examining the simultaneous acquisition of two languages with opaque and contrasting grammatical gender marking systems (Welsh and German). They found faster acquisition of German gender marking compared to Welsh, which they believed may have been because both children in their study received German input from their mother and Welsh input from their father. However, Thomas et al's (2014) findings did not suggest that faster acquisition of gender in German 'bolstered' acquisition in Welsh, nor did the relatively less opaque Welsh system appear to facilitate faster acquisition in German. The authors acknowledge that these are preliminary findings and that further research is needed to address the question of crosslinguistic influence in the acquisition of grammatical gender.

Péterváry, Ó Giollagáin, Ó Curnáin and Sheahan's (2014) study of Irish acquisition by children in middle childhood in the *Gaeltacht*, previously cited in Chapter 1 reported that

children age 7 to 12 had 31% accuracy in marking noun gender following the definite article and 30% accuracy for noun-adjective combinations in semi-naturalistic speech elicited by a picture description task. These findings are of interest but their interpretation is limited by methodological issues (it is not clear whether they include as correct masculine nouns which do not require gender marking and they do not indicate what percentage of grammatical gender marking in obligatory contexts was inaccurate).

Lenoach (2014) elicited spoken language from Irish L1 speaking children and conducted some analysis of their use of grammatical gender. In his examination of use of mutations in marking noun gender following the definite article and in noun-adjective combinations, he found that in obligatory contexts, five participants of 33 applied the appropriate mutation to all nouns, though many others did so in some contexts and not others. In the case of noun-adjective combinations, nine children did not use them at all. Eleven participants used some mutation, though not in all obligatory contexts. Lenoach supplemented these data with profiles for each of the participants, which generated data for a qualitative analysis of home language background and could be used to contextualise accuracy in the use of grammatical gender. There were some similarities between the profiles but no clear pattern emerged in relation to the language background of the children who were accurate in their use of grammatical gender and those who were not. Further research is needed, in which the output elicited from children from a range of language background is controlled more tightly and the sample is large enough to control for the natural variance but also to reveal differences, be they due to differences of complexity, function, input, exposure, or other factors.

CONCLUSION

In summary, children acquiring Irish have a difficult task contending with the complexity and opacity of the Irish gender marking system. In addition to the general opacity of the assignment and marking system, three other factors have been identified which could affect rate of acquisition and eventual mastery of grammatical gender. The first of these is the plurifunctionality of the lenition inflection. As explained above, lenition is used to signal feminine grammatical gender following the definite article and is required in agreement between these nouns and adjectives that follow them. In third person possession, the rule is reversed and lenition is used to mark masculine possession. This is a complex system with which many proficient adult speakers have difficulty. The difficulty experienced by adults

influences acquisition by children as it is possible that the adults who provide input to these children do not themselves mark gender accurately.

Finally, the vast majority of Irish speakers are Irish-English bilinguals who are exposed to English at an early age. English does not have a systematic grammatical gender system comparable to the Irish system and children must overcome this difference in the course of their acquisition. Irish in current usage is showing signs of convergence with English, with reduced use of the initial mutations. The complexity and unreliability of lenition and /t-/ prefixing, in addition to its relatively greater importance of grammatical accuracy than communicative clarity, are likely to impede the ease with which children acquire command of this system in Irish.

Montrul and Potowski (2007) and Gathercole (2002a) examined the acquisition of grammatical gender in a majority language with a clear gender system in an unstable community. Unsworth (2014; 2013a) examined the same process in the context of a majority language with an opaque gender system in a stable community and Thomas and Gathercole (2007; Gathercole & Thomas, 2009) examined a minority language with an opaque gender system in a stable community (see also Gathercole 2007b). The participants in both the Welsh and Dutch contexts showed more difficulty than those in the Spanish context, but by the age of 9 children were showing some awareness of gender categories of nouns and awareness of how to mark them appropriately in output. The Irish situation is relatively more precarious: the language community is like the Spanish-English bilinguals in its instability and like Welsh in its status as a minority language. Irish has an opaque grammatical gender system like Dutch and Welsh. This combination makes the acquisition of grammatical gender very vulnerable. It is hypothesised that grammatical gender will have a long acquisition trajectory in Irish.

The aim of this research is to explore the impact of differences in home language experience on aspects of later acquired features of Irish, specifically the acquisition of gender. An in-depth examination of the acquisition and use of grammatical gender in adults and children has never been conducted for Irish. The Irish language is a typologically distinct language and the Irish sociolinguistic context is one of ongoing change. The results of such a study will have value for researchers, policy makers, educators and parents in the Irish context. Furthermore, the results of this study will contribute to the crosslinguistic study of features of language common to many languages.

Chapter 3 The sociolinguistic context: Irish in the *Gaeltacht* and in education

OVERVIEW OF THE CHAPTER

The evidence that performance in both of the bilingual's languages is significantly influenced by overall language experience was considered in Chapter 1. Home language use is a significant component of language experience, but this cannot be viewed in isolation from the wider sociolinguistic context within which these homes are situated. The wider context is all the more pertinent to Irish as an endangered minority language. This chapter will consider the sociolinguistic context of Irish in the Republic of Ireland[2] as an endangered minority language, in the context of the international, crosslinguistic discourse pertaining to minority languages worldwide. Irish in the education system has had a particularly influential impact on the language and therefore this will also be considered. A consideration of "new speakers" is necessary when studying minority and/ or endangered languages or varieties[3] of those languages. New speakers of Irish are now found throughout Ireland, including the *Gaeltacht*, and are the peers and playmates of native speakers. The chapter begins with a brief description of features of the Irish spoken in the *Gaeltacht*.

THE IRISH LANGUAGE

Irish is one of the world's relatively few VSO languages according to Greenberg's (1966) universals: the basic structure is Verb + Subject + X, where X can be an object, indirect object, adverbial, prepositional phrase, verbal noun among others. Three main dialects (varieties) of Irish exist: the Connemara dialect spoken in Galway and Mayo on the west coast, the Munster/Southern dialect spoken in Kerry and Cork in the south of the country and the Ulster/Northern dialect spoken in Donegal on the north-western coast (Ó Siadhail, 1989). There is significant variation from one *Gaeltacht* area to another, in terms of accent and the dialect used. There are some differences between dialects in relation to syntax. In all dialects the subject is positionally less free than the object, and occurs immediately to the

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[2] The position of Irish in Northern Ireland is not considered here, given the significant statutory and social differences. For a consideration of the religious, political and sociocultural significance of the Irish language in Northern Ireland see Mac Giolla Chríost (2012b) or Maguire (1991).
[3] Following Mesthrie (2006) the loaded term 'dialect' is avoided here and throughout in favour of the more neutral term 'variety'.

right of the main verb, but the Munster dialect is highly synthetic, e.g. *Thiteas inné* (fell-I yesterday), whereas the Connemara dialect and the Northern dialect typically use the analytical form, e.g. *Thit mé inné* (Fell I yesterday).

Stenson (1993) observed that Irish spoken in the *Gaeltacht* has been influenced by English for well over a century. A pioneering French linguist, Marie-Louise Sjoestedt-Jonval (1928), conducted a detailed study of the influence of English on Irish. At that time she noted the existence of calques from English, often ideomatic phrases translated directly from English, for example *tá mé briste* (am I broke; I am broke), and the inaccurate use of *faigh* as a direct translation of the English verb get, leading to inaccurate constructions such as *fuair sí tinn* (got she sick; she got sick). Borrowed verbs were somewhat assimilated by the addition of the suffix <–áil>, a practice already common at the beginning of the 20th century which is still widely used (and criticised), and then treated as normal verbal nouns in Irish. The resulting vulnerability of Irish verbs and verb morphology in *Gaeltacht* children's Irish has been attested in studies by O'Toole and Hickey (2013), who revealed the concern among Speech and Language Therapists and psychologists on the widespread substitution of English verbs with the Irish suffix <áil> for Irish verbs with more complex morphology.

Hickey (2009) examined the codeswitching of Leaders in *Naíonraí* (Irish-medium pre-schools), who are very influential providers of input to children in the early stages of first language acquisition of Irish. She focused on codeswitching in the use of discourse markers in Irish, which should not be necessary given the existence of pre-existing discourse markers in indigenous languages. Mougeon and Beniak (1994) found that majority language discourse markers can replace discourse markers in the minority language, such as among French-English bilingual in Ontario, Canada, and Hickey's evidence suggests some replacement of Irish discourse markers by English borrowings. However, Hickey also found that codeswitching (in relation to discourse markers at least) is used in a structured, limited and potentially purposeful way by Leaders in the Naíonraí.

Varieties of Irish and the Standard

Standard Irish (*An Caighdeán*) was developed for the written language in 1958 (Rannóg an Aistriúcháin, 1958). At the time of the development of Standard Irish, none of the three dialects had greater authority in terms of number of speakers or prestige, and therefore a compromise strategy was adopted. Standard Irish does not represent the grammar of any single dialect, but is based on a combination of all three. It was based on the spoken

language of the people and was envisaged as a way of providing a target learner variety for people who did not acquire Irish in the home. Those who designed the Standard did not intend that the validity of dialectal variation be affected by the Standard, or that dialect variation be disallowed (Ó hIfearnáin & Ó Murchadha, 2011). While initially the Standard was intended for written official texts only (Ó Baoill, 1988), over time it has exerted an influence on the judgement of accuracy in spoken Irish (Ó Murchadha, 2010).

Celtic scholars take a traditional approach to describing and analysing the different dialects of Irish, but more recent researchers such as Ó Murchadha (2010) have developed a Social Constructivist categorisation of the varieties of Irish. He identified three distinct overarching varieties of Irish now spoken: 'traditional *Gaeltacht* speech', '*Gaeltacht* youth speech' and 'non-*Gaeltacht* speech'*,* which he later called the 'post-traditional variety' (Ó Murchadha, 2015). The influence of English on Irish phonology, syntax and prosody is heard in both *Gaeltacht* youth speech and the post-traditional variety, though *Gaeltacht* youth speech is more like traditional *Gaeltacht* speech and varies from *Gaeltacht* to *Gaeltacht* according to the traditional dialects. Nevertheless, Ó hIfearnáin and Ó Murchadha (2011) identified some features which are becoming less marked in the *Gaeltacht* youth speech, including grammatical gender marking.

ACQUIRING A MINORITY LANGUAGE IN A BILINGUAL CONTEXT

Paradis (2011a) and Grosjean (2010) have observed that children's sensitivity to input factors is greater for minority languages than for majority languages. Gathercole (2014) has also presented evidence showing that in bilingual acquisition, the majority language will be acquired by all bilinguals, but the same cannot be guaranteed for minority language. This has been demonstrated for many languages, for example English-Welsh bilinguals (Gathercole & Thomas, 2009), Spanish-Basque bilinguals (Austin, 2009) and has been shown by Nic Ghiolla Phádraig (2001) and more recently by Lenoach (2014) and Péterváry, Ó Giollagáin, Ó Curnáin and Sheahan (2014) in Irish acquisition.

Gathercole and Thomas (2009) argued that, for simultaneous bilinguals, majority language acquisition will be mainly unproblematic, so that, in the Welsh context, English acquisition is highly likely to happen given normal circumstance. On the other hand, they observed that minority languages are dependent on frequent and consistent input, but must contend with the fact that the sources of that input are more limited than those for the majority language, in terms of numbers of speakers and often domains of use (which Ó

Dónaill, 2000, noted is also a significant concern in the Irish context). Gathercole and Thomas (2009) concluded that successful acquisition of English does not rely on input and exposure in the home from the earliest possible age in the same way that Welsh does. As observed by Rhys and Thomas (2013) "simple exposure to majority-status languages is sufficient enough to allow full acquisition to develop, whereas exposure to minority status languages is only sufficient if it is also well supported in the home and at school" (p. 635).

King, Fogle, and Logan-Terry (2008) were concerned about the gap between the sociolinguistic emphasis on language policy and planning on the one hand, and the psycholinguistic perspectives, which draw predominantly on studies of monolingual acquisition in monolingual contexts and do not accurately inform understanding of bilingual and minority language settings on the other. However, the crosslinguistic research described in Chapter 1 has been successful in shifting the focus from monolingual acquisition to bilingual and minority language acquisition. Here, this sociolinguistic research forms the backdrop for the study of acquisition of Irish as the context in which children in the *Gaeltacht* acquire Irish is taken into account.

IRISH IN THE *GAELTACHT*

Demographics

The most recent Census data show that Irish is spoken by 1,774,437 people over the age of 3 in the Republic of Ireland (CSO, 2011a), amounting to 38.65% of the population. Of these 957,963[4] speak Irish daily within the education system only, and a further 723,878[5] speak Irish weekly or less often outside the education system (CSO,2011a). Presently, 77,185 people speak Irish daily outside the education system (CSO, 2011a), a figure which represents the number of people for whom Irish is a language of daily life and possibly of the home. However, it should be noted that all of these speakers are bilingual due to centuries of close contact with English (Stenson, 1993).

Native speakers, or those for whom Irish is their first language (L1) or one of their mother tongues are most numerous in regions known as *Gaeltacht* areas, or officially designated Irish speaking communities, which are located mainly in geographically isolated

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[4] This figure was calculated by summing the total for the number of people who indicated that they speak Irish 'daily within the education system only' and 'never speak Irish outside the education system'.
[5] This figure was calculated by summing the total for the number of people who indicated that they speak Irish 'weekly outside the education system' and 'less often outside the education system'.

rural areas on the western, eastern and northern seaboard (Hickey, 2009; Nic Ghiolla Phádraig, 2001). O'Rourke (2005) commented on the long-held general view of these areas as the 'heartland' of the Irish language as being due to a combination of factors, including the use of Irish as the language of the home by a significant proportion of the population in these areas, the continued importance of Irish for the culture and the people of the *Gaeltacht,* and the isolation and rurality of regions, which sheltered them from the overwhelming exposure to English experienced by other parts of the country.

There is significant variation from one *Gaeltacht* area to another, in terms of the density of speakers (Walsh and McLeod, 2008) and, as noted earlier, in terms of the dialect used. The total population aged 3 or over of all *Gaeltacht* areas is 96,628, of which 30,978 individuals live in the Connemara *Gaeltacht*[6] (CSO, 2011b). Using the definition of an Irish speaker as someone who speaks Irish daily outside the education system, the total number of Irish speakers in all *Gaeltacht* areas is 17,955,[7]. Of this total, 8,392 live in the Connemara *Gaeltacht* (CSO, 2011c) and comprise 46.74% of the total population of *Gaeltacht* dwelling Irish speakers. Irish speakers in the *Gaeltacht* make up only 23.31% of the 77,185 inhabitants of the Republic of Ireland who speak Irish daily outside the education system, pointing to quite significant dispersal of Irish speakers, but *Gaeltacht* Irish speakers are more likely to be clustered and to include significant numbers of families with children. While these figures give an estimation of daily usage of Irish in the *Gaeltacht* and outside of it and the current home language of speakers, they do not indicate how many children are being raised with Irish as the language of the home. To some extent this can be estimated from Census data on the basis of the number of 3 year olds living in *Gaeltacht* areas who speak Irish every day, and in 2011 this was 1,410.

This demographic has been further probed in *An Staidéar Cuimsitheach Teangeolaíoch ar Úsáid na Gaeilge sa Ghaeltacht* (The Comprehensive Linguistic Study of the *Gaeltacht*) by Ó Giollagáin, Mac Donnacha, Ní Chualáin, Ní Shéaghdha and O'Brien (2007). Ó Giollagáin et al (2007) conducted a linguistic study of the use of Irish in the *Gaeltacht* drawing on Census data, data from *Scéim Labhairt na Gaeilge* (the Language Support Scheme, which offers a grant to *Gaeltacht* families raising children with Irish in the home) and a quantitative survey of language attitudes among young people in the *Gaeltacht*. They

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[6] Called the Galway Gaeltacht in CSO documents.
[7] The CSO reports the number of Irish speakers in the *Gaeltacht* to be 66,238 (CSO, 2011c). However, this number is the total number of people who indicated they could speak Irish, regardless of frequency or domain of use.

used the information from these three sources to classify each constituency within the designated boundaries of the *Gaeltacht* as Category A, B, or C.

They classed as 'Category A' those *Gaeltacht* areas in which Irish is used daily by at least 67% of the total population. The study showed that 53% of young people in Category A districts speak only Irish or mostly Irish at home. 'Category B' *Gaeltacht* areas were characterised as areas in which English is the dominant language, but which still have strong Irish-speaking networks, where Irish is spoken by between 44% and 66% of the population. In this category, 22% of young people speak only Irish or mostly Irish at home. 'Category C' *Gaeltacht* areas are those which are officially designated *Gaeltacht* areas according to the current divisions, but in which less than 44% of the total population speak Irish on a daily basis and the highest level of use for those is in education. Ó Giollagáin et al (2007) reported that these areas do contain some small Irish-speaking communities and social networks which do not comply with the sociolinguistic traits of the rest of the area identified by the researchers. In this category, 3% of young people are reported to speak only Irish or mostly Irish at home.

In interpreting these figures, it must also be noted that, according to Ó Giollagáin et al (2007), 91% of young people in Category A, 74% in Category B and 50% in Category C reported their Irish as being 'fluent' or 'good'. This is a clear indication that the education system plays a pivotal role in language acquisition in the *Gaeltacht* in addition to outside the *Gaeltacht*. It must be noted that Ó hÉallaithe (2015) has disputed the conclusion drawn by Ó Giollagáin and Charlton (2015) in the updated Comprehensive Linguistic Study, which is that intergenerational transmission of Irish in the *Gaelacht* is unsuccessful, on the basis of the comparison criteria used. Ó hÉallaithe criticised the use of more stringent criteria for school-age speakers than adults. Following his re-analysis of the data, Ó hÉallaithe concluded that language use among the young speakers in the *Gaeltacht* was stronger than Ó Giollagáin and Charlton (2015) claimed it to be.

The map in Fig. 3.1 shows the geographical location of the *Gaeltacht* areas, colour-coded to show Category A, B and C areas. Examination of distribution of these *Gaeltacht* districts shows that the greatest concentration of Category A *Gaeltacht* districts is the Connemara *Gaeltacht*, where the present research was conducted.
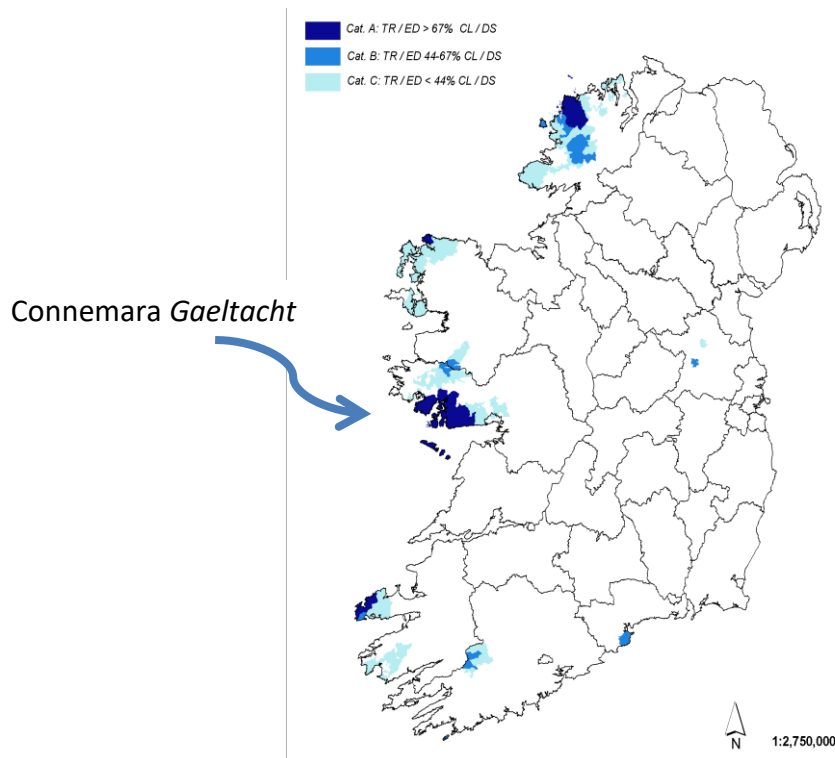
Prepared by NIRSA. Copyright permit number MP8252 / © Ordnance Survey Ireland and Government of Ireland / Central Statistics Office – Census SAPS Microdata File

Figure 3.1 Map of the *Gaeltacht* areas in Ireland

Language dynamics and the *Gaeltacht*

State Support for Irish and the *Gaeltacht*

Ó Riagáin (1997) noted that Irish is quite unusual among threatened languages in that it has received significant state support for almost a century, since the founding of the first Irish government in 1922 (but following centuries of oppression under English rule). Perhaps most crucial of all these supports was making Irish a required subject for all children from school entry in all schools; this policy began soon after the founding of the State and has been maintained, and the impact of Irish in the education system will be considered later in this chapter.

Ó hIfearnáin (2009) discussed the relationship between Irish and the state in great detail, pointing to the strong presence that Irish has in the national media, with several radio stations as well as *TG4*, the national television station, where a high proportion of the programming is in Irish (Mac Giolla Chríost, 2012a; Nic Ghiolla Phádraig, 2001). With regard to legislation, the Official Languages Act 2003 was put in place to demand better availability and a higher standard of public services through Irish and a Language Commissioner was appointed at the time to facilitate this (Watson and Nic Ghiolla Phádraig, 2009; Walsh and McLeod, 2008). Irish was made an official working language of the EU in 2007 (McCubbin,

2010). The Irish government also committed to the *20-Year Strategy for the Irish Language 2010 – 2030* (Government of Ireland, 2010). Commitments made in this strategy included encouraging and supporting the intergenerational transmission of Irish, safeguarding its position as an obligatory subject in mainstream education and providing Irish-medium education where needed (including pre-school), and with an overall aim of increasing the number of daily speakers of Irish to 250,000 by 2030. The Strategy recognises the need for tailored support for the *Gaeltacht*, which is also recognised in the *Gaeltact* Act 2012 (see Ó Giollagáin, 2014a), and for children whose L1 is Irish.

Despite these provisions, the use of Irish as the national and *Gaeltacht* language has been in decline since the seventeenth century (Watson & Nic Ghiolla Phádraig, 2009) and recent reviews of language use have reported an acceleration of this shift from Irish to English in *Gaeltacht* areas. Watson (2014) emphasised the progression from nationalism to post-nationalism of the Irish state in explaining this shift: a nation can be understood from the subjective position of its members and relates to the importance of culture, common descent and the conceptualisation of the nation as distinct from some 'other', but this emphasis on the nation state and national identity weakened in the 1960s and 1970s as *Gaeltacht* areas were minorised and experienced extensive emigration out of the *Gaeltacht*, particularly by younger people in search of employment. Mr Tom O'Donnell, the Minister for the *Gaeltacht* from 1973-1975, said "no jobs, no people; no people, no *Gaeltacht*; no *Gaeltacht*, no language" (Watson, 2014).

However Dunbar (2013, p. 211) wryly observed: "more jobs, more people; more people, a stronger *Gaeltacht*; a stronger *Gaeltacht*, a stronger language, does not necessarily hold true." While the formal state supports for Irish, in terms of educational provision and legislation, have been substantial, it has been argued by Ó Giollagáin (2014a; 2014b), Armstrong (2012) and Walsh and McLeod (2008) that they have been symbolic in their operalisation. For instance, the Official Languages Act 2003 dictates that Irish be the primary language for the delivery of government services in the *Gaeltacht*. In direct opposition to this commitment, the reshuffle of government in July 2014 saw the appointment of a Minister and Junior Minister for Arts, Heritage and the *Gaeltacht* and these ministers who do not speak Irish and have not been able to fulfil their duties though the medium of Irish (Barry, 2014). The Language Commissioner appointed in 2003 as part of the Official Languages Act resigned from his post in March 2014, citing as the reason for his resignation the failure of the Irish Government to implement the legislation promised in the Act

(O'Caollaí, 2014). Ó Giollagáin (2014a) claimed that there has been a minorisation of the Irish speaker identity in legislation, and he warned that continuation of what he saw as the neglect of this identity would lead to Irish being associated with the "educational, ceremonial and aesthetic spheres of Irish life" only (p. 20).

Ó Giollagáin et al (2007) have also implicated the changing social dynamic in the *Gaeltacht* as one of the primary reasons for the diminished use of the language. While in previous decades the threat arose from large-scale emigration of Irish speakers from *Gaeltacht* areas, in more recent times the threat has come from in-migration. Many *Gaeltacht* areas are in proximity to expanding urban areas (Galway city in the case of Connemara) and the boom in demand for houses led to significant in-migration of non-Irish speaking residents. State funding for people building houses and locating businesses in the *Gaeltacht* had the opposite of the desired effect as many of the incoming inhabitants were unwilling or uninterested in adapting to the previously prevailing sociolinguistic norms of using Irish as the community language (Ó Giollagáin et al, 2007).

Hindley (1990) raised significant concerns about intergenerational transmission of Irish in the home and families raising their children through Irish were already a source of curiosity even in the 1980s when Fishman (1991) was conducting his case study of Irish revitalisation. Fishman (1991) emphasised the centrality of intergenerational transmission in language revitalisation, but despite his warnings, this has remained under pressure and appears to be declining further as more *Gaeltacht* parents opt to speak English in the home (Ó Giollagáin et al, 2007; Ó Catháin, 2012). Ó Giollagáin (2014b) criticised the developers of the 20-Year Strategy for their vague commitment to supporting intergenerational transmission, and an essential shift from a language revival model to a heritage language model.

In conclusion, Irish in the *Gaeltacht* has been under considerable pressure in recent decades, due to a myriad of factors such as ambivalent governmental support and follow-through on legislation, public support from speakers and non-speakers and the language choices and attitudes of young people. The decline of the *Gaeltacht* is seen by Lenoach, Ó Giollagáin and Ó Curnáin (2012) and Ó Catháin (2012) as indicative of the demise of the language, despite the increase in the number of Irish L2 speakers seen in other parts of the country. More progress has been made in encouraging the use of Irish outside the *Gaeltacht*, and this language revitalisation will be considered in the following section. Children being raised in the *Gaeltacht* may live in areas in which most or all of their peers or playmates are

also native speakers, or they may be in the linguistic minority in their community and have more contact with new speakers of Irish or English-dominant children with little Irish proficiency (Nic Ghiolla Phádraig, 2001). In terms of language use, Jaffe (2013) and Ó Murchadha (2013; 2010) have both argued that revitalisation efforts which aim to encourage the use of a language among those who did not traditionally speak it is likely to result in significant changes to the language. This challenge to traditional varieties of Irish from new speakers will now be considered.

LANGUAGE OWNERSHIP AND AUTHORITY

A quantitative survey of attitudes towards Irish by Ó Riagáin (1997) found that even speakers with very little Irish attributed personal cultural value to the language. Ó Riagáin (2012) also observed fairly positive public attitudes towards Irish as a symbolic of 'Irishness', but that this is not necessarily synonymous with a need to speak Irish in order to achieve a personal sense of Irishness. On the other hand, Ó Murchadha (2013) pointed to the fundamental role of Irish in the construction of identity by Irish speakers, particularly those who are not native speakers, which extends far beyond the use of Irish for communication only. Essentialist perspectives view group-level characteristics such as ethnicity as fixed and inherent and this contrasts with the social constructionism ideology, whereby these characteristics are not regarded as objective realities, rather constructions of reality that are being continuously developed, reinforced and deconstructed in social interaction (McCubbin, 2010). For instance, in Corsica, many language planning efforts at establishing Standard Corsican failed, which Jaffe (1999) argued was because they were rooted in essentialist conceptions of language and ethnicity as fixed and inherent.

A number of factors have contributed to the growth in numbers of Irish L2 speakers outside of the *Gaeltacht*, including Irish-medium primary- and second-level schools, *coláistí samhraidh* (Irish-medium summer camps), the statutory supports such as the Language Act and the recognition of Irish as an official working language in the European Union – all of these things help to increase the status of the language and give added value in educational qualifications, the labour market and the media. As a result of these mainly urban phenomena, recent years have seen an increase in the number and in the prominence of new speakers of Irish outside of the *Gaeltacht.*

'New speaker' is a term which has emerged from recent minority language research, particularly in the context of language revitalisation. A new speaker is defined by O'Rourke

and Walsh (2015) as an individual who acquired their language in a context other than the home, such as through immersion or bilingual education or as an adult, and who now uses the language with "fluency, regularity and commitment"(p. 64; see also O'Rourke, Pujolar and Ramallo 2015 for further discussion). This is a refinement of an earlier definition by O'Rourke and Ramallo (2013) which had described new speakers as inhabiting a continuum that spanned those with only limited competence to expert L2 users whose proficiency is comparable to that of a native speaker. The rationale for the term 'new speaker' is based on a desire to avoid value-loaded, prescriptivist terms to describe those with non-native proficiency such as 'semilingual' (Hansegard, 1968, as cited in Martin-Jones and Romaine, 1986) and 'semi-speaker' (Dorian, 1977). Intrinsic in the semilingualism concept is that some speakers or varieties of language are better or have higher value than others (MacSwan, 2000; Baker and Jones, 1998; Martin-Jones and Romaine, 1986). The generation of new speakers is generally viewed as a successful outcome of revitalisation policies, but O'Rourke, Pujolar and Ramallo (2015) are cognisant of the tension which can arise between new speakers and native speakers due to differences in their understanding of issues such as legitimacy and authority.

Bourdieu and Thompson (1991) used the term 'legitimate speaker' to describe the type of speaker who holds the authority and linguistic capital as to what constitutes the 'right' way to speak the language. Varying value is attributed to speech depending on the value ascribed to the person speaking it and on the context. The view that native speakers are the most 'legitimate' speakers of a language has been noted by many researchers (Hornsby, 2015; Costa, 2015; O'Rourke and Ramallo, 2011; O'Rourke, 2011). This gives rise to the expectation that this legitimacy would support native speakers' authority, with the assumption that the type of language spoken by native speakers is the 'correct' use of that language. However, this view may be mediated by disparities in the status of native speakers and learners of a particular language. Ballinger (2013), in a study of expert-novice pairs in immersion schools in Canada, found that teenage L2 learners of French rejected the authority of their teenage peers who were native speakers of French regarding grammatical accuracy, preferring to appeal instead to the teacher to check language accuracy when a dispute arose. Hickey (2013) argued that this highlighted the vulnerability of native speaker authority and legitimacy when learners are perceived to have higher status in certain contexts than native speakers. Costa (2015) has also found that young native speakers of

Occitan in an immersion context switched to the language they perceive to be most valued among their peers, which was the interlanguage of their L2 immersion peers in this case.

In considering the native-new dichotomy in the consideration of authority in the Irish context it should be noted that Standard Irish (*An Caighdeán*) forms a third source of authority. The Standard does not have the authenticity of the native dialects of Irish, but it has enhanced authority by virtue of its association with formal social institutions, mainly educational, and the prestige that comes with that association. Ó Murchadha (2010) has pointed to the fact that there is nothing inherently superior about the Standard but as Milroy (2001) noted, the standard variety tends to be interpreted as the highest prestige variety by virtue of these links to formal domains such as education, the media and as part of the national standard ideology. The second consequence of the implementation of a Standard language according to Milroy (2001) was the "development of consciousness among speakers of a 'correct', or canonical, form of language" (p. 535), and argued that it can lead to a decline in the value of native speakers' dialect-specific varieties.

Eckert (2003) cautioned against the uncritical acceptance of the ideological construct of the 'true', unchanging and uncontaminated way in which a language should be spoken, given its limited utility for understanding language progress. It encourages the perception of languages as static and measurable entities and the categorisation of their speakers into definable and preservable unchanging groups (Jaffe, 2015; Ó hIfearnáin, 2015; O'Rourke & Ramallo, 2011). Choay (2011) saw this as 'museification': speakers of minority endangered languages become museum pieces rather than real people for whom the language is their lived experience. While Jaffe (2013) and Ó Murchadha (2013; 2010) have argued that revitalisation efforts which aim to resurrect the language in the pre-shift form are unrealistic, this language change brings with it concern over purity and language attenuation. At the heart of this is the ideological tension between what is sustainable in a minority language context and what is desirible from the perspective of the people who speak the language (Ó Murchadha & Ó hIfearnáin, forthcoming).

Irish and social class

O'Rourke and Ramallo (2011) and Moriarty (2012; 2009) have examined the benefits perceived as accruing to speaking Irish, and they comment that changes in social mobility among Irish speakers has increased the value of the language in the eyes of those who had traditionally not spoken Irish. The language still appears to garner general public support for

its maintenance (see Mac Gréil & Rhatigan, 2009, also Ní Dhonnabháin, 2014, and Kennedy, 2012) though this does not carry over into actual use. Symbolic support for Irish is strong, but this support wavers when more specific matters of state funding for community groups and Irish-medium schools (*Gaelscoileanna)*, for instance, are at stake, particularly when this is perceived as evidence of favouritism or elitism towards and by Irish speakers. McCubbin (2010) asserted that the use of Irish for political and career progression by non-native speakers with no perceived connection with traditional Irish speaking has stimulated tension as others see this choice as being stimulated by elitist goals facilitated by class-driven use of Irish.

Borooah, Dineen and Lynch (2009) took an economic approach and argued that Irish speakers, even those who do not speak Irish regularly, have a distinct advantage in the labour market. They based their conclusions on the assumption that "if a person claims to speak Irish… then, in the absence of any evidence to the contrary, he must be presumed to be an Irish speaker" (p. 439). Watson and Nic Ghiolla Phádraig (2009) refuted this claim by arguing that the advantage is indicative of class differences, not an Irish speaker advantage. Given the obligatory status of Irish in the education system, the majority of people who speak Irish do so because they learned it as a subject in school. Middle-class students who attend good schools are encouraged and supported in attaining the high academic results required by universities. Watson (2014) and Watson and Nic Ghiolla Phádraig (2009) caution against drawing inferences about class differences between Irish speakers and non-Irish speakers as to do so would be a misrepresentation of the heterogeneity of Irish speakers in Ireland.

IRISH IN THE EDUCATION SYSTEM

All children in Ireland are required to attend school before the age of 6 and prior to this some Irish L1 and L2 children attend Irish-medium pre-schools, called *Naíonraí*, of which there are currently approximately 200 operating in Ireland (see Hickey, 1999b, 1997). The majority of children attend English-medium primary and secondary schools where Irish is a required subject (Ó Murchú, 2001). Two types of Irish-medium schools operate in Ireland and they are schools in the *Gaeltacht* and Irish-immersion schools known as *Gaelscoileanna*. It is important to recognise some of the differences identified between these two contexts. Harris, Forde, Archer, Nic Fhearaile and O'Gorman (2006) and Watson and Nic Ghiolla Phádraig (2009) found that children attending *Gaelscoileanna* are more likely to come from

advantaged homes than those attending *Gaeltacht* schools. Strickland (2012), using data from the *Growing Up in Ireland* (GUI) study, also noted that, whereas one in two *Gaeltacht* children have a parent in Professional/Managerial occupations, this rises to three in four for children in Irish-immersion schools.

Fishman's (1991) emphasis on the centrality of intergenerational transmission in minority language maintenance was challenged by Romaine (2006), who sought to recognise 'secondary agencies of transmission' (p. 466), such as schools, capable of producing competent and active speakers of indigenous languages (see also Hill, 2011, and King, 2001, for evidence from the Maori context). Ó Riagáin (1988) speculated that "were it not for the fact that the schools continue to produce a small but committed percentage of bilinguals, the maintenance of this small minority of Irish speakers would long since have failed" (p.7). However, Ó Riagáin's use of the descriptor "small but committed" illustrates the fact that Irish proficiency is not the typical outcome of 13-14 years of language teaching in mainstream schools. Not only that, but as Smith Christmas and Ó hIfearnáin (2015) observed: "despite the high proportion of speakers who can use the language to some degree, the number of people actively using the language remains limited" (p. 258). Furthermore, Moriarty (2012) drew attention to the question of the legitimacy for L2 learners of using the language outside of the domain of education, as Irish is associated with the school only for many of these speakers. She argued that this has limited the space for Irish in other domains. Crystal (2000) warned of the negative consequences of depending on institutions like the education system or government to 'fix' the language without any associated individual responsibility or commitment.

Both *Gaeltacht* schools and *Gaelscoileanna* are under-represented in reports on mainstream education, for example in the study by Eivers et al (2010), a follow up report by Gilleece et al (2012) was necessitated because the Irish-medium schools were so under-represented that analysis was impossible. There is a pressing need for further research in order to develop best practise policies and to ensure the representation and fair treatment of these non-typical pupils, educators and parents.

Gaeltacht schools

Within officially designated *Gaeltacht* areas, children attend mainstream *Gaeltacht* schools which are usually Irish-medium. Over two thirds of *Gaeltacht* primary schools are 1-3 teacher schools, which is significantly higher than the proportion of small schools in the state

nationally. The average enrolment in *Gaeltacht* schools is 77 (DES, 2013[8]), and it should be noted that this low average is not evenly distributed as the very smallest schools are situated in the most isolated areas, where Irish is most widely spoken in the community and in the home, which contributes to the relatively greater number of pupils whose L1 is Irish (DES, 2013). In most cases, however, pupils who start preschool as L1 Irish speakers are in a minority, even in *Gaeltacht* schools (Hickey, 1999b). As noted by Hickey (2001, 2007a) and Nic Cionnaith (2008) with regard to classes in which Irish L1 and L2 children are mixed, where L1 speakers of Irish are in the minority in the classroom, the needs of these native speakers are typically seen as secondary to the goal of stimulating productive use among L2 speakers, given the large gap between L1 children who appear fluent and those who are beginning to learn the language as L2. Similar treatment of Welsh native speakers in Welsh-medium *cylchoedd* (preschools) is discussed by Hickey, Lewis and Baker (2014).

Officially, all schools in the *Gaeltacht* are expected to be Irish-medium schools but Ó hIfearnáin (2008) has observed that this is no longer the reality for all of them. Ó Laoire and Harris (2006) found that in some cases this is appropriately qualified teachers are not available, and Máirtín (2006) and Mac Donnacha, Ní Chualáin, Ní Shéaghdha and Ní Mhainín (2004) documented the difficulties that primary schools in the *Gaeltacht* have in finding teachers with sufficient fluency to fill posts. This difficulty also applies to the recruitment of health, speech and language and psychological professionals to engage with children with special needs in the *Gaeltacht*. Even when the personnel appointed have high proficiency in Irish, they lack standardised measures of Irish with accompanying norms (O'Toole & Hickey, 2013; Ní Chinnéide, 2009). Not only must these practical issues be dealt with, but the psychologists and SLTs interviewed by O'Toole and Hickey (2013) also noted that staff working in the *Gaeltacht* meet unfavourable attitudes to Irish and a poor understanding of bilingualism among others in their profession.

Hickey (2007a) called for a greater appreciation of the need to offer Irish language support and enrichment to L1 speakers of Irish in the education system, rather than the prioritisation of L2 learners' needs. Given that her study of Irish-medium preschooling in the *Gaeltacht* in the 1990s showed that most *Gaeltacht* preschool groups inevitably include both L1 speakers and L2 learners, where teachers tend to view L1 speakers' needs as less urgent.

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[8] A new policy for *Gaeltacht* schools is currently in development (Draft Policy published in 2015), with proposals to amalgamate small schools and to impose the teaching model used in Irish-immersion schools throughout the Gaeltacht.

Educators of mixed-background preschool classes have been found by Ní Shéaghdha (2010) and Hickey (2007a) to slow down and adapt their language for the L2 learner students by explaining themselves more often, asking fewer questions, modelling for repetition less often and giving less feedback. Whether deliberate or not, this points to a prioritisation of the needs of the lower proficiency students, while leaving unmet the pressing needs of native speakers for challenging language experiences that extend their vocabulary and help to support their control of grammar. Some areas have piloted programmes to offer differentiated provision to pupils: *Scéim na gCúntóirí Teanga* (Irish Language Assistants' Scheme) is one example of such a scheme which aims to address the needs of both L2 and L1 speakers whereby Language Assistants visit schools in the *Corca Dhuibhne Gaeltacht* and divide their time between providing support to children whose L1 is not Irish and who are struggling in the Irish-medium classroom, and enrichment to native speaker children through more challenging activities.

Gaeltacht children's achievement in Irish

The study of L1 acquisition of Irish has been relatively underrepresented in research until recent years. Hickey (2012) noted that it lacked "a body of research on fundamental aspects of the acquisition, teaching and learning of the language to support it" (p. 149). McKenna and Wall (1986) carried out an early study of the acquisition of Irish syntax, and Hickey (1987, 1991) looked at the use of basic measures such as MLU in studies of Irish L1 acquisition. Hickey (1990b) examined the issue of word-order in children's acquisition of this VSO language. Early phonological development in Irish was examined by Ó Baoill (1992) and Brennan (2004). Hickey (1993) examined the role of formulas in Irish acquisition data. Goodluck, Guilfoyle, and Harrington (2006) and Guilfoyle and Harrington (2001) examined aspects of Irish syntax from a formal perspective, while Cameron-Faulkner and Hickey (2011) took a constructivist approach to a corpus of Irish L1 acquisition. A number of more recent studies by Péterváry, Ó Curnáin, Ó Giollagáin and Sheahan (2014), Lenoach (2014) and O'Toole and Hickey (2012) have looked in greater detail at the acquisition of Irish among bilingual children, among both young children and those in the school years. Nevertheless, the scope for more research, particularly research from the constructivist perspective, is extensive.

Few large scale studies have examined the actual language use of children in the *Gaeltacht*. Harris et al (2006) is the only study to have examined Irish acquisition in the

context of the different modes of language instruction at the primary school level, including *Gaeltacht* schools. Gilleece et al (2012) and Shiel, Kavanagh and Millar (2014) have examined progess in English and maths in children in *Gaeltacht* schools and *Gaelscoileanna*, and the results of Mac Donnacha et al (2005) are also informative.

Harris et al (2006) conducted a series of national surveys in 1985 and 2002 of achievement in spoken Irish across *Gaeltacht,* Irish-immersion and mainstream English-medium schools. They found no difference in *Gaeltacht* school children's overall mean score of Irish listening between 1985 to 2002, despite the wide variation of language practices in those schools between the two periods. They did find differences in children's Irish speaking proficiency in their final year of primary school, whereby the percentage of *Gaeltacht* pupils who had control of fluency of oral description dropped from 86.7% to 72.9% and speaking vocabulary dropped from 73.6% to 59.2%. The control of *Gaeltacht* pupils of morphological and syntactic forms in production also declined over this period; for example control of the morphology of verbs fell from 61.9% to 44.9% and of nouns (including grammatical gender) fell from 67.3% to 51.1%. The authors acknowledged that they did not differentiate between schools in the *Gaeltacht* according to Irish use in the home, in education or in the community, which limits generalisability, but their results are indicative of a greater decline in some aspects of Irish than others among pupils in *Gaeltacht* schools.

Mac Donnacha et al (2005) did differentiate between three categories of *Gaeltacht* school and considered the language proficiency and teaching practices in each (their categorisation predates that of Ó Giollagáin et al, 2007, but is very similar). Category A schools were located in communities in which 70% or more of the population spoke Irish on a daily basis, Category B schools in areas where 40-69% of the population spoke Irish daily and Category C schools in areas where less than 39% of the population spoke Irish. Category C schools were attended by 56% of all *Gaeltacht* primary school pupils. The results showed that the teaching practices and pupil proficiency outcomes fell in line with their categorisation. A higher percentage of pupils completed their primary school education with *fluency* in Irish in Category A schools than Category B or C, and teachers used more Irish in these schools than any other. A higher percentage of pupils completed their primary school education with a *reasonable* level of competence in Irish in Category B schools than C, and teachers used comparatively more Irish in these schools, though also used some English. The proficiency of Category C school graduates varied; some acquired a reasonable level of proficiency in Irish, others a good level and others left school with little or no Irish. However,

it should be noted that the results of this study are entirely based on principal report, not performance data.

Looking at wider aspects of achievement in *Gaeltacht* schools, Gilleece et al (2012) noted they perform well in the *National Assessment of English Reading and Mathematics Performance in Irish-medium schools* (NAIMS). In the *Gaeltacht* schools, children in sixth class had significantly higher scores for English reading compared to the national sample in National Assessment 2009 (Eivers et al, 2010) and children in second class performed on par with children in mainstream schools in English reading. The same pattern was found for mathematics: children in sixth class in *Gaeltacht* schools had significantly higher scores in mathematics than children in the same class in the national sample (in mainstream schools), while scores of children in second class in *Gaeltacht* schools did not differ from the national sample, which indicates that they were not disadvantaged in mathematics achievement compared to the national sample.

Péterváry, Ó Giollagáin, Ó Curnáin and Sheahan (2014) and Lenoach (2014) conducted significant studies of Irish acquisition by children in the *Gaeltacht*. Their data contribute to what is known about accuracy in children aged 7-11, the same age as those included in the present reseach (Lenoach also collected data from children aged 3-4 years and 15-17 year olds). The children in both studies were from Irish-only homes in the Connemara *Gaeltacht*.

Péterváry et al (2014) collected productive data from a picture description task. The results showed an increase in accuracy from younger children to older for vocabulary and many specific features including answering closed questions and direct relative clauses. The researchers highlight morphological errors made on marking the irregular plural, e.g. *bóanna* (cows) and *iasca* (fish). There are 11 ways of making the plural in Irish (Hickey, 2012) therefore extended acquisition is expected in the normal acquisition of this complex feature. Analysis of English proficiency also revealed widespread errors, which demonstrates that acquisition was ongoing in both languages of the children.

The authors also generated a 'bilingual index score' for Irish. This was calculated by scoring the accuracy on a range of linguistic categories (12 comparable variables [Irish–English]; 4 independent variables in Irish), which included number of lemmata, plural noun, prepositions, disfluency and initial mutations and where the weighting of categories was manipulated to increase the weighting of some categories (e.g. prepositions) and decreasing the weight of others (e.g. word count fluency). The bilingual index score was calculated by

subtracting the total score for English from the total score for Irish, thereby providing an index of the relative balance of proficiency. The greater the bilingual index score, the greater the gap in proficiency in the two languages. The results of this analysis show that 19 of the 50 participants were balanced bilinguals, and further analysis showed an increase in proficiency on comparable linguistic categories across the age range (7-12). Péterváry and colleagues found that the remaining 31 were English-Dominant. A limitation of this study is that analysis depended heavily on identifying the errors made by participants and little information is provided about the percentage of accurate usage of specific language features in obligatory contexts.

Lenoach (2014) observed interactions between children (n=33) and their parent(s) in the home and parents also kept a record of the child's interactions with others and the language of these interactions. Additional data were collected in a more controlled setting using methods such as a picture naming task and picture description task. The author found that scores on a picture naming task were higher in English than in Irish, with the greatest difference at age 8, though the difference was still significant at age 12. The author graphed the results for the measure of vocabulary according to age group and found that the lines crossed from the age of 4 to 8; participants had an average vocabulary in Irish that was relatively larger than English at age four and this trend had reversed by age 8. This finding warrants further research as it could be indicative of language attrition in previously Irish dominant children who experience a significant change in their input when they begin school, which has a subtractive effect on their vocabulary development.

In sum, given the context of pressure from the majority language on the minority language and the limited number of domains in which Irish is currently used, education is a context in which enrichment can be provided to mediate the dominant effect of the majority language environment and to support language acquisition happening in the home. In order for this dual-domain approach to be successful, there needs to be more recognition of the specific needs of Irish L1 speakers in education, to challenge children and avoid a situation in which their acquisition reaches a plateau, combined with the provision of meaningful domains of use of their L1, especially with their same-aged peers.

Gaelscoileanna

Dissatisfaction with the outcome of teaching Irish as a single subject in mainstream English-medium schools nationally contributed to increasing parent-led demand for the establishment of Irish-medium schools (*Gaelscoileanna*) since 1972[9]. The latest figures (Gaelscoileanna, 2015) show that there are currently 143 primary *Gaelscoileanna* and 40 post-primary *Gaelscoileanna* outside of the *Gaeltacht* in the Republic of Ireland. The latest attendance figures are for 2012-2013 and are based on 141 primary schools. 32,538 pupils attend *Gaelscoileanna* in the Republic of Ireland (Gaelscoileanna, 2015). Gaelscoileanna are attended by a minority of children for whom Irish is their L1 and by a majority of those for whom Irish is their L2.

Parents can have a formative impact on their children's engagement with language learning and their attitudes and input can also be central to the creation of a favourable ideology and context for Irish acquisition in the home and in school (Kavanagh and Hickey, 2012; Nic Cionnaith, 2008; Harris et al, 2006). Strickland (2012) discussed the commitment of some parents of children in *Gaelscoileanna* in opting for the *Gaelscoil* instead of the more local mainstream school, as it showed the motivation of the parents, and the value they attached to Irish-medium education. This cuts across other social differences and contributes to the diversity in terms of social class and Irish proficiency among parents of children attending *Gaelscoileanna*, a group Hickey (1997) had previously argued against seeing as an 'educated elite'.

Children's achievement in Irish in Gaelscoileanna

The second-language acquisition (SLA) of Irish has been considered by a number of researchers, such as in Hickey's (2007a, 2001, 1999a, 1997) studies of children's acquisition of Irish in immersion preschools and in McVeigh (2012), Ó Duibhir (2011, 2009) and C. Walsh (2007). It is notable that research such as Singleton, Harrington, and Henry (2000), Cameron-Faulkner and Hickey (2011) and O'Toole and Fletcher (2010, 2008) have given explicit consideration to the issue of parental language background, language dominance, bilingualism and language mixing, given the overwhelming influence of English even on

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[9] For an account of Gaelscoileanna with a focus on pedagogy or teaching methods, the reader is best served by consulting Kennedy (2012), Ní Shéaghdha (2010), Ó hAiniféin (2008), or Hickey (1999a, 1999b/ 1997) for preschool immersion education.

young children acquiring Irish as L1 or one of the languages being acquired in simultaneous bilingual acquisition.

Harris et al (2006) found no difference between the pupils in *Gaelscoileanna* in overall mean score of Irish listening from 1985 to 2002, which is noteworthy as there was a substantial growth (and diversification) in these schools across this period which could have contributed to a decrease in mean scores. In Irish production, scores revealed a high level of proficiency on all but one out of eight subtests, but on the Syntax subtest, they showed a statistically significant decline in the percentage of pupils achieving mastery. For the two central objectives of the study, fluency of oral description and communication, the percentages attaining mastery in *Gaelscoileanna* in 1985 were 95.2% and 99.3% respectively and in 2002 were 87.6% and 94.6% respectively, differences which reveal a small but not statistically significant decrease in the percentage of *Gaelscoileanna* pupils achieving a high level of mastery of communicative competence in spoken Irish.

Ó Duibhir (2009) collected productive language data from children in their final year of primary school education in *Gaelscoileanna* (see also C. Walsh, 2007, who examined accuracy in the written Irish of pupils in post-primary Irish-immersion). The participants were typically very successful in their acquisition of conversational skills and basic literacy[10] and they had acquired the high levels of fluency and advanced receptive listening and reading skills needed to function effectively in an Irish-speaking context. Yet fluency is not synonymous with accuracy, and a prioritisation of function over form was evident from Ó Duibhir's results; participants' data showed better performance in terms of communicative efficiency than grammatical accuracy.

Ó Duibhir noted that participants depended heavily on formulaic constructions in Irish, which Hickey (1993) described as unanalysed and memorised units in a child's speech. Formulas serve a purpose as they limit the cognitive demands on speakers as they can draw formulaic utterances from memory, which facilitates the strategic use of cognitive resources needed to formulate the next statement or process the input from an interlocutor. However, Ó Duibhir was concerned that the rote-use of formulaic non-target constructions was becoming fossilised in habitual use. This fossilisation of ungrammatical speech is very resistant to correction, even when learners become aware of their ungrammaticality (Doughty, 2003). Ó Duibhir reported fossilisation of ungrammatical speech extensive enough

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[10] A full account of literacy development in Irish is beyond the scope of the study, see Hickey and Stenson (2011), Parsons and Lyddy (2009), Hickey (2007b), Walsh (2007) or Ó Laoire and Harris (2006).

to merit the title of a 'school code', an immersion school variation of the language that differs from typical native speaker norms. Ó Duibhir found evidence to suggest that such a code does exist and referred to it as *Gaelscoilis*, a term first used by Mac Mathúna (2008).

The native speaker community is very remote to pupils in Gaelscoileanna: this has not encouraged them to learn traditional varieties of Irish because native speaker varieties appear not to have value in these Gaelscoil linguistic markets (Ó Murchadha, 2013). Yet as argued by C. Walsh (2007), the lack of contact between native and L2 speaker children has been overlooked by critics of their variety, some of whom see the variety as a threat to language purity (C. Walsh, 2007). Not only are they not in contact with native speaker children, children attending *Gaelscoileanna* typically have both native and non-native speaker teachers of varying dialects and consequently their variety may contain aspects of the traditional and non-traditional varieties. They are not surrounded by a native Irish language community and depend on their language learning peers to construct an Irish speaking community, which has consequences for the variety of Irish they speak.

Another concern relating to Irish-medium education has been the resistance of pupils to using the language outside school. Ó Laoire (2000) warned that limiting the legitimate use of Irish to the classroom only would lead to the language being forgotten as soon as the learner left that context. This is borne out in the Scottish context by the results of Dunmore (2014), as typical use of Scots Gaelic among adult graduates of immersion education with peers and family was quite limited, which he believed to be in line with Fishman's (2001; 1991) criticisms of the school environment as the catalyst of language shift reversal in the absence of intergenerational transmission in the home. However, Murtagh and van der Slik (2004) and Murtagh (2003) identified graduates of second-level Irish-immersion schools as being more likely to continue speaking Irish when they complete their education than their peers in English-medium education.

Armstrong (2012), O'Rourke and Ramallo (2011), Jaffe (2007), Ó Laoire and Harris (2006), Heller (1996) and Heller and Martin-Jones (2001) all emphasise the importance of education as a site of language socialisation and for language revitalisation. The emergence of new speakers of Irish is closely tied to increases in the number of children attending immersion education in Ireland. This may be due to children receiving more input and more opportunities to use the language, and/ or children's socialisation into an ideology which values and favours bilingualism and the Irish language. Education has the capacity to provide speakers such as new speakers with more powerful positions than they occupy outside

education (Norton and Toohey, 2014) and the variety of Irish spoken by graduates of immersion education has consequences for the development of Irish.

CONCLUSION

Constitutional protection for Irish has not guaranteed revitalisation: English continues to be the dominant language and is used for most official and non-official interactions. Nevertheless, Irish-medium education in the *Gaeltacht* and in *Gaelscoileanna* has had some success in producing Irish speakers with high proficiency in, not only Irish, but also English reading and mathematics. These children appear to have achieved additive bilingualism, but Hickey (2001) and Péterváry et al (2014) have noted deficiencies in the Irish of children in *Gaeltacht* schools, as has Ó Duibhir (2009) in the Irish outcomes of Irish-immersion *Gaelscoileanna.* The outcomes for the vitality of the language are significant in the context of weakening intergenerational transmission of Irish in the home and a substantial increase in the dependence on schools to produce Irish speakers.

In conclusion, a growing body of research pertaining to achievement in *Gaeltacht* and Irish-immersion schools now exists but relatively fewer studies have examined the actual language use of children acquiring Irish. The present research aims to bridge the gap between sociolinguistic research, which is cognisant of power differences and context in minority language, and psycholinguistic research, whose beam is more focused on linguistic input and output in terms of its structure and grammaticality.

Chapter 4 Child and adult measures

OVERVIEW OF THE CHAPTER

Hickey (2012) noted that the teaching of Irish lacked "a body of research on fundamental aspects of the acquisition, teaching and learning of the language to support it" (p. 149). A number of recent studies by Péterváry, Ó Curnáin, Ó Giollagáin and Sheahan (2014), and Lenoach (2014) have looked in greater detail at the acquisition of Irish among bilingual children, among both young children and those in the school years. However, they did not develop standardised measures of Irish, relying instead of error identification and measures of length.

The measures developed, adapted or selected for the present research are described in this chapter. A measure of language background was developed with which children and adults were categorised. Tests were developed to examine children's receptive and children's and adults' productive performance on semantic and grammatical gender in three contexts (Det + N, N + Adj and 3rd person possession). A measure of non-verbal intelligence was adapted, and standardised tests of receptive reading vocabulary in Irish and English with suitable norms were identified. All measures and procedures received ethical approval from the University College Dublin Research Ethics Committee-Human Sciences. They fall into two main categories: background measures and language proficiency measures.

BACKGROUND MEASURES

The Brief Language Background Questionnaire (B-LBQ)

A criticism leveled by Slobin (2014) at studies of bilingual language acquisition is that relatively few categorise participants rigorously by their exposure to different levels of input in each language, making it difficult to compare studies directly on the dimension of differential language experience, or to interpret conflicting results about bilinguals. Only a few, such as Thomas and Gathercole (2007), Oller and Eilers (2002), Gruter and Paradis (2014) and Montrul's research on heritage speakers (see Montrul, de la Fuente, Davidson and Foote, 2012; Montrul and Potowski, 2007), have included sufficient examination of different types of bilingual background to allow for a fine-grained consideration of the impact of heterogeneity in bilingual development.

Given the recent interest in language outcomes among Irish speakers of different backgrounds, it was deemed timely to prepare a measure which would allow adult participants to be categorised according to language background, and so the Brief Language Background Questionnaire (B-LBQ) was developed for the Irish context, based on a number of other measures (see Appendix 1 for English version).

Dunn & Fox Tree's (2009) Quick Bilingual Dominance Scale was considered for use as the measure of language background for the adults as it contained a number of appropriate and relevant questions. However, it did not include the range of questions required for the research, and additional questions were added to supplement the language history information elicited. These included "list your languages in order of proficiency" and "how much of each language was spoken in your household as you were growing up?". Participants were also required to rate their proficiency in Understanding, Speaking, Writing, Reading and in Grammar in Irish on a scale of 1 to 5, 1 being "Only a few words" and 5 being "Highly Proficient". Self-ratings of proficiency are commonly used with adult participants (McVeigh, 2012) and previous research suggests that self-reported language measures are valid indicators of linguistic ability (Sheng, Lu and Gollan, 2013).

The questionnaire went through several drafts and was piloted with a large number of participants before a final (Brief) version was arrived at. The B-LBQ is very short, consisting of 13 questions. It was designed to be used as a screening tool as well as a measure of language background. The questions map onto three factors: past, current and future language use. It requires approximately 5 minutes to complete.

A scoring system to analyse the data generated by the B-LBQ was created (indicated on the version of the B-LBQ available in Appendix 1). A maximum total score of 39 was calculated by summing two subscores. Subscore 1 consisted of responses to questions pertaining to past acquisition context/ language background, and Subscore 2 to questions pertaining to current proficiency and use.

Weighting was applied to two dichotomous questions. Answers indicating that the participant was raised with Irish as their first language and answers indicating that Irish was currently the participant's strongest language were weighted with a score of 4, while a score of 0 was attributed to participants who responded with any other response. This scoring scheme allowed participants to be categorised as either native speaker or L2 speaker according to context of acquisition based on questions related to past use. It also allowed participants to be categorised as Highly Proficient or Moderately Proficient according to

responses of questions relating to current and future use. As all of the native speaker participants reported high proficiency, the following three categories were used:

Native speaker highly proficient: Home score 6 - 9, Irish proficiency score 20 - 30.

L2 speaker highly proficient: Home score 5 or under, Irish proficiency score of 20 - 30.

L2 speaker moderately proficient: Home score 5 or under, Irish proficiency 11-19.

When this measure was used with the adult participants in Adult Study 1 (Chapter 5), the Cronbach's alpha of the B-LBQ was .830. As the Cronbach's alpha was above .7, the scale had acceptable internal reliablility in this sample. When used with the parents of the child participants in Child Study 1 (Chapter 7), the Cronbach's alpha of the B-LBQ was .957, which indicates the scale also had strong internal reliablility for this population. The final group this measure was used with was the teachers of the child participants, and for this population the Cronbach's alpha of the B-LBQ with the sample of teachers was .802, again indicative of acceptable internal reliablility.

The Child Language Background Questionnaire

Patterns of language usage in the home are highly relevant to analysis of acquisition (Alarcón, 2010), and relatively greater input in the home is expected to enhance children's acquisition. However, Irish is a minority language in a vulnerable sociolinguistic and psycholinguistic position. Input in the minority language at home is more variable than majority language input and the effects on acquisition and maintenance of the language are more significant. The Child Language Background Questionnaire (C-LBQ; see Appendix 2 for the full measure) was adapted from the Alberta Language Environment Questionnaire (ALEQ, see Paradis, Emmerzael & Sorenson Duncan, 2010). The present research focused on children in middle childhood, and therefore questions specific to young children were adapted. In designing the measure, the primary aim was to collect as much detailed information as possible about the language acquisition experience of the child participants, including:

a) Demographic information
b) Age of Acquisition: Age of first exposure to L1, L2 and/or other, amount of exposure and the context or people who provided the exposure
c) Current Language Use: Language use patterns between the child and the primary and secondary caregiver, siblings and friends, literacy and language activities, any other extracurricular activities and television viewing.

The B-LBQ was included with the C-LBQ to collect more data about the language background and proficiency of the parent.

In scoring the C-LBQ, the total score was calculated by summing scores for all questions and the maxiumum score was 45. The total score could then be used to categorise participants as being from an Irish Dominant Home (IDH), Bilingual Home (BH) or English Dominant Home (EDH). Participants from IDH were participants for whom Irish was the dominant language of the home. Participants from BH received input in Irish in the home but also received significant input in English. The 'one-parent, one-language' strategy was one strategy used in such households but more frequently a mixture of Irish and English in the input from both parents was reported. Participants who received no or extremely little Irish input in the home were categorised as being from EDH. These categories were modeled on Gathercole and Thomas' (2009) categories of Only Welsh Home, Welsh English Home and Only English Home. The following score ranges were intended for use in categorising the participants:

Irish Dominant Home:	Scores of 33 - 45
Bilingual Home:	Scores of 11 - 22
English Dominant Home:	Scores of 0 - 10

Missing data management

As a high proportion (97.18%) of parents who began the measure did not answer at least one question, managing these missing data was challenging. As a result of the high rate of missing data, the following questions could not be considered in the scoring of the child participants in the present research:

1. The language use pattern for Sibling 2, 3 and 4 was removed and language use between Sibling 1 and target child represented sibling use.
2. The language use pattern for Friend Group 2, 3 and 4 was removed and language use between Friend Group 1 and target child represented Friend Group use.
3. Due to the low rate of response to the question about English use with the Secondary Caregiver, the question was not included.
4. Language in day-care was not included because so few children attended day-care.
5. The question relating to first words in either language and the age at which parents would expect their children to be fluent was not included because parents appeared to answer them inconsistently and inaccurately, e.g. at birth.
6. The question about computer use in Irish and television watching in Irish were often disregarded. The overwhelming majority of parents who did respond indicated that the media use was predominantly in English, therefore there was little variability.

A strategy was developed to score the partly completed questionnaires. Participants whose parent completed over 50% of the measure with some missing data were examined individually across the 12 most informative questions, including "Before going to school, how much time did (s)he spend listening to Irish?" and "Indicate how much Irish is used between your child and the Primary Caregiver". The total score was calculated by summing their scores for each of these 12 questions, but only for participants whose C-LBQ was missing 4 of these questions or less and NOT missing data about 1) Irish use with Primary Caregiver, 2) age at which exposure to Irish began or 3) how much Irish was heard before starting school.

Nevertheless, even within these 12 questions, the rate of missing data was high and only approximately 50 participants could be categorised using the overall score of 45. In over 250 cases, the score for each participant was scrutinised across all the questions the parent had answered to come to the most valid categorisation possible.

Verification

Two additional sources of information regarding language background were used to verify the categorisation of child language background made on the basis of the information provided in the C-LBQ: the question on the B-LBQ which asked parents to indicate the percentage of Irish use in their current home, and the Child Use of Irish Questionnaire, which was completed by the child and related to their language use with their mother, father, siblings and friends (where applicable, see Appendix 3).

The categorisation of child home language according to the parent across as many questions as were answered, and the categorisaton on basis of the question of the B-LBQ which asked parents to indicate the percentage of Irish use in their current home were correlated and a strong positive correlation was found ($r = .872$, $p < .001$). Secondly, the categorisation of home language according to the parent and according to the child were correlated and a strong positive correlation was found ($r = .767$, $p < .001$). Thirdly, the home language categorisation according to the child and on the question which asked parents to indicate the percentage of Irish use in their current home were correlated and a strong positive correlation was found ($r = .737$, $p < .001$).

A conservative compromise strategy was used for discrepancies so as not to overestimate the number of participants from IDH. The final categorisation was strongly correlated with the child's categorisation ($r = .810$, $p < .001$) and the question which asked

parents to indicate the percentage of Irish use in their current home ($r = .851$, $p < .001$). The 11.44% of participants who could not be categorised on based on the C-LBQ were categorised using the Child Use of Irish Questionnaire, which was reasonable given the strong correlation between child and parent responses ($r = .767$).

In sum, the language background information for the vast majority of child participants was incomplete. In cases where data were missing, the scores on questions that were answered was considered along with the number of items missing, and a cautious and conservative categorisation was made by adjusting the scoring to reflect the number of missing items, without misrepresenting the home language of the participant.

Teacher and Parent rating of child proficiency

Parental and teacher report are commonly used methods of accessing information about a child's relative strengths and weaknesses in one or both of their languages (Bedore, Pena, Joyner and Macken, 2011; Gutierrez-Clellen and Kreiter, 2003). Hoge and Coladarci (1989) reviewed the literature which considered the validity of teacher report and concluded that it was a reasonably valid measure. The Child Rating Form used here is an adaptation of a measure used by McVeigh (2012). An English translation of the adapted Teacher Child Rating Form can be viewed in Appendix 4. The parents version was very similar but with the wording of the introduction adapted for parents. In testing, all teacher forms were in Irish only while parents forms were bilingual.

The Child Rating Form required parents and teachers to separately rate the child's speaking, reading, writing and understanding of Irish and English relative to other children in their class (for the teachers) or how they expected their child to perform relative to other children their age (for the parents). In the format used by McVeigh (2012), participants were required to draw one dash on a 10mm scale to indicate the child's proficiency, 0 being very poor and 10mm being the maximum proficiency. To make the measurement more standardised, the present format required participants to rate each of the aspects of proficiency in Irish and in English on a scale from 1 to 5, 1 being very poor and 5 being highly proficient. An average rating for the child's English was calculated by summing the scores for Listening, Speaking, Reading and Writing and dividing by four, and the same procedure was followed to get a rating for their Irish.

Non-verbal intelligence

A measure of non-verbal intelligence was included as part of the battery of measures in the present research as a way of assessing the impact of general intelligence on proficiency on the other measures. This rationale is not without its criticisms. McGrew and Flanagan (1998; as cited in DeThorne & Schaefer, 2004) argued that "there is no such thing as 'nonverbal' ability - only abilities that are expressed nonverbally" (p. 275). With this in mind, a short measure of non-verbal IQ is included but will mainly be used as a screening tool, with some additional analyses.

There were difficulties in identifying a measure which did not require individual administration, and which could be adapted to administration through Irish. Ravens' Progressive Matrices was considered, but it is time consuming and McVeigh (2012) had reported significant problems in using this in an Irish-immersion setting. The measure identified as the most appropriate given the aims of the present study was the Matrices subtest of the Weschler Abbreviated Scale of Intelligence (WASI). This measure depended on participants' abilities to recognise patterns in visual stimuli. The only oral input required was the instructions, and an Irish translation of the instructions for this measure was prepared and piloted to check for clarity.

Sample items were completed by the researcher aloud, by pointing at the sample item on a screen, onto which the stimuli were projected, and requesting the participants say their answers aloud. If any participant chose the incorrect item or misunderstood, the instructions were repeated or rephrased. Upon completion of the sample items, the 35 test items were displayed individually in a fixed sequence. A maximum of 30 seconds was allowed for each item and the full measure typically took no longer than 20 minutes.

One point was awarded for each correct response. The calculation of total score depended on the age of the participant: participants aged 6-8 were scored on items 1 to 28, participants aged 9-11 on items 1 to 32 and participants aged 12 and over on items 1 to 35. Total score used to calculate a percentage correct score, which allowed for cross-comparability of participants of different ages.

LANGUAGE PROFICIENCY MEASURES

The Receptive Measure of Irish Morphosyntax (RMIM)

This measure is an adaptation of a measure designed by Hickey and McDaid (McDaid, 2012) and was only used with the child participants to test children's ability to distinguish referents on the basis of the gender marking. The Receptive Measure of Irish Morphosyntax (RMIM) was designed to test receptive knowledge of grammatical gender in two contexts:

Gender assignment for

    1) human nouns
    2) inanimate nouns and
    3) animals

Third person possession for

    4) human nouns and
    5) inanimate nouns.

Each of the subtests is described below, and sample items for each of the subtests are provided in Appendix 3. The test was designed to be administered in small groups, with the researcher working through the examples with the group in each case, before they completed the test items. Writing was minimised: participants responded by circling their responses in their individual Answer Booklet. The stimuli and format aimed to be child-friendly and game-like and was modelled on children's workbooks used in class. Videos of a puppet, "Marcas from Mars", were used to give instructions for each of the five subtests and the participants found this part of the data collection very enjoyable.

R-MIM Subtest 1: Gender assignment for human *nouns*

For the test items, graphics of human nouns were presented (eight to a page), and each graphic had *sé* (he), *sí* (she) and *Níl a fhios agam* (I don't know) printed underneath (this test used only subject pronouns). Participants were asked to circle the pronoun appropriate to the noun pictured. This subtest comprised 14 items in total. Sample items were presented aloud in group format and the researcher checked with each child that they understood the format before they progressed to the test items.

R-MIM Subtest 2: Gender assignment for inanimate nouns

Participants were presented with two inanimate objects side by side, with one item in each pair being a masculine inanimate noun, and the other a feminine inanimate noun. Underneath the pair of graphics was either *Chonaic Marcas é* (Marcas saw it [Pron-Obj masculine]), *Chonaic Marcas í* (Marcas saw it [Pron-Obj-feminine]) and *Níl a fhios agam* (I don't know). Participants were required to circle either the masculine or feminine inanimate object depending on whether the elicitor sentence indicated Marcas had seen a feminine or masculine object. One sample pair was presented and responses were checked by the researcher to ensure that children understood the task before moving onto the test items. The subtest comprised 8 pairs.

R-MIM Subtest 3: Third person possession marking for human *nouns*

In this subtest, a pair of graphics of human nouns, one masculine and one feminine were presented in a pair. Underneath the pair was either:

Dathaigh	*a*	*thaobh* ('colour his side')
Colour IMP Verb	his 3rd person possessor	side + lenition = masculine
Dathaigh	*a*	*taobh* ('colour her side')
Colour IMP Verb	her 3rd person possessor	side - lenition = feminine

Participants were asked to colour the picture of the human noun appropriate for the sentence expressing the third person possession (his or her). The nouns used as possessed items were familiar ones, e.g. head. Fourteen pairs of nouns were presented.

R-MIM Subtest 4: Third person possession marking for inanimate nouns

The same procedure as Subtest 3 was used, but with inanimate possessor nouns in this case. Eight pairs of inanimate nouns were presented. Again, the nouns used as possessed items were familiar ones.

R-MIM Subtest 5: Gender assignment for animals

Following the procedure used in Belacchi and Cubelli (2012), graphics of animals were presented. Each had *sé* (Pron-3rd-Masc 'he'), *sí* (Pron-3rd-Fem 'she') and *Níl a fhios agam* (I don't know) printed underneath and participants were required to circle the pronoun which they thought matched the animal pictured. The measure had 32 items.

Correct choices were scored 1 and incorrect choices were scored 0. A total score was calculated for each subtest, in addition to a percentage correct score to facilitate cross-subtest comparison while controlling for the number of items in a subtest.

The Measure of Irish Morphosyntax (MIM)

Subtests 1 to 3 of this measure were modeled on the measure used in the Welsh context by Thomas and Gathercole (2007). The Measure of Irish Morphosyntax (MIM) was designed to test accuracy in the use of grammatical gender in three contexts:

MIM Subtest 1:   following the definite article (Det+N),

MIM Subtest 2:   in noun-adjective combinations (N+Adj) and

MIM Subtest 3:   in marking third person possession (Poss. Pron-3rd +N).

It was necessary to control for initial phoneme and animacy in the choice of test words. Word familiarity was controlled by restricting noun choice to a set of the most frequent nouns from a corpus of the top 3000 most frequent words in children's books (Hickey, p.c.). The test was administered to child participants individually. A fictional character, Marcas from the planet Mars, was used as a background story to the measure. Child participants were asked to help Marcas learn Irish by telling him the names and colours of things he saw, which the participants saw as graphics on a laptop. The measure was administed in a printed answer booklet to the adult participants.

The difference between the adult and child participants was that the children saw pictures of the nouns and were asked to give their responses aloud while the adults saw the nouns in written form and were asked to write their responses. It would not have been feasible for the child participants to write their responses. Furthermore, the adult participants were asked to write their responses in the manner most like their use in speech, thereby emulating normal usage. Each of the subtests is described below. Translations are presented here as all instructions during testing were in Irish.

MIM Subtest 1: Grammatical gender following the definite article (Det + N)

Children were familiarised with the procedure of telling the puppet 'Marcas from Mars' what they saw in the picture, with responses 'Det + N' modelled on the examples. A total of 14 high-frequency masculine nouns and 14 high-frequency feminine nouns were selected. The target nouns were chosen from those consonant-initial nouns which allow gender marking on the initial phoneme, thus including initial consonants b, c, f, g, m, s and vowel-initial

nouns. Each of the selected phonemes was tested 4 times, twice with masculine nouns and twice with feminine nouns. The nouns were equally divided between animate noun and inanimate nouns. Participants were provided with examples before the test items to ensure they understood the procedure, and progressed to the test only when they showed that they understood the test format.

Subtest 1 Example:

Researcher: "Ó tháinig Marcas anseo ó Mars tá sé tar éis a lán rudaí a fheiceáil. Féach ar an gceann seo. Chonaic Marcas an leaba."

"Since Marcas arrived here from Mars he has seen lots of things. Look at this one. Marcas saw the bed."

Researcher: "Céard faoin gceann seo?"

"What about this one?"

If the child said "Chonaic Marcas an lámh" ("Marcas saw the hand") the child continued to the test items. If the child said anything else the researcher offered a prompt:

"An cuimhin leat nuair a bhreathnaigh muid ar an gceann eile dúirt mé "Chonaic Marcas an leaba", inis dom céard a chonaic Marcas sa mbealach céanna más é do thoil é?"

"Remember when we looked at the other one I said "Marcas saw the bed", tell me what Marcas saw in the same way please?"

For the adult participants, responses were elicited in the following format:

Sampla 1: Rothar	Feicim an <u>rothar.</u>
Example 1: Bike	*I see the <u>bike.</u>*
Sampla 2: Teach	Feicim an <u>teach.</u>
Example 2: House	*I see the <u>house.</u>*

MIM Subtest 2: Noun-adjective combinations

Children were familiarised with the procedure of telling the puppet 'Marcas from Mars' what they saw in the picture, with samples modelling responses patterned on 'Det N Adj (colour term)'. In order to ensure familiarity with the adjectives chosen, these were mainly colour terms. Eight colour terms were used in total, chosen both because they were focal colours likely to be well known to all participants, and subject to lenition. The same high frequency nouns from Subtest 1 were used, and initial phoneme /t/ nouns were also included in this set. Each initial phoneme was tested 4 times with varying adjectives, making a total of 32 items.

Subtest 2 Example:

Researcher: "An t-am seo tá muid chun féachaint ar níos mó rudaí. Ach tá na dathanna ar Mars difriúl ó na dathanna anseo. Caithfidh tú insint do Marcas cén dath atá ar na rudaí. Féach, chonaic Marcas an cat liath."

"This time we are going to look at more things. But the colours on Mars are different from the colours here. You have to tell Marcas what colour the things are. Look, Marcas saw the grey cat."

Researcher: "Céard faoin gceann seo?"

"What about this one?"

If the child said "Chonaic Marcas an lampa oráiste" ("Marcas saw the orange lamp") the child continued to the test items, otherwise the researcher offered a prompt: "An cuimhin leat nuair a bhreathnaigh muid ar an gceann eile dúirt mé "Chonaic Marcas an cat liath", inis dom céard a chonaic Marcas sa mbealach céanna más é do thoil é?"

"Remember when we looked at the other one I said "Marcas saw the grey cat", tell me what Marcas saw in the same way please?"

For the adult participants, responses were elicited in the following format:

Sampla 1: Cat & liath	Feicim an <u>cat liath.</u>
Example 1: Cat & grey	I see the <u>grey cat.</u>
Sampla 2: Lampa & oráiste	Feicim an <u>lampa oráiste.</u>
Example 2: Lamp & orange	I see the <u>orange lamp.</u>

MIM Subtest 3: Third person possession

This test measured whether participants could mark nouns for third person possession by animate (human and animal) and inanimate possessors. The same 7 initial phonemes as in Subtest 1 were tested 4 times each (28 in total). Some of the nouns were changed in this subtest in order to achieve semantic congruence between possessor and possessed noun.

Subtest 3 Example:

Researcher: "Sa chuid deirneach, tá Marcas ag iarraidh fáil amach an maith leat na rudaí atá feicthe aige. Is féidir leat "is maith liom" nó "ní maith liom" a rá. Seo Áine. Agus seo teidí Áine. Mar go bhfuil muid ag

caint faoi teidí Áine, deireann muid a teidí. Dearfaidh mise "Seo Áine"

agus is féidir leat "is maith liom a teidí", nó "ní maith liom a teidí" a rá."

"In the last part, Marcas would like you to tell him if you like some of the

things he has seen. You can say "I like the thing" or "I don't like the

thing". This is Áine [point to Áine]. And this is Áine's teddy [point to the

teddy]. Teddy belongs to Áine so we say <u>her teddy</u>. I'll say "This is Áine"

and you can say "<u>I like her teddy</u>" or "<u>I don't like her teddy</u>".

Researcher: "Céard faoin gceann seo? "Seo tógálaí", agus deireann

tusa?"

 "What about this one? "This is a builder" and you say?

If the child said "Is maith liom/ Ní maith liom a t(h)each" ("I like/ I don't like his house") the

child continued to the test items. If the child said anything else the researcher offered a

prompt: "An cuimhin leat nuair a bhreathnaigh muid ar an gceann eile dúirt mé "Seo Áine"

agus dúirt tú "Is maith liom a teidí"? Inis dom sa mbealach céanna más é do thoil é.

Dearfaidh mise "Seo tógálaí" agus dearfaidh tú "Is maith liom a...?"

"Remember when we looked at the other one I said "This is Áine" and you said "I like her

cat"? Tell me the same way please. I'll say "This is a builder" and you say "I like his...?"

For the adult participants responses were elicited in the following format:

Mícheál & leabhar. Seo Mícheál.	Léighim a <u>leabhar.</u>
Mícheál & book. This is Mícheál.	I read his <u>book.</u>
Cailleach & rothar. Seo cailleach.	Is maith liom a <u>rothar.</u>
Witch & bike. This is a witch.	I like her <u>bike.</u>

MIM Subtest 4: Third person possession with gender supplied

Preliminary examination of the adult data highlighted a difficulty in interpreting the

performance of participants on Subtest 3, specifically ascertaining whether participants were

making errors due to inaccurate identification of the gender of these possessors or

inaccuracy in achieving gender agreement between possessor noun and possessed noun. In

order to address this difficulty, a subset of **adult** participants was required to complete an

additional measure. In Subtest 4, the participants were provided with the gender of the

possessor noun in parentheses, thereby removing the need to assign gender to the

possessor noun. In doing so, it was possible to isolate the participants' ability to achieve

gender agreement in marking possession. This subtest required participants complete an

additional 16 sentences and none of the nouns from Subtest 3 were repeated. This measure was only used with adult participants and responses were elicited in the following format:

Eoin (firin) & geansaí. Seo Eoin.   Is maith liom a <u>geansaí (+ lenition)</u>
Eoin (masculine) & jumper. This is Eoin.   I like his <u>jumper (+ lenition)</u>
Áine (bainin) & cóta. Seo Áine.   Cheannaigh mé a <u>cóta (- lenition)</u>
Áine (feminine) & coat. This is Áine.   I bought her <u>coat (- lenition)</u>

The scoring for Subtests 1-4 followed the following procedure. Participants received one point for each correct item. As accuracy can vary from context to context, the total scores for each of the subtests were calculated individually. Percentage correct scores were calculated to faciliate cross-measure comparison. However, masculine consonant initial nouns are not lenited following the definite article, nor are adjectives in combination with masculine nouns. In the case of third person possession, consonant initial nouns following *feminine* possessor nouns are not lenited. Therefore, if only total correct scores were calculated, speakers could appear to be correct on half of the items if they use a 'mark nothing' default, but have limited accuracy in grammatical gender marking. In order to investigate this, a total score for each subtest for nouns requiring lenition, /t-/ prefixing or /h-/ prefixing be actively used was calculated.

At the end of testing, an open-ended question was included for a subsample of adult and child participants. They were asked to briefly describe the strategies (if any) they used in responding to the types of questions asked in the MIM, typically by asking 'when you said possessor + Lenited Noun can you tell me why you said that?'. The child participants were asked to give their answer orally and the adults wrote their responses on a space provided in their Answer Booklet. The goal of this question was to explore whether the participants could explicitly formulate any strategy or reveal their metalinguistic awareness regarding grammatical gender and to explore whether they had any conscious strategies to complete the task. Content analysis was used in the analysis.

Measure of Irish reading vocabulary
Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge (TGD-G1; 2010) was chosen as the measure of Irish reading vocabulary as it was a standardised measure of Irish reading vocabulary with norms for children attending Irish-medium education in *Gaeltacht* and Irish-immersion schools. It was a group-administered measure of

vocabulary reading, which was important given the need to manage the burden on participants. The measure was made up of two components: Reading Vocabulary and Reading Comprehension. Only the Reading Vocabulary component was used and norms were available for this component (in addition to those for the whole measure). Furthermore, it was the closest equivalent to the measure of English reading vocabulary used, having been developed by the same educational research institute.

For the TGD-G1 Reading Vocabulary component, the number of items in the measure varied according to the participants' class in school:

Table 4.1 TGD-G1 Irish Reading Vocabulary levels and items

Level	Class	Age	No of items
Level 1	Beginning of first class	6-7	27 items
Level 2	End of first class	6-7	30 items
	Second class	7-8	
	Beginning of third class	8-9	
Level 3	End of third class	8-9	30 items
	Fourth class	9-10	
	Beginning of fifth class	10-11	
Level 4	End of fifth class	10-11	30 items
	Sixth class	11-12	

In Levels 1, 2 and 3 a picture was accompanied by four written words. The participants were required to choose the word which best matched the picture, and the difficulty increased across levels. In Level 4, participants completed three tasks: identify the noun or verb which did not fit in with the other items, identify which of a list of nouns best matched a provided definition, and a cloze procedure task. One point was awarded for each correct answer, giving a raw score range of 0 to 27 or 30 depending on the level. This score was used to calculate a percentage correct score, a standard score and a percentile rank, using the normed scores.

Measure of English reading vocabulary

The *Drumcondra Primary Reading Test-Revised* (DPRT-R) was chosen as the measure of English reading vocabulary as it was a standardised measure of English reading vocabulary with norms for Irish children (not specifically for those attending Irish-medium education). It was also a group-administered measure of vocabulary reading, which was necessary as individual testing would have significantly increased this burden and was not feasible. Again

only the Reading Vocabulary component was used. The DPRT-R is a very widely used measure in research in Ireland (see McCrory & Layte, 2011; Smyth, Whelan, McCoy, Quail & Doyle, 2010; Weir, 2001; McDonald, 1998). Murray, McCrory, Thornton, Williams, Quail, Swords, Doyle and Harris (2011) used the Reading Vocabulary component of the measure in the large-scale Growing Up in Ireland (GUI) study in order to decrease test burden and the researchers argued it was a "sufficient indicator of ability for research purposes" (p. 96).

Table 4.2 DPRT-R English Reading Vocabulary levels and items

Level	Class	Age	No of items
Level 1	End of first class	6-7	34 items
	Beginning of second class	7-8	
Level 2	End of second class	7-8	36 items
	Beginning of third class	8-9	
Level 3	End of third class	8-9	40 items
	Beginning of fourth class	9-10	
Level 4	End of fourth class	9-10	40 items
	Beginning of fifth class	10-11	
Level 5	End of fifth class	10-11	40 items
	Beginning of sixth class	11-12	
Level 6	End of sixth class class	11-12	40 items

The items were in the form of a short sentence with a word underlined. Participants were asked to select, from a choice of four, the word closest in meaning to the underlined word. Level 1 differed slightly as the first half of the items were pictures and participants were required to choose which of a choice of four words best described the picture.

One point was awarded for each correct answer, giving a raw score range of 0 to 34, 36 or 40 depending on the level. This score was used to calculate a percentage correct score, a standard score and a percentile rank, using the norms available for this measure.

Picture Description Task

The pictorial stimuli of the Language Impairment Testing in Multilingual Settings: Multilingual Assessment Instrument for Narratives (LITMUS MAIN; Gagarina et al, 2015; 2012) narrative elicitation task was adapted for use in this research (see Appendix 5 for the series of pictures). It was chosen because a short elicitation was required, given the need to limit the test burden on participants, making the LITMUS MAIN suitable. A second reason was the fact that the pictures were recent and therefore did not look dated, and the pictures were drawn insofar as possible in a culture-neutral drawing style. Furthermore, the use of

this measure ties in directly with the COST cross-European network and research being done with other European languages.

A series of six cartoon pictures printed on a laminated, one-sided A4 page in colour was used. The series of pictures elicited a story about a boy, a hungry dog and a bag of sausages. In this task, the participant was given the laminated page and was asked to tell the story aloud. The only input from the researcher was prompts for more information and no leading lexical items were offered. This measure typically took no longer than five minutes to complete. The participants were recorded and their speech transcribed later according to the conventions of CHAT and analysed using the CLAN suite of programmes. For the purposes of the present research, the narratives were analysed according to overall length, lexical diversity, fluency, frequency of codeswitching and the use of grammatical gender.

Summary and Conclusion

The measures designed for the present research were the Brief Language Background Questionnaire (B-LBQ), the Child Language Background Questionnaire (C-LBQ) and the Measure of Irish Morphosyntax (MIM). The measures adapted were the Receptive Measure of Irish Morphosyntax (RMIM; McDaid, 2012), the Child Rating Forms (McVeigh, 2013) and the LITMUS MAIN (Gagarina et al, 2015, 2012). Finally, the measures identified as being appropriate for the present study were subtests of the Drumcondra Primary Reading Test-Revised (DPRT-R), *Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge* (TGD-G1) and the Matrices subtest of the Wechsler Abbreviated Scales of Intelligence (WASI). In conclusion, the measures described in this chapter combine to create a multi-faceted and thorough investigation of first language acquisition of Irish in middle childhood.

Chapter 5 Adult study 1: Grammatical gender among adult proficient Irish speakers

OVERVIEW OF THE CHAPTER

This chapter presents the results of performance on the Measure of Irish Morphosyntax by proficient adult Irish speakers. Differences across language backgrounds and age groups will be considered, as will accuracy across all contexts of use. The strategies used by adult participants will be considered before concluding with a short discussion.

RATIONALE

Examination of the trends in current language use among adult speakers of Irish is necessary given the rapid sociolinguistic and psycholinguistic changes documented in Chapter 3. Hickey (2009, 2007a) has argued that typical usage of complex features of Irish is undergoing convergence and change among native and L2 speakers under the influence of English, which has implications for expectations of successful acquisition of the same features by children. Variability and change in adult usage makes the "end-point" towards which children's acquisition is progressing difficult to identify. Furthermore, while variable accuracy in the marking of grammatical gender may not unduly impede adult communication, when offered to children as input it is likely to significantly impede their control of such complex morphology. Children need sufficient accurate input in which the conditions of use of the feature are sufficiently salient for the child to acquire that feature. No study to date has examined the use of the same feature in Irish by child and adult speakers in investigating the impact of language experience on acquisition. This research aimed to do so by testing adult and child knowledge of grammatical gender using the same measure to allow for direct comparability. The data were collected from proficient Irish speakers who reported to be regular users of Irish, thereby forming part of the pool of speakers providing input to children acquiring Irish. The research questions addressed in Adult Study 1 were as follows:

1. Do proficient adult speakers mark grammatical gender accurately in productive use as measured by a written test?
2. Does accuracy differ for specific functions of grammatical gender?
3. Do proficient adult speakers use a strategy in assigning grammatical gender?

METHOD

Participants

Participants were 135 self-reported proficient Irish speaker adults. The participants' current language dominance and their acquisition context, as measured by the Brief-Language Background Questionnaire[11] (B-LBQ) were used to categorise participants. Participants were categorised as native speaker (NAT) if they had acquired Irish in the home as either L1 or through bilingual first language acquisition. A self-reported high proficiency in Irish understanding, speaking, reading, writing and grammar, as measured by a self-rating scale, was required for inclusion in this category. Participants were categorised as Highly Proficient L2 speaker (HP L2) if they had acquired Irish outside of the home, typically in education. A high proficiency in Irish was also required for this category. Finally, participants who had acquired Irish outside of the home but who rated their proficiency as moderate, were categorised as Moderately Proficient L2 speaker (MP L2). This was judged by scores of 2 or 3 on the self-rating scale.

Table 5.1 Adult participants by language background, age and sex

Age	Sex	Native speaker		Highly Proficient L2 speaker		Moderately Proficient L2 speaker		Total	
< 25	Male	6	4%	5	4%	10	7%	21	16%
	Female	3	2%	5	4%	11	8%	19	14%
	Total	9	6%	10	8%	21	15.5%	40	30%
25-55	Male	5	4%	8	6%	10	7%	23	17%
	Female	23	17%	13	9%	15	11%	51	38%
	Total	28	21%	21	15%	25	18.5%	74	55%
56+	Male	0		3	2%	2	1.5%	5	3%
	Female	7	5%	7	5%	2	1.5%	16	12%
	Total	7	5%	10	7%	4	3%	21	15%
Total	Male	11	8%	16	12%	22	16%	49	36%
	Female	33	24%	25	18%	28	21%	86	64%
	Total	**44**	**32%**	**41**	**30%**	**50**	**37%**	**135**	

Table 5.1 shows that there was an even distribution of language backgrounds in the adult sample. There were more participants in the age group 25-55 than either of the other two age groups, with the least participants in the group aged 56 or over. Finally, there were three times as many female participants as there were male. While previous research has examined sex differences in language use, for instance Ehrman and Oxford (1989) and

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[11] The Cronbach's alpha of the B-LBQ was .830. This is important to note as the B-LBQ was created for the purposes of the present research. As the Cronbach's alpha was above .7, the scale has acceptable internal reliablility in this sample.

Nyikos (1990), such questions have not provided the thrust for more recent research, therefore correcting this imbalance was not prioritised to the same degree as controlling language background and age. Forty two participants had been raised in the *Gaeltacht* and 93 had not. A third of the participants (45) were from the west of Ireland, slightly less than a third (39) were from the east, and a quarter were from the south (32). Thirteen participants were from the north of Ireland, four from outside Ireland and two did not provide that information. Occupation was categorised according to the International Standard Classification of Occupations (ISCO) and was used with level of education to determine SES, following Gathercole, Thomas, Roberts, Hughes and Hughes (2013) and Gathercole, Kennedy and Thomas (in press). The first version of the B-LBQ did not include a question about occupation or education. The questionnaire was updated to include these questions and these data presented in Table 5.2 relate to the 52 participants who completed the updated B-LBQ.

Table 5.2 Adult participants by occupation and education level

Occupation	Education Level					Total	
	Leaving Certificate/ Diploma		Undergraduate degree		Postgraduate degree			
Managers	0		2	4%	5	10%	7	13%
Professionals	2	4%	7	13%	11	21%	20	38%
Technicians	1	2%	3	6%	4	8%	8	15%
Clerical support	2	4%	0		3	6%	5	10%
Service & sales	1	2%	0		0		1	2%
Armed forces	1	2%	0		0		1	2%
Full-time education	6	12%	1	2%	1	2%	8	15%
Self-employed	0		0		2	4%	2	4%
Total	**13**	**25%**	**13**	**25%**	**26**	**50%**	**52**	

Participants in managerial, professional or technical occupations were scored 3 and participants in clerical support roles, service and sales were scored 2. Participants who had postgraduate degrees were scored 3, participants with undergraduate degrees were scored 2 and participants with Leaving Certificate/ Diploma qualifications were scored 1. The score for occupation was combined with the score for education to generate a total score for SES. Participants with scores of 5-6 were categorised as High SES, participants scoring 3-4 were categorised as Medium SES and those scoring 0-2 as Low SES. Table 5.3 presents the distribution of this group by language background and SES.

Table 5.3 Adult participants by language background and SES

SES	Native speaker		Highly Proficient L2 speaker		Moderately Proficient L2 speaker		Total	
Medium	2	4%	2	4%	2	4%	6	12%
High	10	19%	16	31%	9	17%	35	67%
Could not be categorised	1	2%	3	6%	7	13%	11	21%
Total	**13**	**25%**	**21**	**40%**	**18**	**35%**	**52**	

Table 5.3 shows that overall, about two thirds (67%) of the subsample for whom this information was available were in the High SES category, based on a combination of participants' occupation and highest education qualification. The same percentage (76%) of the Native speaker and High Proficiency L2 Speakers in this group were in the High SES category, but only half (50%) of the Moderate Proficiency L2 speakers, although it is possible that at least some of the Moderate Proficiency L2 participants who could not be categorised due to incomplete information (38% of that group) may have been High SES. Given the self-selection of the participants and the nature of the task involved (which required their fully informed consent in advance), it is likely that the trend for higher representation of High SES in this group holds throughout the adult sample here, but it is not possible to determine this due to the high rate of missing data in the adult sample overall. It was deemed inadvisable to carry out further analysis on these data using SES as a variable, but the information regarding the spread in this group is helpful in interpreting the adult results.

Procedure

The survey and tests were administered to 93 adult participants in hardcopy and another 42 participants completed the measure online. Online testing was used initially in order to try to access native speaker participants and to maximise geographical spread, but later data collection switched to hardcopy in order to improve response rates. Participants in both online and hardcopy format were first required to read the Information Sheet and the Consent Form. All participants indicated consent by using a self-generated individual code in order to maintain anonymity. Participants completed the B-LBQ first (described fully in Chapter 4 and provided in Appendix 1), and then progressed to the Measure of Irish Morphosyntax (MIM), which consisted of three subtests. Two sample items were provided at the beginning of each subtest, and participants then completed (by typing or writing) the final word in each sentence in a numbered list of sentences. As the adult measures were

adaptations of the child measures, the vocabulary consisted only of high frequency words, where the test items were balanced for gender and for mutatable initial consonants.

A subsample of those who completed the three subtests were asked to complete two additional tasks. One of these was an additional task, Subtest 4, in which participants were first provided with examples of correct usage of third person possession marking, and then given the gender of the possessor noun in each test sentence. This task therefore only required them to mark agreement between the possessor noun and the possessed noun, without first needing to assign gender to the possessor noun. The final additional task consisted of an open-ended question inviting participants to reflect briefly on any strategies they had applied in completing the subtests. The total measure took an average of 25 minutes to complete.

RESULTS

This study aimed to examine the performance of adults of different language backgrounds and age on tests of grammatical gender marking on animate and inanimate nouns in three contexts: following the definite article, in noun-adjective combinations and in marking third person possession. Table 5.4 presents the descriptive statistics for the adults' performance on each of the subtests. The Cronbach's Alphas for Subtests 1, 2 and 3 were .838, .914, and .848 repectively and .950 for all three combined. This measure was created for the purposes of the present research and these results show that all three subscales, and the measure overall, had strong internal reliability.

Given that the subtests had varying numbers of items, percentage correct scores were analysed. Furthermore, as the appropriate way to mark masculine gender following the definite article and in noun-adjective combinations, as well as to mark feminine nouns in third person possession, is no mutation, looking at scores for all items produces an artificially high accuracy score. A participant could apply no initial mutations and still appear to be accurate on 50% of the test items. In order to examine active gender marking, the scores in Table 5.4 present participants' mean percentage accuracy on nouns which required a mutation to mark grammatical gender. In addition, an error analysis for all nouns in each subtest was conducted and the results are presented in Appendix 7.

Table 5.4 Descriptive statistics by language background and age for MIM-Adults

	Language Background	Age	n	*M*	*SD*
Subtest 1 Det + N	Native speaker	<25	8	46.43	33.06
		25 - 55	26	60.99	30.99
		56+	7	77.55	28.10
		Total	41	60.98	31.63
	Highly Proficient L2 speaker	<25	8	68.75	21.91
		25 - 55	18	81.75	16.84
		56+	9	86.51	24.60
		Total	35	80.00	20.63
	Moderately Proficient L2 speaker	<25	21	52.38	24.68
		25 - 55	23	72.67	20.84
		56+	4	73.21	29.38
		Total	48	63.84	24.94
	Total	<25	37	54.63	26.58
		25 - 55	67	70.58	25.56
		56+	20	80.71	25.92
		Total	**124**	**67.45**	**27.28**
Subtest 2 N + Adj	Native speaker	<25	8	33.59	29.87
		25 - 55	26	46.15	36.19
		56+	7	58.04	40.14
		Total	41	45.73	35.67
	Highly Proficient L2 speaker	<25	8	58.59	26.29
		25 - 55	18	78.12	19.91
		56+	9	82.64	28.09
		Total	35	74.82	24.70
	Moderately Proficient L2 speaker	<25	21	41.37	24.96
		25 - 55	23	56.52	27.60
		56+	4	62.50	43.60
		Total	48	50.39	28.46
	Total	<25	37	43.41	27.00
		25 - 55	67	58.30	31.91
		56+	20	70.00	35.80
		Total	**124**	**55.75**	**32.25**
Subtest 3 3rd person possession	Native speaker	<25	8	49.11	32.94
		25 - 55	26	64.29	29.49
		56+	7	76.53	14.12
		Total	41	63.41	28.89
	Highly Proficient L2 speaker	<25	8	62.50	25.83
		25 - 55	18	79.76	20.24
		56+	9	88.89	16.02
		Total	35	78.16	22.18
	Moderately Proficient L2 speaker	<25	21	55.44	31.13
		25 - 55	23	69.88	22.90
		56+	4	85.71	14.29
		Total	48	64.88	27.56
	Total	<25	37	55.60	29.98
		25 - 55	67	70.36	25.46
		56+	20	83.93	15.35
		Total	**124**	**68.15**	**27.16**

Do proficient adult speakers mark grammatical gender accurately in productive use as measured by a written test?

A one-way between-subjects multivariate analysis of variance (MANOVA) was carried out to address the first research question. Differences in language background and age were considered in relation to adults' accuracy in marking grammatical gender in Subtest 1 (Det + N), Subtest 2 (N + Adj) and in Subtest 3 (marking third person possession). The MANOVA revealed a statistically significant effect of language background on accuracy in marking grammatical gender, $F(6, 226) = 2.238$, $p < .05$; Wilks' Lambda = .891, $\eta_p^2 = .056$. Analysis of each individual dependent variable, using a Bonferroni alpha level of .017, showed that there was no statistically significant contribution of scores on Subtest 1 (Det + N), $F(2, 115) = 3.815$, $p = .025$, $\eta_p^2 = .062$. There was no statistically significant contribution of Subtest 3, (marking third person possession), $F(2, 115) = 2.158$, $p = .120$, $\eta_p^2 = .036$. However, performance did differ significantly on Subtest 2, (N + Adj), $F(2, 115) = 6.732$, $p < .005$, $\eta_p^2 = .105$ (See Fig. 5.2).

Turning to age, there was a statistically significant difference between the three age groups on accuracy in marking grammatical gender, $F(6, 226) = 2.868$, $p < .05$; Wilks' Lambda = .863, $\eta_p^2 = .071$. Analysis of each individual dependent variable, using a Bonferroni level of .017, showed that there was a statistically significant effect for age on Subtest 1, $F(2, 115) = 5.887$, $p < .005$, $\eta_p^2 = .093$, on Subtest 2, $F(2, 115) = 4.226$, $p < .05$, $\eta_p^2 = .068$, and on Subtest 3, $F(2, 115) = 7.271$, $p < .005$, $\eta_p^2 = .112$.

The only post-hoc analysis needed for language background was for Subtest 2 (N + Adj), the results plotted in Fig. 5.1. Using Scheffé, mean accuracy of the Highly Proficient L2 Speaker participants (HP L2) ($M = 74.82$, $SD = 24.70$) was found to be statistically significantly higher than both the Native Speaker participants (NAT) ($M = 45.73$, $SD = 35.67$), $p < .001$, and the Moderately Proficiency L2 Speaker participants (MP L2) ($M = 50.39$, $SD = 28.46$), $p < .01$.
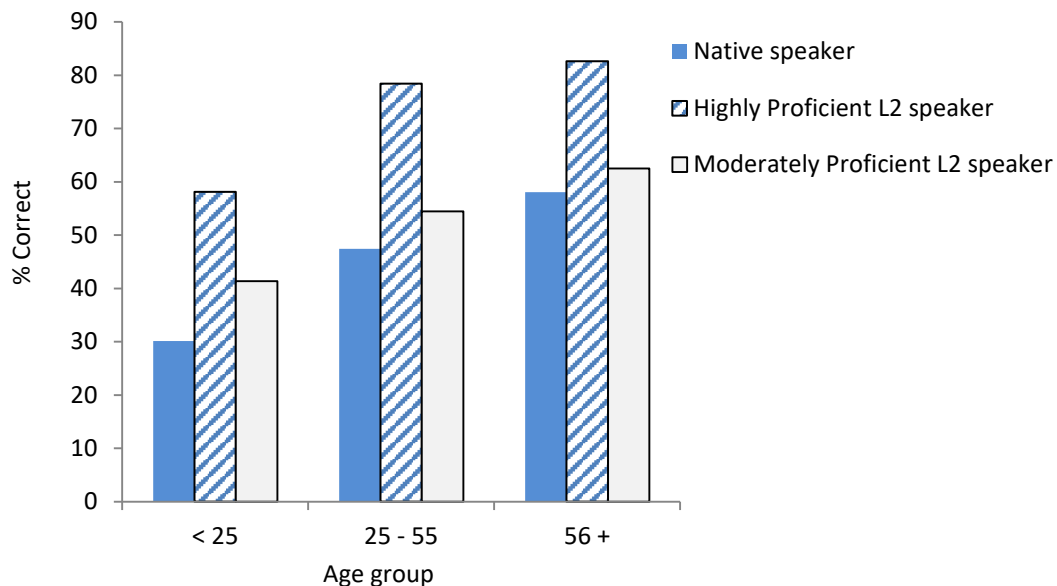
Figure 5.1 Adults' Mean % correct scores on MIM Subtest 2 (N+Adj) MANOVA post-hoc

Fig. 5.1 shows more grammatical performance by Highly Proficient L2 participants, while the Moderately Proficient L2 participants also exhibited more grammatical performance than the native speakers.

The post-hoc analyses for age were conducted next and there were three analyses conducted for Subtests 1, 2 and 3. For Subtest 1 (Det + N), the Scheffé test revealed significantly lower accuracy among the under-25 year olds (M = 54.63, SD = 26.58) compared with both the 25-55 year olds (M = 70.58, SD = 25.56), $p < .05$, and the 56+ year olds (M = 80.71, SD = 25.92), $p < .01$. Fig. 5.2 shows accuracy increased with age among the Native Speaker participants and the Highly Proficient L2 participants, but among the Moderately Proficient L2 participants it was noted that the accuracy of those in the 25-55 and 56+ age groups was about the same. The HP L2 participants had the highest level of accuracy overall in this context also, but this difference was not statistically significant due to the Bonferroni adjusted apha level. The least accurate on Subtest 1 were always the youngest participants, and it was found that the least accurate of these were the young adult Native Speaker participants.
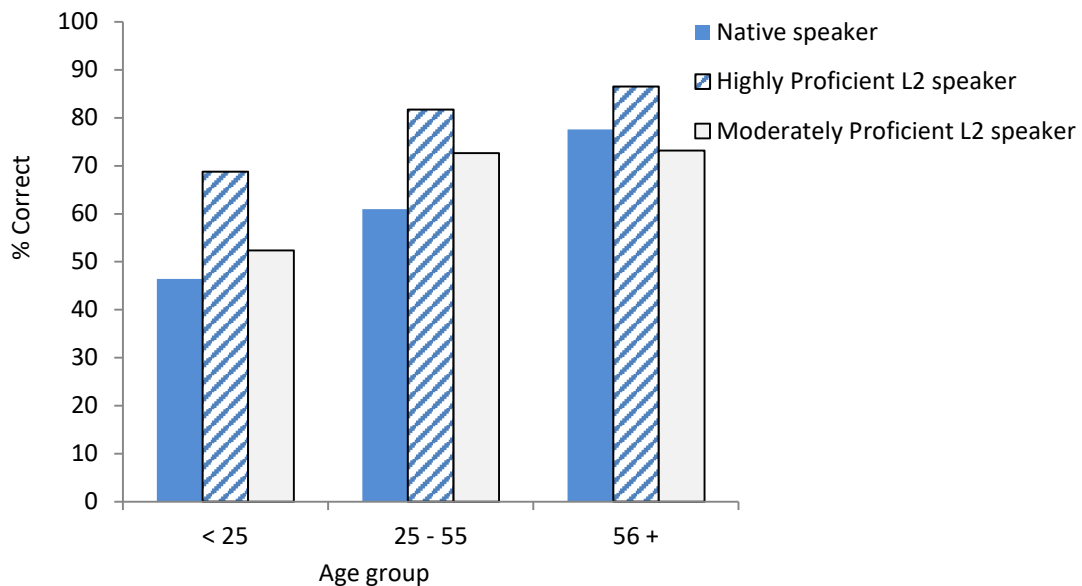
Figure 5.2 Adults' Mean % correct scores on MIM Subtest 1 (Det + N) MANOVA post-hoc

For Subtest 2 (N + Adj, see Fig 5.1 on previous page), the Scheffé test for differences by age revealed a statistically significant difference in accuracy between the under 25 year old participants (M = 43.41, SD = 27.00) and the 56+ year old participants (M = 70.00, SD = 35.8), $p < .01$, with greater proficiency in the older age group. As noted previously, the plotted results show higher accuracy in performance on this subtest by the HP L2 participants. In relation to age, the statistically significant difference between the youngest and oldest group is also evident. There is a positive relationship between age and accuracy in marking grammatical gender on adjectives following feminine nouns.

Finally, the Scheffé test for Subtest 3 (marking third person possession) also revealed significantly lower accuracy among the under 25 year olds (M = 55.6, SD = 29.98) as compared to the 25-55 year olds (M = 70.36, SD = 25.46), $p < .05$, and those aged 56 years and older (M = 83.93, SD = 15.35), $p < .01$. These data are plotted in Fig. 5.3.
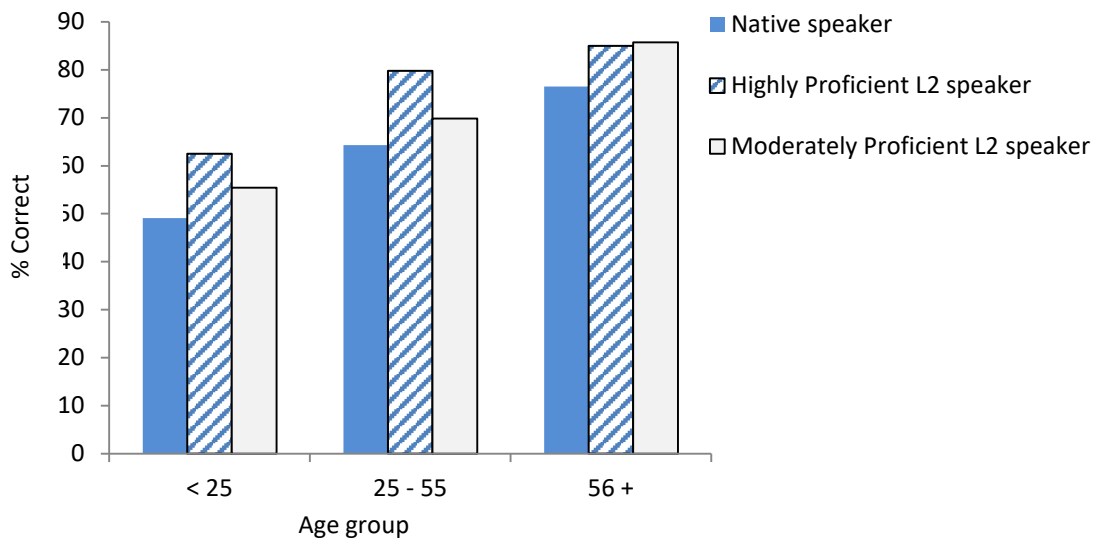
Figure 5.3 Adults' Mean % correct scores on MIM Subtest 3 (3rd Possession) MANOVA post-hoc

The same trend is evident in Subtest 3 (marking third person possession) as was found in the previous two Subtests, in that the youngest participants were clearly the least accurate group of all age groups, and the youngest Native Speaker participants the least accurate of the youngest adults tested. The accuracy of the participants aged under 25 was surpassed by the participants aged 25-55 and 56 and over across all language backgrounds. Furthermore, the participants aged 56 and over were more accurate than the participants aged 25-55, also across all language backgrounds.

Accuracy in agreement when gender assignment is provided (Subtest 4)

Following analysis of Subtest 3 it became evident that errors in agreement could not be separated from errors of assignment. Consequently, a subset of the total sample (n = 58) was asked to complete an additional measure, Subtest 4. Participants were provided with the gender of the noun through the inclusion of the word 'feminine' or 'masculine' in parentheses. Furthermore, two examples were provided in which grammatical gender was correctly marked following masculine and following feminine possessor nouns.

Using a two-tailed dependent t-test, a statistically significant difference between the overall mean accuracy on Subtest 3 and Subtest 4 was found (t = -5.161, df = 43, p < .001, CI: -21.899 to -9.594). This result shows a statistically significant improvement in accuracy from Subtest 3 to Subtest 4. This indicates that participants made errors based on gender assignment in Subtest 3 but were more accurate in gender agreement in Subtest 4 when provided with the information to make assignment decisions more accurately.

In order to assess the impact of differences of language background and age on scores on Subtest 4, it was necessary to review performance on Subtest 3. It was observed that 36 participants had reached 90% or over on the items in Subtest 3 which required active marking of grammatical gender (here using Brown's, 1973, criterion of 90% accuracy in obligatory contexts as representing fully productive acquisition). Almost half of this group (47%) were Highly Proficient L2 speakers, a third were Moderate Proficiency L2 speakers, and only 19% were Native Speakers. The distribution of this group by language background and age is presented in Table 5.5.

Table 5.5 Adults (n=36) scoring 90%+ in Subtest 3 by language background and age

	Native speaker		Highly Proficient L2 speaker		Moderately Proficient L2 speaker		Total	
< 25	1	3%	1	3%	4	11%	6	17%
25-55	4	11%	9	25%	5	14%	18	50%
56+	2	5%	7	19%	3	8%	12	33%
Total	**7**	**19%**	**17**	**47%**	**12**	**33%**	**36**	**100**

Since these participants met the criterion for successful acquisition of third person possession marking (assigning grammatical gender to the possessor noun and marking third person possession on the possessed noun accurately), they were excluded from the following analysis of those who improved their performance in Subtest 4, leaving 44 participants who completed Subtest 4 and who did not achieve 90% or over in Subtest 3.

Table 5.6 Descriptive statistics: Adults (n=44) by language background and age (Subtest 4)

Language Background	Age	n	*M*	*SD*
	<25	3	30.95	*4.12*
Native speaker	25 - 55	13	76.37	*19.86*
	56+	5	97.14	*3.91*
	Total	21	74.83	*25.62*
	<25	1	78.57	*.*
Highly Proficient L2 speaker	25 - 55	4	96.43	*4.12*
	Total	5	92.86	*8.75*
	<25	5	70.00	*17.79*
Moderately Proficient L2 speaker	25 - 55	13	84.07	*16.28*
	Total	18	80.16	*17.42*
	<25	9	57.94	*24.08*
Total	25 - 55	30	82.38	*17.87*
	56+	5	97.14	*3.91*
	Total	**44**	**79.06**	***21.53***

Table 5.6 shows that the more accurate performance noted by the HP L2 participants in Subtest 3 was maintained in Subtest 4 as their overall mean accuracy (93%) was close to ceiling. The overall mean accuracy of the MP L2 participants was quite close to that of the HP L2 (at 80%). However, the Native Speaker participants' overall mean accuracy was lower, at 75%, and, looking more closely at this group, there was a wide spread of accuracy across age groups. Native Speaker participants aged 56 and over had a mean accuracy score of 97% on Subtest 4, which decreased to 76% for those aged 25-55, and dropped to only 31% for the youngest Native Speaker participants. Thus, even when provided with the gender of the possessor nouns and examples of correct usage, which substantially improved the performance of the L2 speaker groups, the youngest native speakers still had very low accuracy on this task.

An ANOVA conducted to test the significance of these trends did not reveal a significant interaction, $F(2, 37) = 2.95$, $p = .065$, but it did confirm that the main effect of age was statistically significant, $F(2, 37) = 16.06$, $p < .001$, as was the main effect of language background, $F(2, 37) = 8.53$, $p < .01$. This result is graphed in Fig. 5.4
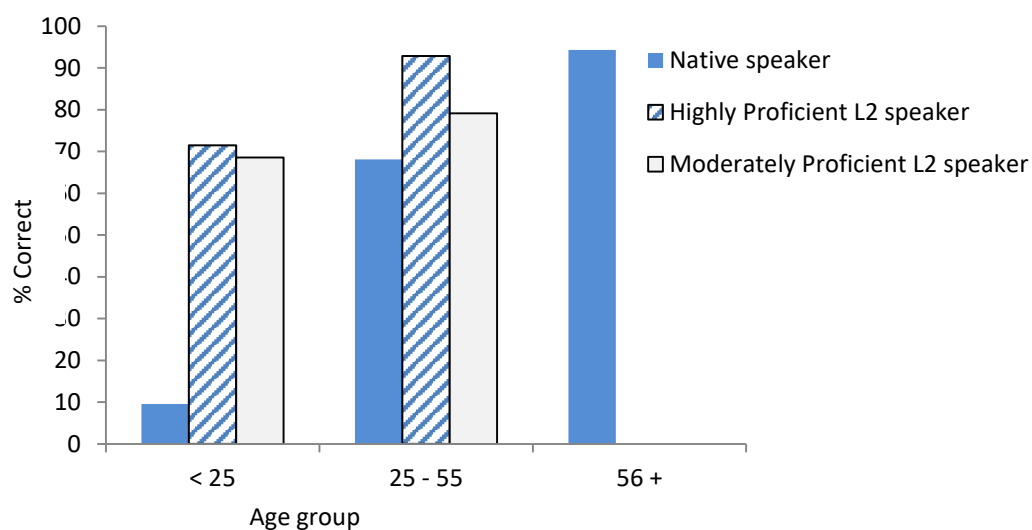
Figure 5.4 Adults' Mean % correct scores on MIM Subtest 4

Thus, when provided with the gender of the possessor noun in Subtest 4, all participants except the native speakers aged under 25 could mark the grammatical gender of the possessor noun on the possessed noun with at least 70% accuracy, but the youngest native speakers remained at very low accuracy on this task. Overall, the results show that errors made in Subtest 3 (marking third person possession) could be interpreted as being due largely to errors of gender assignment rather than gender agreement. Errors decreased significantly for all participants except the under 25 year old native speakers when the need to assign gender was removed.

Does accuracy differ for specific functions of grammatical gender?

Examination of the overall accuracy across the three subtests was carried out using mixed analysis of variance (ANOVA) with a Greenhouse-Geisser correction, using language background and age as the independent variables. It determined that accuracy on each of the subtests of the MIM differed significantly, $F(1.64, 188.2) = 14.35$, $p < .001$, $\eta_p^2 = .111$. A significant interaction was not found with either age $F(3.27, 188.2) = .210$, $p = .903$, $\eta_p^2 = .004$, nor language background $F(3.27, 188.2) = 1.57$, $p = .194$, $\eta_p^2 = .027$, nor was the three way interaction between measure, age and language background significant $F(6.55, 188.2) = .293$, $p = .949$, $\eta_p^2 = .01$. Performance on each of the three subtests by language background and by age were plotted in order to ascertain the nature of the difference between the subtests, and are presented in Fig. 5.5.
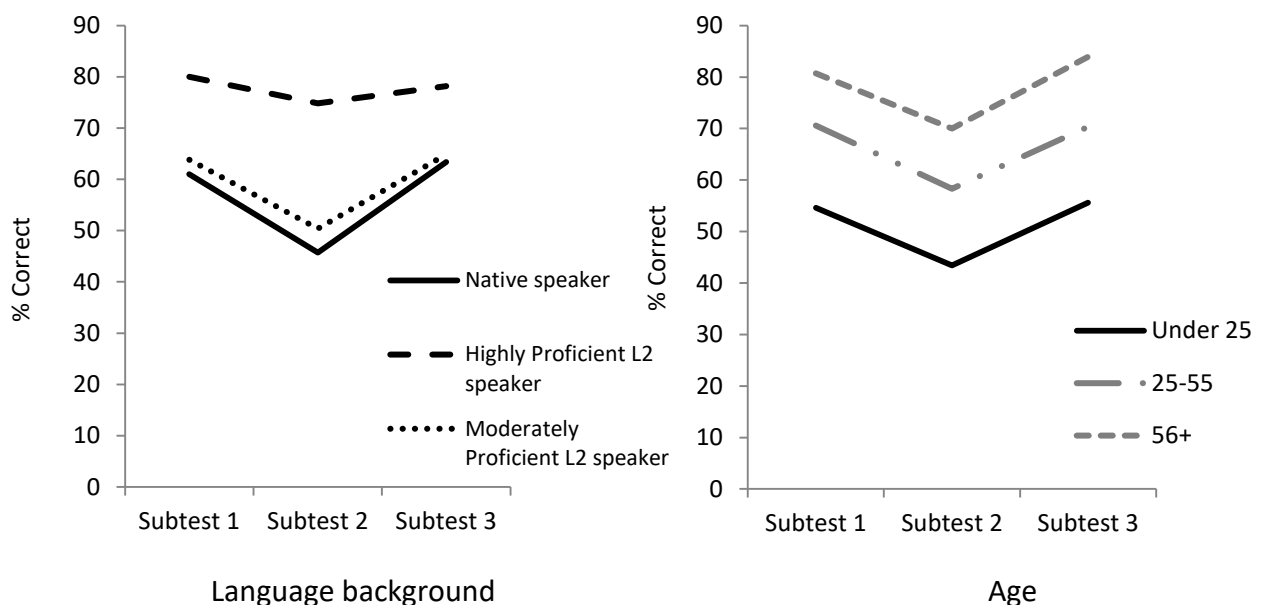
Figure 5.5 Adults' Mean % correct scores on MIM Subtests 1-3 by language background and age

Fig. 5.5 shows that, across the three language backgrounds and the three age groups, accuracy in marking grammatical gender following the definite article (Subtest 1) and in marking third person possession (Subtest 3) were approximately equivalent for each language background group, and always exceeded accuracy in marking grammatical gender in noun-adjective combinations (Subtest 2). The latter context, in which participants were required to identify the gender of the noun (including animate and inanimate nouns) and apply lenition to the adjective when in combination with a feminine noun, was evidently the most difficult context. This was the case for even the most accurate language background (the HP L2 participants) and the most accurate age group (those aged 56 and over) where average scores dipped to about 70% on this task.

Do proficient adult speakers use a strategy in assigning grammatical gender?

The third research question addressed in this was study related to the strategies used by participants when assigning grammatical gender and achieving agreement. Content analysis (following Willig, 2008) was used to analyse responses of 49 participants to the question (which translates as): "What strategy do you use when you are answering sentences like the sentences above (Part One to Three included)? You can mention any type of strategy, e.g. 'guess' or 'use a rule'. Write a short note about it here please, and if you use a particular rule, state it please." Among the 49 responses, four general strategies were identified and they are listed in Table 5.7 with the number of participants who reported this strategy (some participants reported multiple strategies) and an illustrative quote.

Table 5.7 Adult participants' strategies for the MIM

Strategy	n	Illustrative quote
How it sounds	19	*I should follow the rules more but usually I follow what I hear.*
Guess	13	*I guess when I can't think of the rule.*
Explicit rule	8	*If a particular word is feminine I lenite it.*
Think of the noun in genitive case	7	*I tried to use the Genitive case, and work back from that. That is the best way for me to find out the gender of a word.*

Strategy 1 appeared to be to rely on how the word sounds. For example:

> *"I don't have a particular strategy. Because I am a native speaker I depend on my ear a lot. I say things out loud. If I think it is right I write it down."*

This strategy was the most frequent one reported, by 19 participants, 13 of whom were Native speaker participants, while of the remaining remainder, five were Highly Proficient L2 speakers. Thus, it appeared that this strategy was favoured by native speakers and those who rate themselves as being highly proficient. However, this quote is from a NAT participant aged 25-55 who scored 21% in Subtest 1 (Det + N), 0% in Subtest 2 (N + Adj) and 64% in Subtest 3 (marking third person possession), indicating that this strategy was not consistently accurate.

Strategy 2,'guessing', was next most frequently reported, though for some this was an informed guess using some heuristic. Of the 13 participants who reported this strategy, five were native speakers and six were Moderately Proficient L2 speakers. It appears that

reporting the use of a guessing strategy was about equally favoured by those with native speaker and moderate proficiency, but not by Highly Proficient L2 speakers.

Explicit knowledge of a rule was reported by only eight participants. Indeed, in responding to this question, one Highly Proficient L2 speaker participant gave an expert exposition of the rules involved:

"Masculine words: without lenition after the article and 't-' before a vowel.
Feminine words: lenition after the article, nothing if the words starts with a vowel.
Adjectives: lenited after feminine words. Lenition after 'a' if it is a masculine word
(his coat), without lenition in the case of the women (Síle, her coat) but 'h' before
a vowel in the case of the women (Síle, her key)."

Three of the participants who used a rule based strategy were native speakers, three were Highly Proficient L2 speakers, and two were Moderately Proficient L2 speakers. Thus, this strategy may be used by some speakers regardless of background and, based on the quoted participant, can be a highly successful strategy. The quoted participant was a HP L2 participant aged over 56 who scored 100% in all three subtests.

The fourth strategy reported involved considering the noun in the genitive case, usually in some well-known phrase or name. This can be helpful because in the genitive case, the definite article remains the same for masculine nouns but for feminine nouns the definite article changes to *na*. Of the 7 participants who used this approach, 6 were L2 speakers and 5 of these were Moderately Proficient. This strategy appeared to be favoured by those with moderate proficiency. Nevertheless, it was the strategy reported by a Native speaker participant aged over 56 who scored 100% in Subtest 1 (Det + N), 88% in Subtest 2 (N + Adj) and 93% in Subtest 3 (marking third person possession), which suggests that it was a useful strategy and yielded high accuracy.

While the qualitative analysis of the strategies used by participants was interesting, the links between these strategies and actual accuracy were quite diffuse, as a result of the different demands of the different tasks. These results must be interpreted with some caution, as reported strategy is not necessarily how participants formulate their responses in each case, or a reliable indication of the gender marking system constructed by the participant. Nevertheless, it was notable that many participants reported strategies that did not yield high accuracy in their performance data, and this issue will be considered further in Chapter 6.

DISCUSSION

This study aimed to investigate the accuracy of proficient adult speakers in marking grammatical gender, since such adult use is part of the sociolinguistic context in which children acquire this feature. The results point to a high level of inconsistency in marking grammatical gender among adults tested here, particularly among native speaker adults, and particularly among the youngest group of speakers. This is likely to result in a high level of inaccuracy in the input provided by those in a parent generation to children acquiring Irish, given the lack of consistent accuracy among any group of participants other than those aged 56 and over.

Looking at adults' performance of this complex feature of Irish, statistically significant differences by language background emerged only in the context of grammatical gender marking in noun-adjective combinations. It had been hypothesised that this difference would favour the native speakers but in fact the native speaker participants were significantly less accurate statistically than the Highly Proficient L2 speaker participants in marking gender on noun-adjective combinations. This, in conjunction with other literature such as Lenoach (2014), Péterváry, Ó Giollagáin, Ó Curnáin and Sheahan (2014) and Frenda (2011a, 2011b) could be interpreted as pointing to a shift in the spoken language of young *Gaeltacht* native speakers to no longer marking grammatical gender on adjectives accompanying feminine nouns.

The evidence that this shift seems to have accelerated in recent years is in the statistically significant age difference found. While the young adult native speakers marked grammatical gender least frequently or consistently here, the older native speakers aged 56 plus were consistently the most grammatically accurate of the native speakers. Nevertheless, it should be noted that even the oldest native speakers' accuracy on these tests never exceeded that of the HP L2 participants, although it was close to or exceeded the accuracy of the MP L2 participants. Thus, the interpretation of the low accuracy of the youngest native speakers needs to take into account the fact that the older native speakers were not marking grammatical gender in these contexts in the same way as the Highly Proficient L2 speakers, and were more similar to the Moderately Proficient same-aged L2 speakers.

The results showing a task advantage on these tests for Highly Proficient L2 speakers over native speakers point to differences not only in how Irish is acquired in formal versus informal contexts, but also to aspects of the Standard language that for some time

appear to have ceased being marked consistently by native speakers in spoken Irish, although maintained and taught in schools. This raises the question of whether mainstream schools and Irish-medium schools are teaching (possibly more successfully) the Standard language, while *Gaeltacht* schools are accepting the local native varieties of the language, which in formal contexts are judged to be inaccurate. The qualitative study discussed in the following chapter aimed to address the reasons for this and speakers' own attitudes towards accuracy in their and others' use of Irish.

What is most pertinent about this generational difference is that the under 25 year olds will be the 'parent generation' for the next generation of native speakers and thus this age-group will play a major role in the formation of the next generation of Irish speakers. The findings in relation to their accuracy and consistency in their marking of grammatical gender point to the likelihood that children acquiring Irish are now exposed to input in which grammatical gender marking is neither consistent nor salient. This means that it is possible that even native speakers are not receiving sufficient, or sufficiently accurate, input to allow them to acquire these features normally 'by ear' and that remedial measures may need to be taken with regard to these complex aspects of morphosyntax.

Thus a key issue arising from this study and discussed further in the final chapter concerns the evaluation of children's performance in a context in which the language they are hearing around them is showing high levels of variability and change. The findings of this study will be returned to in Discussion when the language use of children currently acquiring Irish is examined alongside adult use.

Chapter 6 Adult study 2:
Adult speakers' attitudes to Irish

OVERVIEW OF THE CHAPTER

This chapter presents Adult Study 2, a qualitative study of adult speakers' attitudes to Irish. The rationale for the study is briefly outlined, followed by a description of the methodology used. An analysis of the results of the interviews with new and native speakers forms the main body of this chapter, exploring their views and experiences with respect to salient themes identified, including Irish use and grammatical accuracy, and ownership and authority over the language. The chapter concludes with a discussion of the results, the integration of the results of Adult Study 1, and some conclusions.

RATIONALE

The results of Adult Study 1, documented in Chapter 5, pointed to greater accuracy in marking grammatical gender among the Highly Proficient L2 speaker participants than the Moderately Proficient L2 speaker participants, and even more so than the native speaker participants. The results also highlighted the overall low level of accuracy in marking grammatical gender in the under 25 age group as compared to the other two age groups of the adult sample. These results illustrate the likelihood that features of Irish such as grammatical gender are available in input to children at variable levels of accuracy, making it more difficult to acquire in normal intergenerational transmission in the home. The performance also indicated that Irish speakers aged under 25 do not access control of grammatical gender marking during the course of education either.

In light of these data showing young speakers and native speakers to have the least grammatically accurate performance in marking grammatical gender, it was considered necessary to explore some of the drivers of change in this sociolinguistic context. The present study is a qualitative study of the views of different types of proficient speakers of Irish regarding what is accurate and/or acceptable in current Irish use and how this affects their language use and sense of ownership and authority. The study seeks to enlarge our understanding of the context in which children acquire Irish by building on the findings of Study 1, delving more deeply into the sociolinguistic context.

A qualitative analytic design was deemed the most appropriate for conducting an analysis of the attitudes and experiences of the adult participants. Qualitative research offers opportunities for in-depth understanding of complex periods of change. The sample was of young adults in university, which allows for some degree of comparability between the native and new speakers sampled.

METHOD

Participants

The adult participants of this study were recruited through the university Irish-speaking club and social network, where participants were also asked to forward information about the study to their Irish speaking friends. This snowball sampling technique was identified by O'Toole and Hickey (2012) as successful in a context in which participants meeting the inclusion criteria are relatively infrequent in the population. The inclusion criteria for the native speakers were that they were born and raised in the *Gaeltacht* with Irish as the dominant home language. The inclusion criteria for the new speakers were that they were proficient Irish speakers, born and raised outside of the *Gaeltacht*, with English as the dominant home language. All recruitment material specified a high level of Irish proficiency and was presented in Irish only, in order to allow those with a moderate and low level of proficiency in Irish to self-exclude.

A total of 17 young adults took part in the study. Seven were native speakers, and 10 were new speakers, i.e. proficient L2 speakers who had acquired Irish outside the home. Their language background information was collected using the Brief-Language Background Questionnaire (B-LBQ; see Chapter 4) and is therefore dependent on self-report. Of the seven native speaker participants, four were female, and the age range was 18 - 26. All the native speaker participants were raised in the *Gaeltacht*. They all reported Irish as their first language, though the use of Irish in the home ranged from 50% to 100% of the time in the home growing up, which suggests that some of them experienced Bilingual First Language Acquisition. They were asked to estimate their percentage use of Irish in their current home and this ranged from 50% to 100%. Half of the native speaker group rated Irish as their strongest language now and the other half rated Irish and English equally. These participants had all attended Irish medium primary and post-primary schools and three were studying Irish at university at the time of the interview.

Ten young adult new speaker participants also participated (six female, age range 19 - 31). On the B-LBQ all of these participants reported English as their first language and had acquired Irish in education. Four of the participants had attended an Irish-immersion school at both primary and post-primary level, one attended an Irish immersion primary school but not post-primary, two attended an immersion post-primary school but not primary, and the remaining three did not attend an immersion school at either primary or post-primary level. Their current use of Irish on a daily basis was widely spread, with half the group using Irish between 20% and 100% of the time and the other half rarely using Irish since completing their post-primary education. All of them rated English as their strongest language but also rated their proficiency in Irish as highly proficient. Three of these participants were studying Irish at university. All of the participants were involved with Irish language clubs and/ or networks in the university.

The demographic recruited for the present study is considered particularly relevant to the wider research questions addressed as this age-group of young adults constitutes the pool from which future parents of the next generation of Irish speakers may be drawn, and therefore their views are relevant for the future of the language. As the majority of the participants in the qualitative study were aged under 25, the interviews offer an opportunity to explore some of the attitudes and feelings relevant to the results of the youngest group of participants Adult Study 1.

Interview Schedule

The interview schedule (see Appendix 6) was based on, or stimulated by previous studies. The first was *An Staidéar Cuimsitheach* [Comprehensive Linguistic Study] by Ó Giollagáin, Mac Donnacha, Ní Chualáin, Ní Shéaghdha and O'Brien (2007), a relatively recent quantitative survey on Irish use and attitudes in the *Gaeltacht* which offered some insight into the views of young adult native speakers of and it was considered relevant to explore some similar questions with the current sample of young adults. A further topic of questions included in the interview protocol concerned identity maintenance and loss, and this was stimulated by Gaudet and Clément's (2005) study of these processes in the Fransaskois context in Canada. The issue of language ownership was also included, stimulated by McEwan-Fujita's (2010) study of Scots-Gaelic speakers, and the perceptions of learners that native speakers were hostile towards them. As there appear to be few studies exploring the views of native speakers of Irish towards other speakers systematically, that topic was

included in the protocol. Finally, following from O'Rourke's (2011) study of the attitudes of Irish native and new speakers, it was decided to include questions regarding both grammatical accuracy and accent in Irish, as it was considered that responses would be relevant to the issues of authority and ownership, and these findings are considered in relation to Adult Study 1 here. While this study adopted an inductive approach, two broad research questions are addressed in this chapter:

1.   How do native and new speakers of Irish feel about their own accuracy?

2.   What are the new and native speakers' views of language ownership and authority?

Procedure

Participants who indicated a willingness to take part were asked to complete the B-LBQ prior to completing the interview, which allowed them to be assessed in terms of the criteria for inclusion. Arrangements were then made for the interview, which typically lasted 25-35 minutes, with the longest interview lasting 55 minutes. As noted, all recruitment materials (posters and emails) were in Irish only. The early stages of introduction to the interviews were also carried out in Irish only, and at that point all participants were told that they had the option of continuing the interview in Irish, English or both languages. All native speaker participants spoke Irish in the interviews. Eight of the ten new speakers also spoke Irish only, indicating a level of comfort in their conversational fluency, while one new speaker participant spoke both English and Irish. Only one new speaker participant switched to English for the rest of the interview.

Given the reflexivity of qualitative research, it was likely that conscious and subconscious choices made by the researcher about word choice and accent during the course of the interviews could have affected what and how much participants shared, as she was a native Irish speaker of one dialect conducting face to face interviews with other Irish native speakers of other dialects, as well as new speakers using a range of dialects/varieties of Irish. Every effort was made to address this through the use of the following measures: the interviewer used the same basic script as far as possible so that all participants were asked the same questions in the semi-structured interview format, but attempted to adapt her rate of speaking and use of dialect features as far as possible to the proficiency level and dialect of the participants, and adjusted choice of particular words to suit their dialect.

Data Analysis

Thematic Analysis following Braun and Clarke (2006) was used to analyse the data. The audio recordings of the 17 interviews were transcribed verbatim, checked for accuracy and consistency and assigned a code, with substitutions made for any identifiers. As the interviews with the new speakers were conducted first, a draft coding frame was developed based on the themes which emerged from those interviews and then formalised following discussion with the research supervisor regarding comprehensiveness. This first coding frame was tested for applicability to the native speakers' transcriptions and was extensively expanded to accommodate the themes noted in the native speakers' interviews, and again was revised and formalised following discussion with the supervisor. The revised coding frame was then applied to all the data. A randomly selected interview was then coded by an experienced second coder, and the simple proportion agreement method (Campbell, Quincy, Osserman and Pedersen, 2013) was used to calculate inter-rater reliability, calculated at 47.4%. This mainly centred on differences of interpretation of a relatively small number of themes, and these were re-worded and clarified to produce a revised coding frame. Following this revision, the inter-rater agreement increased to 70%, which was judged acceptable given that all coding was done by one knowledgeable coder with more knowledge of the material than the second rater (Campbell et al, 2013).

In presenting the results here, the main themes and subthemes identified are given in a table at the beginning of each new section, with the percentage of native and new speakers to which they apply and a sample quote to illustrate them. All Irish quotes were translated by the first author and verified by the second. The abbreviations "NAT" and "NEW" signal native and new speaker participants respectively.

RESULTS

Here the results of the most salient themes relating to **identity, authority, accuracy, accent and ownership** are considered. First, in order to situate the data and these speakers, it was necessary to establish the level of Irish use by the participants, and the contexts in which they speak the language and this is first briefly summarised.

Irish Use

The subthemes which emerged from the theme of Irish Use are listed in Table 6.1, with an accompanying quote and percentage of participants who discussed this theme.

Table 6.1 Subthemes for theme of Irish Use

SUBTHEME	ILLUSTRATIVE QUOTE	NAT	NEW
With family	*My father spoke all Irish, my mother is from [other country] so she never spoke Irish even though she lived in the Gaeltacht. (NAT2)*	100%	90%
With/ to make friends	*Here in college I think I have many more friends than I would have if I didn't speak Irish. (NEW4)*	85%	100%
In education	*French is what I want to learn because I would like to go to France but Irish was a school language. (NEW4)*	57%	100%
As community language	*It depends on the context but usually I'd speak Irish [with a stranger encountered in the community] first and if they change then I would speak English (NAT1)*	100%	10%
Making language choices	*I don't know why I don't speak Irish all the time; most of my friends have Irish so I don't know why. (NAT5)*	71%	90%
As a secret language	*If they want to say something about someone else and they want to say it on the DL (down-low) they say it in Irish. (NEW2)*	0	100%

Typical contexts of use and making language choices

All native speaker participants reported their current main domain of use as in the home with family. However they all reported using English to some degree in the home and half of the native speakers had been raised with both Irish and English in the home. This illustrates the fact that, even in Irish-speaking homes in *Gaeltacht* communities, few families use Irish exclusively in the home. In contrast to the home use of the native speakers, the primary domain of use for all the new speaker participants was in education. While nine new speaker participants did mention using some Irish at home, they described it as a relatively infrequent occurrence, or with siblings learning Irish whom they wanted to encourage. Both native speakers and new speakers reported using Irish with friends. Interestingly, all of the new speaker participants also reported using Irish as a secret language but this was not mentioned by any of the native speakers.

1. *"I speak Irish when I am abroad, more. It is very useful when there are strange people or you are trying to say something to your friends." (NEW9)*

This appeared to be a parallel to Dunmore's (2014) finding regarding adult graduates of immersion education in Scotland which was that their Scots Gaelic use after leaving education is quite limited, with some exceptions, including using the language as a secret code so as not to be understood by strangers.

As observed by Stenson (1993), after centuries of close contact with English, monolingualism in Irish is very rare and there is now universal bilingualism among those who speak Irish. Given that using the majority language is always a possibility for these native and new speaker participants, making decisions regarding choice of language was commonplace. Some participants were very conscious that every time they used Irish constituted a conscious decision:

2. *"There is nothing at home in Place [town in the east of Ireland, not an area with a high number of Irish speakers] to do through Irish. Or is that up to me, 'here we will go down to the pub and we will start speaking Irish'." (NEW10)*

Opinions in relation to how their language choice was influenced by others were divided, but did not align with a native/new division. Some reported leaving the decision to others, *"if they want to speak [Irish] to me, fine... I would speak Irish with them"* (NEW2), *"it is up to everyone to achieve their own I suppose in relation to the language"* (NAT1); while others took a much stronger position with regard to choosing to speak Irish:

3. *"I would speak Irish with them [any friends who the speaker knew could speak Irish] all the time and I won't accept answers in English. If they started speaking English with me, I would speak Irish back." (NEW3)*

Identity

Looking next to the theme of Identity, the subthemes and quotes are listed in Table 6.2.

Table 6.2 Subthemes for theme of Irish Identity

SUBTHEME	ILLUSTRATIVE QUOTE	NAT	NEW
More valued as native speaker	*There's pride because we are from the Gaeltacht so I feel proud when other people are speaking it. (NAT6)*	100%	90%
Using Irish makes one stand out	*When we say write happy birthday I'd be the one to write breithlá shona, and they just laugh coz it's typical of me. (NEW5)*	71%	90%
Love of the language	*I love it [Irish], I love speaking it and I love studying it and writing it. (NEW1)*	57%	70%
Economic/ career value	*I work in a summer camp every summer so [it's valuable] for my job and for work. (NEW7)*	57%	70%

Value of being an Irish speaker: Sense of being special

Many of the native speaker participants emphasised the special status they perceived in coming from the *Gaeltacht,* as it conferred upon them membership of the group of native Irish speakers. They also believed that their Irish was achieved with ease through home use:

"*it is much easier to speak a language and to have it when you speak the language at home*" (NAT3), and native speaker participants linked this ease of acquisition with a **naturalness of use** they identified as a salient difference between their Irish and that of proficient L2 speakers:

4. "*I'm not criticising people who learned their Irish kind of from books and just in school but I think that that naturalness is very important because that is kind of the flavour, the character that the language has.*" (NEW7).

This identification of greater **authenticity in native speakers' use of Irish** compared to the variety of Irish learned in schools was echoed in several interviews, but it was noted that in many cases it was also tempered by a reluctance to criticise or claim superiority. New speakers also recognised the authenticity of native speaker Irish:

5. "*The style and natural rhythm they have, the rich vocabulary.*" (NEW9)

This accords with the findings of O'Rourke (2011) where the new speakers associated the Irish spoken by people from the *Gaeltacht* with fluency and regarded it as 'better' than the Irish they themselves spoke, which they reported made them feel under pressure to speak "good Irish" (p. 334) when speaking to native speakers.

While several of the new speakers appeared to agree with the native speakers in attributing greater authenticity to native speaker Irish, it was interesting to find that nearly all of the new speaker participants had also had the experience of being **regarded as special** by virtue of their ability to speak Irish well. They based this on the comments of others in their own (English-speaking) community regarding their Irish proficiency:

6. "*People always pass comments, whether it's 'oh God you're great'.*" (NEW5)

7. "*If people [know I] have Irish they think that 'oh Jesus yer man is able to speak Irish, he's probably a clever person.*" (NEW2)

Similar sentiments were expressed by the new speakers interviewed by O'Rourke (2011), which reinforces the perceived value of Irish for the identity of new speakers. Thus for both groups, speaking Irish was seen as giving them special status. This perception among the native speakers seemed to be mainly internally generated and derived from their membership of the community of native speakers of a variety that they, and some new speakers, perceived to be the more authentic Irish spoken in the *Gaeltacht*; whereas the value accorded to the new speakers appeared to be partly conferred from the outside and relate to the fact that their Irish proficiency was significantly above the typical proficiency of people living outside of the *Gaeltacht*. All children in the Republic of Ireland must study Irish

as a subject in school and only those with extenuating circumstances are exempt, therefore the vast majority of people raised in the Republic of Ireland have studied Irish for up to 14 years. Nevertheless, many report very low proficiency or no proficiency at all, which makes the new speakers interviewed in this study a non-typical group in the context of the Republic of Ireland (see also Nic Ghiolla Phádraig, 2001).

Accuracy

Attitudes to accuracy and variability emerged as a salient theme, and the subthemes are listed in Table 6.3.

Table 6.3 Subthemes for theme of Irish Accuracy

SUBTHEME	ILLUSTRATIVE QUOTE	NAT	NEW
Making the effort more important than accuracy	*I would say if you have a love for the language you wouldn't care if the person, if the grammar is right. (NEW9)*	71%	80%
	I understand that I am making mistakes but at the same time I'm still putting what I want to say forward. (NEW7)		
Lack of confidence	*I would be nervous about, you know, is it an fhuinneog or an fuinneog. (NEW6)*	71%	80%
	Maybe I am paranoid but sometimes I think [native speakers] think 'this daft eejit trying to talk Irish again'. (NEW2)		
Acceptability of codeswitching	*It's more natural because you're not trying to get around something in a difficult way, you're making it easier to express and so for that reason it's more natural. (NAT7)*	85%	100%
Accent	*I think that that naturalness is very important because that is the flavour, the character in the language. (NAT6)*	100%	70%
	Sometimes I would be nervous that someone wouldn't be able to understand me, because of my accent." (NAT3)		

Making the effort is worth more than grammatical accuracy

Some of the new and native speaker participants in this study argued for a more inclusive approach to new speakers, putting the **emphasis more on having a love of Irish** or the 'right attitude' to it. They thereby presented a view that 'making the effort' to speak Irish is more important than having accurate grammar.

8. *"The attitude [of the speaker] is the most important thing - it doesn't matter about the accuracy." (NAT4).*

What was significant was that this view transcended the speaker categories, as a similar view was also expressed by a new speaker:

9. *"I'd say if you have the love of the language you don't care if the person has accurate grammar. I'd say the [important] thing is that they are speaking Irish and trying to speak Irish." (NEW9)*

In commenting on the issue of grammatical accuracy, many of the new speaker participants in particular commented that they are still developing proficiency and that for them Irish still requires conscious effort, resulting in a tendency to value communicative competence more highly than accuracy:

10. *"We have Irish now and we are communicating without being fluent, without having native Irish, it's like - <u>it'll do</u>." (NEW8)*

This points to a **prioritisation of communicative fluency over accuracy** and a view that inaccuracies are acceptable provided the speakers are communicating their meaning. Overall, these comments illustrate the view that what is most important is having the right attitude to Irish and making the effort to speak Irish. While this was certainly more explicit among the new speakers than the native speakers, it was acknowledged by the native speakers also, as in quote 8 above.

Overall, in this group of young adult speakers (most of whom were comparable in age with the under 25 year olds in Adult Study 1) it appeared that grammatical accuracy in Irish was not seen as the first priority, but that being positively disposed to this threatened language and making the effort to speak it are more important, with accurate grammar being seen as somewhat supplementary to this effort – perhaps, for at least some of these interviewees as desirable but not necessary. This is relevant to interpreting the data on low accuracy in Adult Study 1 among the participants aged under 25 years.

Native speakers' and new speakers' lack of confidence in their accuracy

One surprising result in Adult Study 1 was the finding of significantly higher levels of accuracy in marking grammatical gender among the participants who acquired their Irish in school than in the home. Some of the comments of the native speakers in the current study help to explain this advantage for the L2 Irish speakers, which they commented on in their interviews. Despite their earlier views of the specialness of *Gaeltacht*/native speaker Irish, native speaker participants also reported that meeting highly proficient L2 speakers made them **aware of what they perceived as their inadequacies in Irish grammar** (see also quotes

14 and 24 later). Some attributed their disadvantage to less formal teaching of Standard Irish and Irish grammar in *Gaeltacht* schools than in Irish-immersion schools, which they perceived led to lower average examination grades in Irish for native speakers. In turn, this resulted in defensiveness about their own levels of Irish grammatical accuracy, compared to immersion-school speakers.

11. *"[Gaeltacht people] don't have good grammar because they don't learn it in the schools... I am afraid to write things and I ask my father to correct nearly everything I write." (NAT2)*

12. *"The teachers took it that we knew the rules and then for the rest it was more important that they developed [dialect of X], we have rules that are not in the Standard and wouldn't be right according to proper grammar." (NAT7)*

Thus, we see here a paradox, whereby some of the new speakers interviewed reported that grammar was not a priority for them but that communicative competence and the right attitude were more important, while many native speakers interviewed reported a lack of confidence in their Irish grammar, and a feeling that their education as native speakers did not equip them to compete as highly proficient users of Standard Irish. It is important to remember that the group of new speakers in this study spanned the continuum from proficient language learner to near-native-like proficiency. This may explain why some of the new speaker participants had full confidence in their own accuracy, while others had little confidence in their own grammatical accuracy and instead either attributed high accuracy to the native speakers (see also quote 26 below), or else decided to prioritise communication and believed that this, in addition to having the right attitude to the language, were more important than accuracy.

Codemixing

The acceptability of codemixing was a salient theme among the native and new speaker participants. The most outstanding finding was the awareness among both groups of **differences in the prevalence of codemixing** in the Irish of native and new speakers. One new speaker participant summed up the dichotomy very concisely;

13. *"When I am with people from the Gaeltacht there is a lot more English in the conversation, that's the way they speak. But when I am with people studying Irish there are a lot more Irish words used in the conversation." (NEW4)*

The native speakers commented that their own frequent use of codemixing makes them self-conscious when speaking to new speakers who use the more 'correct' Irish terms.

14. In university with people who are studying Irish, they have everything perfect. …

   sometimes it's difficult to think of the right word [in Irish]." (NAT3)

These native speakers observed that in their experience in the *Gaeltach*t use of Irish, codemixing is part of the natural flow of conversation, "*I think it runs naturally*" (NAT5). The picture that emerges regarding the Irish of native speaker participants is that, while they perceived their own Irish, acquired in the home, as more authentic than 'book Irish', they were aware of deficiencies in their vocabulary and grammatical accuracy, which they attributed to a lack of formal teaching of the Standard in *Gaeltacht* schools. They assessed their own Irish with phrases like "*it should be better*" (NAT1) and "*I should go to the dictionary more often*" (NAT2), suggesting perceived deficiencies and defensiveness about them.

A factor that is relevant to any discussion of differences in the attitudes to codemixing between native speakers and new speakers is that many new speakers from immersion schools in particular are likely to have experience of being reprimanded for codemixing in Irish, due to it being seen as signalling a deficiency in vocabulary which is negatively marked in oral Irish exams, whereas *Gaeltacht* speakers are more likely to perceive it as the norm in their bilingual community. This is borne out on the one hand by some new speaker participants reporting that they resort to codemixing as a substitution strategy only when they cannot produce the target item in Irish. On the other hand, some new speakers appeared to accept that it is the norm in *Gaeltacht* communities. While this points to some deference towards the native speakers' variety of Irish and norms of use in the *Gaeltacht*, as was also observed by O'Rourke and Ramallo (2013), it is very relevant that this marker of native speaker use is penalised in the education system and in formal contexts, and that native speakers are aware of this fact.

Thus, neither the native nor the new speaker participants interviewed appeared to have confidence in their gramatical accuracy. In addition, accuracy was not prioritised by the majority of speakers interviewed, who valued fluency and communicative competence more. In the context of this endangered minority language, it appeared that all efforts to speak the minority language are applauded, regardless of accuracy.

Accent – valuable but not indispensable

It emerged that the most salient markers (for both native and new speakers) of the native speaker variety are the use of codemixing (discussed above), and **accent.** Many native speaker participants commented positively on their accent, noting that it is perceived by others as a more important signal of high proficiency than grammar:

15. *"Most people accept that [I am a native speaker] because I have the accent and sometimes grammar gets lost in the accent." (NAT2)*

This quote illustrates her view that the **authenticity of her accent evokes confidence** in her as a native speaker, which can either obscure errors or allow her some leeway with regard to grammatical accuracy. However, it was clear there were some limits to the advantages of an authentic native speaker accent, relating principally to dialect. All of the native speaker participants who spoke the Ulster dialect reported having to adjust their accent to be understood, even by other native speakers of different dialects, and they appeared to be highly aware of the difficulties their accent caused their interlocutors:

16. *"Sometimes I would be nervous that someone wouldn't be able to understand me, because of my accent." (NAT3)*

Research has shown that accent is frequently a very salient issue for language learners, but there are some contradictory findings. Singleton (2001) argued that the degree to which a language learner's L2 accent sounds native is often cited as a measure of their success as a language learner. Graddol (2006) disagreed, noting that new speakers may admire the authenticity of native speakers' accent, but may view it as either unattainable or unnecessary for them, preferring to self-identify as a new speaker with new speaker norms. Research on new speakers of Scots Gaelic (Nance, 2013), Occitan (Costa, 2015), Dutch (Cornips, 2008), Yiddish and Breton (Hornsby, 2015) has shown them to use some aspects of accent such as intonation pattern to mark local identity affiliation. Nance (2013) used this finding to dispute the controversial concept of 'incomplete acquisition,' arguing that speakers may actually have fully acquired the language to the extent they need and that this also affects the speech sounds they use to achieve this communication. New speakers in this sample gave some indication that they do not deliberately try to sound like native speakers and instead use a hybridized accent to mark their identity as a new speaker. The following quote supports this argument as it reveals more of an unwillingness than an inability to adopt the native accent:

17. *"I always feel silly if I put kind of, you know, a Galway accent on when I'm speaking*

    Irish because that's, that's not the way I speak." (NEW5)

Thus some new speakers may feel that they are not required to try to 'pass themselves off' as native speakers when they can claim legitimacy among their peers who use the same accent as they do. This demonstrates that accent is highly relevant to issues of ownership and authority: while new speakers stand out, given that Irish proficiency is not the norm in their environment, their new speaker variety has become the norm among those who do speak Irish in that community and this local effect may promote a sense of authority equivalent to that of the native speakers. It was notable that new speaker participants used terms like "*neutral Irish*" (NEW6) and "*ordinary Irish*" (NEW8) to refer to their accent and variety of Irish, which suggests that they were defending the authenticity of either an undifferentiated type of Irish that is not tied to a *Gaeltacht*, or a Dublin dialect, as the following quote suggests:

18. *"I have a typical Irish accent but it's from the area I'm from, it wouldn't be an Irish*

    accent as in the sense of someone that's from the Gaeltacht." (NEW5)

Woolard (2005, 2013) noted that a language which is not tied to any place or people (a 'voice from nowhere' as Nagle, 1986, termed it) has a desirability that lies in the perception that it belongs to no-one and therefore can be accessed by anyone with the resources to avail of it. Milroy (2001) asserted that less value is attributed to local variance as the superordinate standard language attempts to be this voice from nowhere. The native speakers participants saw their accent as supporting their authenticity and giving them some protection against detection of their grammatical failures, but the responses of the new speaker participants in this study suggest that they do not strive to sound like native speakers, but instead feel that their own accent as speakers of a post-traditional variety (Ó Murchadha, 2015) has legitimacy in its own right.

Ownership and authority

Ownership and Authority emerged as the most significant relational themes throughout the analysis, and the subthemes are listed in Table 6.4.

Table 6.4 Subthemes for theme of Irish Ownership and Authority

SUBTHEME	ILLUSTRATIVE QUOTE	NAT	NEW
Sharing the language	*I'd be in the Gaeltacht and they'd know I wasn't from the Gaeltacht... I might start speakin Irish and they go 'we don't speak Irish here'. (NEW6)*	100%	100%
	It doesn't matter if you are in or outside the Gaeltacht having something to do with Irish if you are happy to speak it there are advantages to that. (NAT3)		
Native speakers as authority	*They think I have the advantage because I am a native speaker. (NAT5)*	85%	90%
New speakers as authority/ legitimate	*It can be heard in the suburbs and in the city centre... It's not as directed on the Gaeltacht as it was, it's more inclusive. (NEW9)*	71%	100%
The Standard as authority	*I feel that the Standard is important so there is some benchmark to say if it is right or not. (NEW4)*	71%	50%
The future	*I don't think there will be much native Irish left. I don't think there will be any left in the Gaeltacht. (NEW1)*	57%	90%

Sharing the language?

Despite a keen awareness of differences in how they use Irish, there was a notable consensus among both native and new speaker participants that **everyone owns the language**. This in itself is interesting, in that it shows no preferred status for speakers of one dialect over another or for native speakers over new speakers:

19. *"I am a native speaker, but that's not to say that I have more value than someone, some other native speaker from Donegal or someone with Irish from Dublin."* *(NAT1)*

Instead, there appeared to be an acceptance among both the new and native speakers of the contribution of the other and the value of both types of speakers in maintaining and sharing responsibility for a language under threat:

20. *"It's on everyone to keep [Irish] alive and not put it at risk." (NEW9)*

Native speaker participants reported being familiar with a disparaging attitude towards language learners among some native speakers, and new speakers were aware of unwillingness among some people in the *Gaeltacht* to converse with them, as already noted above and by O'Rourke (2011), which one new speaker reported as follows:

21. *"I've had the odd time alright, maybe if I was in the Gaeltacht... They'd know I wasn't local. Whatever - I might be in the pub and I might say start speakin' Irish and they go 'oh, we don't speak, we don't speak Irish here'." (NEW6)*

However, all participants interviewed unanimously rejected this type of behaviour and argued for the inclusion of language learners and proficient L2 speakers.

22. *"Sometimes, people with high proficiency don't want to talk to people who don't have equal proficiency because they think they have more of a right to the language than them. But that's an idiotic attitude." (NAT1)*

One native speaker acknowledged that some new speakers are wary of negative judgement by native speakers, while also seeming to doubt that she merited this assumption of authority:

23. *"They are afraid, 'oh no you'll judge my Irish, I don't want to talk to you'... People think just coz I am from the Gaeltacht that I 'have it'. (NAT2)*

This concern about aspects of their Irish being judged harshly by the other, and awareness of their own differences points to a perception of a 'them and us' among new and native speakers which was also present in the discourse used by the new speakers interviewed by O'Rourke (2011). What was striking about the speaker in quote 23 was that she indicated some doubt herself about 'having it' in terms of her proficiency in Irish. An interesting contradiction emerged as native speaker participants acknowledged that while language learners may think that native speakers have superior Irish, they themselves felt they were lacking in the vocabulary and accuracy needed to speak as authorities on the language. They struggled to reconcile their authentic accent and fluency with their lack of confidence in their grammar and their high levels of codemixing compared to the highly proficient new speakers. Nevertheless, both groups appeared to believe that, in the face of increasing threat to the language, making the effort and having the right attitude is more important than accuracy or monopolisation of language ownership, given their joint endeavour of maintaining a threatened language.

Yet it was also the case that some inter-community experiences were less positive, such as the native speakers' reports of having aspects of their use of Irish questioned by speakers from outside their community, language learners who defer more to textbooks than to native speakers for the 'correct' terms:

24. *"They [the new speakers the participant lived with] won't say Gaelainn [her own pronunciation of Gaeilge as in Gaeltacht in the south of Ireland] because there's still that thing: it's not in* <u>*focal.ie*</u> *[an online dictionary]." (NAT6)*

This quote points to a sense of an **undermining of her authority,** and demonstrates her frustration that her peers' benchmark of the acceptability and legitimacy of an Irish word

was its presence in a dictionary, rather than her own use as a native speaker. This echoes Ballinger's (2013) reports of teenage L2 learners of French in Canadian immersion settings rejecting the authority of their native speaker peers when working in pairs on French tasks, preferring to go to another L2 speaker whose authority they recognised. This also accords with the results of the studies by O'Rourke and Ramallo (2013; 2011), which point to Irish native speakers being displaced as the authority in Irish by urban speakers of the language.

In parallel with this evidence of a decline in the authority of the native speaker, the new speakers also reported experiencing criticism and being hurt by hearing their Irish described as **'book Irish'**, which undermines the authenticity of that Irish:

25. *"Someone from the Gaeltacht told me once, oh that's book Irish, that's not right... I was just like 'wow, that's kinda harsh, drop dead, I was just trying to do my best!"* (NEW7)

This questioning of the legitimacy of the new speaker as interlocutor was also discussed by the young adults interviewed by O'Rourke (2011), who reported negative experiences of speaking Irish with native speakers and being spoken English to in return, which they perceived as a criticism of their proficiency compared to the native speakers' Irish and a rejection of them as Irish speakers, a perception that was similar to one documented by McEwan-Fujita (2010) with regard to Scots-Gaelic learners. As was evident in the quote above, this undermining of legitimacy can lead to feelings of rejection and anger among some learners. On the other hand, other new speakers seemed to view this as somthing that is required to uphold standards:

26. *"They [native speakers] want everyone to have accurate Irish and everything, and that's fine because it's needed so everyone doesn't have kinda higgildy piggildy Irish at the same time."* (NEW2)

This quote in particular points to the ideological tension between what is desirable and what is sustainable discussed by Ó Murchadha and Ó hIfearnáin (forthcoming) as it revealed the participant's awareness of a need to maintain standards in the language, but it was interesting that his perception was that this was overseen by the native speakers.

The Standard as authority

The findings in relation to grammar and accuracy need to be considered with regard to Standard Irish (*An Caighdeán*) as the **marker of authority and legitimacy** in the language. The Standard comprises rules for written Irish spelling and grammar, and was not originally

intended as a Standard for spoken Irish. Nevertheless, it is used in assessing proficiency in exams, and has become widely accepted as the standard for assessing spoken Irish also. Half of the new and three quarters of the native speaker participants explicitly referred to the Standard as the primary authority when asked to name the authority they recognised in relation to accuracy. Their understanding of the Standard was that it was an abstract set of rules that speakers must abide by in formal contexts and which is governed by academics and Irish speakers who are highly educated in the technicalities of the grammatical system.

27. *"I think the people who write the dictionaries make the decisions... Book Irish is what they have, as they say, the people who are studying Irish and are extremely accurate in relation to grammar and the likes - and I would be embarrassed [to talk to them]." (NAT3)*

This last comment is particularly illuminating as it suggests a wide separation between spoken Irish and the "book Irish", which is perceived as removed from native speaker varieties and very prestigious in academic terms but not authentic.

While the native speakers cited the Standard as the authority determining what is judged as correct Irish, some of the new speaker participants recognised the authority of the native speaker varieties alongside the authority of the Standard.

28. *"I feel that the Standard is important, sure, so there is some kind of point, a benchmark of some type to say if it is right or not. But in relation to native speakers, I don't think there should be a problem, if it is the dialect chosen there shouldn't be a problem." (NEW4)*

What was notable about this new speaker was that he was unusual in having developed a native-like accent and speaking a variety that was closely based on a traditional *Gaeltacht* dialect. His position of defending native speaker varieties was influenced by his own experience of being criticised for using dialectal constructions which were inaccurate according to the Standard but which complied with a traditional dialect.

Overall, these participants seemed to indicate that authentic native-like Irish is increasingly being seen as supplementary to the proficient new speaker variety. The only new speaker participant to explicitly discuss the legitimacy and recognition of a new speaker variety, based on a spoken Standard, discussed the possibility of establishing a formally recognised Received Pronunciation in Irish. This would confer prestige and legitimacy on the new speaker accent that would match its authority in grammar.

The future of the Irish language

To conclude, several participants considered the future of Irish and the following quotes stood out in their similarity in terms of how they all point to a **decline in the use of Irish in the *Gaeltacht*** and the traditional varieties and a shift to post-traditional varieties that accompany an increase in the use of Irish outside of the *Gaeltacht*:

29. *"[Irish] is being preserved in the Gaeltacht so that is important, it is equally important to develop it and that is [being done by] the people outside of the Gaeltacht." (NAT7)*

30. *"Irish of the Gaeltacht will decline -the old Irish... [while] the Irish of the suburbs and the Irish of the Gaelscoileanna will improve. I don't think it [Irish] is dead. It is dead in one style, the natural style, that is dying. But the non-natural style, the English style, I think that will increase and improve." (NEW4)*

31. *"A man at home says Irish will be there but maybe neither you nor I will understand it." (NEW5)*

These quotes clearly point to awareness and **acceptance of major changes** occurring in Irish. New speakers outside of the *Gaeltacht* are being associated with the modern way of speaking the language ("the Irish of the suburbs and *Gaelscoileanna*") while the traditional Irish spoken in the *Gaeltacht* ("the natural style") is seen as dying out and valued mainly for its historical value, with the native speakers functioning as its curators.

DISCUSSION

O'Rourke (2011) observed that the new speakers she interviewed strived to "stand out and exist as a distinct linguistic group" (p. 339) and this also appeared to be the case for the new speakers interviewed in this study. Traditional models of *Gaeltacht* Irish are in the process of, or have been displaced as the only desirable standard in Irish, with evidence of accommodation to a new non-traditional variety, which Ó hIfearnáin and Ó Murchadha (2011) concluded was very significant in a community "undergoing continuing language shift to English, where access to conservative speaker models is becoming more scarce" (p. 103). The generation of new speakers from L2 learners is generally viewed as a successful outcome of revitalization policies, but it prompts re-evaluation of how language ownership, legitimacy and authority are construed. These data point to a growing gap among young adults between authenticity and authority in the language: those who have authenticity lack confidence while those who lack authenticity are seen as having preferential access to a

variety more like the Standard language, which Ó Murchadha and Ó hIfearnáin (forthcoming) argue is in the process of being ideologically upgraded from low-status to best-language status through a process of demotisation (the possibility that the 'standard ideology' stays intact while the valorisation of ways of speaking changes).

Jaffe (2013) and Ó Murchadha (2013; 2010) have both argued that revitalisation efforts which aimed to resurrect the language in the pre-shift form were unrealistic and probably impossible, and therefore a desire to preserve native speakers' 'pure' or 'authentic' variety is a unlikely to succeed. The reverse, a prioritisation of function over form, whereby the linkages between linguistic and communicative competence are broken down through the prioritisation of the latter and the neglect the former, as discussed by Jaffe (2013) and as encouraged by some revitalization campaigns such *La Queta* in Catalonia (see Woolard 2008), would create equally significant problems of managing target varieties, given the concerns that O'Toole and Hickey (2012) have raised about the attenuated Irish of the children in primary education and in the *Gaeltacht*.

Dorian (1994) observed that 'Dublin Irish' was seen in the early 1990s to have failed the test of authenticity set by purist speakers motivated to preserve the traditional ways of speaking. There is a fine distinction to be made here between 'Dublin Irish' as a product of the adoption of the rules of the Standard (derived from the traditional dialects) into spoken Irish, and the post-traditional variety of Irish which is a product of typical usage outside of the *Gaeltacht* and which does not stake its legitimacy on being a descendant of the traditional varieties. The results of Ó Murchadha (2013) have shown that this post-traditional variety of Irish is now posing a stronger challenge to the status of the *Gaeltacht* varieties as new speakers can speak Irish well without aligning themselves with any one *Gaeltacht* dialect.

Whether this post-traditional variety of Irish will be accepted as legitimate and authoritative by native speakers remains to be seen. Costa (2015) observed that children in an Occitan-immersion school constructed their own hierarchy of authority, legitimacy, and authenticity, with some proficient children being elevated as experts. This had a positive effect on their self-esteem and ownership of the language. When Costa played a recording of an elderly traditional native speaker of Occitan and confronted the new speakers with the traditional variety of the language, they felt relegated to the status of novices. However, this was temporary as the young new speakers re-aligned their sense of authenticity to create a dichotomy between old and new Occitan, which afforded them more authenticity and

authority than comparisons according to native and new speaker. There may be a similar re-mapping of the territory taking place currently in Irish.

McEwan-Fujita (2008) observed the emergence of new registers in Scots Gaelic, which she associated with professionals who use Gaelic in their occupation, and described the avoidance of English borrowings or codeswitches as one of the most telling features of this variety. The association between this register and professional arena suggests that this register would be regarded as a High register[12] and, in line with traditional models of diglossia, associated with power and prestige. Smith Christmas and Ó hIfearnáin (2015) dispute this inference however, claiming that more traditional Gaelic speakers regard this register as articifial and non-native, in part *because of* its deliberate avoidance of codeswitching, and they claim that it is not accepted as a High register with prestige and power. They also sound a note of caution, arguing that the Scottish and Irish contexts are incompatible with traditional models of diglossia, and note the need for, and value of research in these contexts in challenging these traditional models.

Integrating Adult Study 1 and Study 2

The recent and substantial body of work based on new speakers (discussed in Chapter 3) has mainly focused on qualitatively exploring the attitudes and motivations, identities and authenticity of new speakers. The issue of accuracy has been circumvented and no study has used the framework of new speakerness to address the attenuation of features of traditional grammar documented by O'Duibhir (2011), O'Toole and Hickey (2013). From the opposing perspective, researchers such as Ó Giollagáin et al (2007), Ó Giollagáin and Charlton (2015), Péterváry, Ó Curnáin, Ó Giollagáin and Sheahan (2014) and Ó Curnáin (2012) who have examined the Irish of different types of speakers and age groups have tended to take any evidence of non-compliance with traditional native norms is taken as confirmation of attenuation.

The qualitative data presented here show current sociolinguistic complexities with regard to judging authenticity, authority and ownership of Irish. Native speakers are aware that they are not seen as authorities in grammar, as this is assessed in terms of the Standard, and as engaging in the much criticised practice of codemixing, as seen the world over among

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[12] "Within the diglossic paradigm, the H (High) language indexes power and prestige, and is used in H domains, which normally encompass higher education, national media, religion, government and the workplace." (Smith Christmas and Ó hIfearnáin, 2015, p. 261)

bilinguals. New speakers rarely aspire to sounding like native speakers, but instead lay claim to a new variety of post-traditional Irish, which aligns with the Standard in terms of grammar, has lower levels of codeswitching than *Gaeltacht* Irish (at least among the most proficient new speakers), and with a non-native accent. Further investigation of the language use of speakers who identify with the concept of new speakerness is necessary given that these varieties are likely to increase in terms of prestige and authority as the number of speakers who use these varieties increase in number and authority.

This results in Chapter 5 pointed to higher levels of accuracy among the High and even Moderate Proficiency L2 speakers than among the native speakers, with the young native speakers showing the lowest levels of accuracy in marking gender. The quantitative results were supported by findings in the qualitative study that showed that the native speakers interviewed were aware that, while they sound like the native speakers, their Irish vocabulary and grammar is not on a par with the high proficiency L2 speakers they encounter in university. The majority of the native speakers deferred to the new speaker authority in grammatical accuracy. However, a corresponding claim to authority among the new speakers was not evident. This unwillingness among the new speakers to explicitly claim this authority may be linked to the entrenchment of the native-speaker authority in Irish language preservation discourse: the Irish language was promoted as an element of Irish national identity and the idealised concept of the Gaelic heartland elevated to a revered status since the foundation of the Irish Free State (Watson, 2014; Watson & Nic Giolla Phádraig, 2009; Edwards, 2009).

It may also be due to new speakers of Irish not achieving *en masse* the high degree of competence Walsh (2014) included as one of the potentially typical traits of the new speaker. If the concept of new speakerness is to include speakers across the continuum from language learners with limited proficiency to speakers who could 'pass' as native speakers, overgeneralisations of greater proficiency and accuracy among new speakers compared to native speakers cannot be made. Indeed, the most salient conclusion which can be drawn from joint consideration of the new and native speakers in Adult Study 1 and Adult Study 2 is that formal grammatical accuracy among both of these groups is significantly lower than in previous generations and this corresponds with the high priority given to communicative competence and commitment to the language and lower prioritisation of accuracy among the speakers interviewed.

CONCLUSION

The results presented here are not intended to be representative of all Irish speakers. This is particularly the case with regard to the age-group involved, and to the native speakers interviewed, as they had all left the *Gaeltacht* to attend university and their views may not be shared by people their age who have not left the area they have grown up in, or by older people. The participants who shared their views and experience in the present study seemed torn between preservation of traditional Irish and a desire to bring the language into the modern age. This tension is deserving of further discussion among different groups of speakers, particularly in third level education, in order to raise awareness of differences in the priorities and authority of different types of Irish speaker. The native speakers appeared to be aware of disparities of status outside of the linguistic arena (for instance of an urban-rural divide) and are wary of the embarrassment their accent or variety could cause. Nevertheless they did seem to believe that their Irish was more authentic than that of the new speakers, although they were unwilling to lay claim to the status of authority on the language. Conversely, the new speakers appeared confident that their variety of Irish was more resilient than the native varieties, which they perceived to be very vulnerable, but also had doubts about whether this will be a victory or will involve the loss of some crucial aspect of the language. These results show friction between these speakers of Irish, triggered by recognition of the need for unity and cooperation combined with defensiveness about each other and how the language should be both protected and developed. Similar tension has been rife in the revival of Cornish and significant resources have been wasted on ideological debates about what constitutes 'true Cornish' (see Sayers & Renkó-Michelsén, 2015). A middle ground which appreciates the value and cooperation of native and new speakers is needed if language shift in Ireland is to be reversed.

Chapter 7 Results of the child study: Tests of grammatical gender

OVERVIEW OF THE CHAPTER

The study presented in this chapter aimed to assess the receptive and productive performance of children aged 6 – 13 years on tests of Irish gender marking and possession. The variables considered in this study are presented first. The methodology is presented next, which includes information about the participating schools, children, parents and teachers. In the results, the means and standard deviations for all measures are presented first, followed by statistical analyses using ANOVAs. Regression analyses were then conducted on the basis of exploratory analyses and these results are presented. Additional analyses were conducted for differences according to the context of grammatical gender marking, the gender of the noun and the strategies used by the child participants. The chapter concludes with a short discussion and some conclusions.

RATIONALE

The goal of this research was to explore the acquisition of grammatical gender marking in Irish among children from different language backgrounds and of different ages, with a view to considering how these factors influence acquisition. Chapter 1 called for a departure from monolingual-bilingual comparisons and for greater emphasis on the study of different types of bilinguals and their language acquisition experience. L1 and L2 Irish speakers were recruited so as to consider differences in background and language experience, and how this influences acquisition of later-acquired features of Irish. Later stages of language development is comparatively slower and more subtle than the rapid acquisition seen in the pre-school years. Given the opacity of grammatical gender in Irish and the conflict between gender and possession marking, the development of control in marking gender and possession is hypothesised to have a long trajectory in Irish acquisition.

A multi-rater, multi-measure approach was taken to achieve a triangulated exploration of Irish acquisition in middle childhood. The primary aim was to examine the acquisition of grammatical gender marking, which required the development of specific tests to assess receptive and productive control of grammatical gender in children aged between 6 and 13 years. In addition to age, and in light of the sociolinguistic context, it was important

to consider the child's language background. This was explored in conjunction with other relevant background variables including language input in school and, parents' and teachers' language background (including proficiency). Other variables related to language proficiency of the child, such as Irish vocabulary, English vocabulary and non-verbal IQ, were considered, as were additional demographic variables such as sex. The research questions addressed in the Child Study Part 1 are as follows:

1. Are there differences between children from different language backgrounds and at different ages in their accuracy in receptive understanding of and productive marking of gender?
2. Does accuracy differ for specific functions of grammatical gender?
3. Are there differences in children's accuracy in marking animate and inanimate nouns?
4. Are there differences in children's accuracy in marking masculine and feminine nouns?
5. Do children use a strategy in assigning grammatical gender?

The variables measured in the present study can be divided into four groups: child variables, language background variables, school variables and measures of aspects of Irish and English language competence.

Child variables

Age: Age was measured in years and ranged from 6 to 13 for the child participants. In some analyses age was treated as a continuous variable and in others as a categorical variable, where participants were grouped from 6 - 9 years and from 10 - 13 years.

Sex: Sex was treated as a dichotomous variable based on biological sex as no participant sought a distinction between sex and gender.

SES: Demographic information about parental occupation was collected in the C-LBQ. Principals reported whether the school had DEIS (Delivering Equality of Opportunity in Schools) status, which would indicate a disadvantaged catchment area.

Non-verbal IQ: This was measured using the Matrices subtest of the Weschler Abbreviated Scale of Intelligence (WASI).

Language Background variables

Child participants' language background was measured using

    a) the *Child Language Background Questionnaire* (C-LBQ; completed by the parent; see Chapter 4 for details and Appendix 2 for the full measure)

    b) the *Child Use of Irish Questionnair*e (completed by the child; see Appendix 3)

    c) the *Brief-Language Background Questionnaire* (B-LBQ; completed by the parent see Chapter 4 for full details and Appendix 1 for the full measure).

These data were used to categorise child participants as being from Irish Dominant Homes (IDH), Bilingual Homes (BH) or English Dominant Homes (EDH), following Gathercole and Thomas' (2009) categories of Only Welsh Home, Welsh English Home and Only English Home.

Language background of parent: All of the participants were being cared for by at least one of their parents and therefore the term parent will be used throughout the rest of this chapter[13]. Parents' home language background categorisation was based on their responses to the B-LBQ, which included their own language acquisition context and current proficiency. Parents were categorised as native Irish speaker, Moderately/ Highly Proficient L2 speaker, or Low Proficiency L2/ Non-Irish speaker.

School variables

Language background of teacher: Teachers were categorised as being native speakers or Highly Proficient L2 speakers on the basis of their responses to the B-LBQ.

School model: The present research recruited participants from two types of schools: *Gaeltacht* schools and an Irish-immersion *Gaelscoil* for comparison with the schools in the *Gaeltacht*. Two of the *Gaeltacht* schools were located in Category C *Gaeltacht* areas, on the periphery of the *Gaeltacht*. Principal report indicated that one of these schools operated entirely through Irish. This school was combined with the schools in Category A *Gaeltacht* areas to form the Irish-medium schools group. In the other Category C *Gaeltacht* area, English was reported to be the dominant language in instruction and communication. This school was categorised as a mainly English-medium school. The third category was Irish-immersion school, recruited for comparison purposes.

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[13] All materials received by parents used the term 'parent/ guardian' and 'primary caregiver' and similar language was used with the child participants when discussing patterns of language use with caregivers.

Percentage of children from Irish Dominant Homes (IDH) in school: The main impact of differences in the community were reflected in the number of pupils attending each school who were being raised in IDH. The Principal's estimation of the percentage of pupils from IDH was used to create a variable which represented the environment of the school with regard to the density of native Irish speakers. For some analyses this information was used to categorise participants as being in schools with a High, Medium or Low percentage of children from IDH.

Language measures completed by child participants

1. **Irish reading vocabulary:** Measured using the Reading Vocabulary subtest of *Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge* (TGD-G1; Drumcondra Irish Test for *Gaeltacht* and Irish-medium primary schools, see Chapter 4 for description of the measure and Chapter 8 for full discussion of results).

2. **English reading vocabulary:** Measured using the Reading Vocabulary subtest of the Drumcondra Primary Reading Test-Revised (DPRT-R; see Chapter 4 for full description and Chapter 8 for full results).

3. **Performance on test of receptive knowledge of grammatical gender:** Measured using the *Receptive Measure of Irish Morphosyntax* (RMIM; see Chapter 4 for full details and Appendix 3 for sample items), which comprised five subtests and was developed for the present research.

4. **Performance on test of productive knowledge of grammatical gender**: Measured using the *Measure of Irish Morphosyntax* (MIM; see Chapter 4 for full details), which comprised three subtests and was developed for the present research.

5. **Metalinguistic awareness**: Following the completion of the measure of productive use of grammatical gender, any participants who exhibited some use of initial mutations to complete the task were asked if they could tell the researcher why they said the words in the way they did. This was not a standardised interview; it was an informal discussion of the mutations and was analysed qualitatively. In many cases participants were unable to elaborate but the task was included to identify if any participant was able to comment on their awareness of the rules in this context.

6. **Structured elicitation in Irish**: All participants were asked to tell the story of a set of pictures from the LITMUS MAIN narrative elicitation task (see Appendix 5 for measure and Chapter 9 for full results).

METHOD

All measures and procedures received ethical approval from the University College Dublin Research Ethics Committee-Human Sciences. The procedure for missing data management is documented in Appendix 8.

Recruitment

The Connemara *Gaeltacht*, located mainly in County Galway, was chosen as the location for the present research as it is the region in which many of the strongest Irish speaking areas are located. Census data showed that 46.74% of the total population of *Gaeltacht* dwelling Irish speakers live in the Connemara *Gaeltacht* (see Chapter 3 for more details). The details for all 230 schools in County Galway were retrieved from the Department of Education and Skills' website and the 46 schools which listed "All Irish" as the language of the school were identified. Following consultation with a manager of an organisation (not specified due to confidentiality) working for the development and promotion of Irish in the region, nine of these were excluded due to the fact that they were located on the periphery of the *Gaeltacht* or due to the very low level of Irish spoken in the area, which was not optimal given the aim of maximising the number of participants from Irish Dominant Homes. Written invitations to take part in the research were posted to the remaining 37 schools. Further consultation with the same manager of the Irish language development organisation led to an additional 7 schools being eliminated. This left a total of 30 schools to whom calls were made and to whom verbal invitations to participate were extended. Of these school, 28 were in the Gaeltacht and two were Irish-immersion schools located outside of the *Gaeltacht*. The outcome of the recruitment process was:

Consenting schools:	63.33% (19)
Non-participating schools:	23.33% (7)
Schools with insufficient numbers of pupils:	13.33% (4)

The map in Fig. 7.1 shows the area in which participating schools were located.
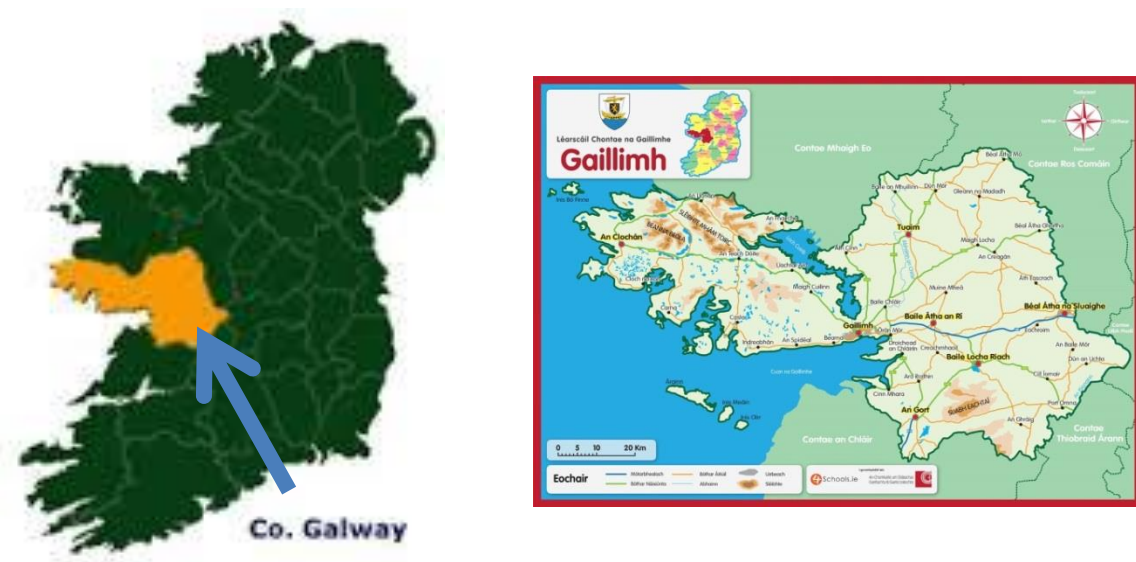
Figure 7.1 Map of Ireland and detail for Connemara *Gaeltacht*

All materials for Principals and teachers were in Irish only. Parents received all documentation in both Irish and English, including the Information Sheet, the Consent Form, the Child Rating Form, the Child-Language Background Questionnaire (C-LBQ), the Brief-Language Background Questionnaire (B-LBQ) and the bilingual Child Information Sheet to share with the child. All materials were packaged in a UCD branded A4 envelope, one of which was given to each child in the relevant age group. Children from the same family were each given an individual pack.

A total of 573 consent forms were distributed to the final set of 16 participating schools. Of these, 320 children returned parental consent forms, yielding an overall consent rate of 55.85%, with a range of 20-85% across schools. Eleven of the consenting schools were visited between March and June 2014 and five were visited between October and November 2014. The remaining three consenting schools (one Irish-immersion school and two *Gaeltacht* schools) could not be visited because of conflicts with schedules in arranging a time for data collection. The average length of time spent in any school was two school days, with a range of one to four days.

Participants

The Schools

The Principals in all schools were asked to complete a short demographic questionnaire. Enrollment and number of teachers are presented within ranges in Table 7.1 given the small pool from which schools were drawn to avoid identification of any school. Principals were

asked to estimate the number of pupils being raised in Irish Dominant Homes across the whole school. They were also asked to estimate the amount of Irish use in their school. In Ireland, some schools are given DEIS status (Delivering Equality of Opportunity in Schools program) when the following socio-economic variables are recognised to create a context of disadvantage in the local community: level of unemployment of parents of children in the school, percentage of families living in social housing, percentage of lone parents, percentage of families who are members of the Traveller community, percentage of large families (5 children or more) and percentage of pupils eligible for free books. These DEIS schools are given supplementary grants to provide supports for children in the form of meals, books, services and teaching resources.

Table 7.1 Profile of Schools

School ID	Type	% IDH children in school	Principal Estimate of Irish use in class	Size	No. Of Teachers
13	Gaeltacht Category A	94	Majority	Large	5+
6	Gaeltacht Category A	87	Majority	Small	<5
16	Gaeltacht Category A	75	Majority	Small	<5
4	Gaeltacht Category A	70	Majority	Medium	<5
10	Gaeltacht Category A	70	Majority	Medium	5+
9	Gaeltacht Category A	66	Majority	Large	5+
15	Gaeltacht Category A	59	Majority	Small	<5
14	Gaeltacht Category A	58	Majority	Small	<5
12	Gaeltacht Category A	50	Majority	Small	<5
11	Gaeltacht Category A	45	Majority	Small	<5
8	Gaeltacht Category A	37	Majority	Small	<5
5	Gaeltacht Category A	25	Majority	Small	<5
3	Gaeltacht Category C	13	Majority	Medium	<5
1	Irish-immersion	4	Majority	Large	5+
2	Gaeltacht Category C	0	**LOW**	Medium	<5
7	Gaeltacht Category A	Missing	Missing	Small	<5

IDH = Irish Dominant Home; Large >100; Medium 50-100; Small <50

All but one (the Irish-immersion school included for comparison) of the schools recruited for this study were located in officially designated *Gaeltacht* areas. Furthermore, two of the schools in the *Gaeltacht* (School 2 and School 3) were located in Category C *Gaeltacht* areas, that is areas in which Irish is not now typically spoken as a community language (Ó hÉallaithe, 2015). The remaining 13 schools were all in Category A *Gaeltacht* areas and Irish was the language of education and communication in the schools. There was a wide range in the percentage of pupils being raised in Irish Dominant Homes.

The Children

The total sample of child participants consisted of 306 participants, 145 males and 161 females with an age range of 6 to 13 (M = 9.29, SD = 1.413). As outlined in Chapter 4, participants were categorised as being from Irish Dominant Homes (IDH), Bilingual Homes (BH) or English Dominant Homes (EDH), following Gathercole and Thomas (2009). Participants from Irish Dominant Homes (IDH) were participants who received predominantly Irish input in the home, including use with primary and secondary caregivers, siblings, friends and in extra-curricular activities. Participants from Bilingual Homes (BH) received input in Irish in the home but also received significant input in English. The 'one-parent, one-language' strategy was among those reported in such households but more frequently a mixture of Irish and English in the input from both parents was reported. The third categorisation was English Dominant Homes (EDH) and included participants who received very little or no Irish input at home. Table 7.2 presents the distribution of the total sample according to language background categorisation and age.

Table 7.2 Child sample by language background and age

Age	Irish Dominant Home		Bilingual Home		English Dominant Home		Total	
6	1	.3%	0		0		1	.3%
7	13	4%	14	4.5%	6	2%	33	11%
8	25	8%	18	6%	12	4%	55	18%
9	21	7%	21	7%	37	12%	79	26%
6-9	**60**	**20%**	**53**	**17.3%**	**55**	**18%**	**168**	**55%**
10	20	6.5%	19	6.2%	30	10%	69	22.5%
11	11	3.6%	5	1.6%	27	9%	43	14%
12	3	1%	3	1%	10	3%	16	5%
13	1	.3%	1	.3%	0		2	.6%
10-13	**35**	**11%**	**28**	**9%**	**67**	**22%**	**130**	**42%**
Missing							8	3%
Total	**95**	**31%**	**81**	**26.5%**	**122**	**40%**	**306**	

The sample was evenly distributed between the two age groups 6-9 and 10-13 years, with most participants falling into the 7-11 years range. Despite all attempts to maximise recruitment of Irish native speakers, the sample was slightly weighted towards the EDH category, which illustrates the dominance of English, even in the strongest *Gaeltacht* areas. The distribution by sex in each of the language background groups was calculated.

Table 7.3 Child sample by language background and sex

Sex	Irish Dominant Home		Bilingual Home		English Dominant Home		Total	
Female	59	19.3%	39	12.7%	59	19.2%	157	51.3%
Male	36	11.8%	42	13.7%	63	20.5%	141	46%
Missing							8	3%
Total	**95**	**31%**	**81**	**26.5%**	**122**	**40%**	**306**	

This distribution in Table 7.3 shows that the participants from BH and EDH had an even distribution of males and females in each but that there were somewhat more female participants in the IDH home group.

The Parents

The B-LBQ provided information relating to parents' own language acquisition background and current proficiency and was completed by a parent of 284 of the 308 child participants. Individual parents accounted for 261 of these. The parents were categorised according to how they themselves had acquired Irish and the responses indicated that 88 had acquired Irish in the home (native speakers) and 142 had acquired Irish in education (L2 speakers). A further categorisation was made within the L2 speakers according to current proficiency. Parents were categorised as Moderately/ Highly Proficient if they rated their proficiency in Irish understanding, reading, writing and speaking on a scale from 0 to 4 as being at least 2 for all components of proficiency, or Low Proficiency/ Non-Irish speaker if they rated their proficiency as being 1 or 0 for all of the components of proficiency. Irish is an obligatory subject in primary and post-primary education, therefore the majority of parents, particularly those living in the *Gaeltacht*, are likely to have studied Irish in school (Mac Gréil & Rhatigan, 2009; Walsh & MacLeod, 2008). Nevertheless, some reported very low proficiency or no proficiency at all. They were combined with the 22 parents who reported having never learned the language. Table 7.4 presents a summary of the distribution of parents according to language background, age and sex. Of the parents who completed the B-LBQ, 83% were mothers.

Table 7.4 Parents of child participants by language background, sex and age

Identity	Age	Native Speaker		L2 High/ Moderate Proficiency		L2 Low Proficiency/ Non-Irish speaker		Total	
Mother	<25	2	.7%	0		1	.3%	3	1%
	26-35	16	6%	9	3%	18	7%	43	16.5%
	36-45	52	20%	26	10%	57	22%	135	52%
	46-55	14	5%	11	4.2%	10	4%	35	13.4%
	Total	**84**	**32%**	**46**	**18%**	**86**	**33%**	**216**	**83%**
Father	36-45	1	.3%	1	.3%	6	2.3%	8	3%
	46-55	3	1%	3	1%	0		6	2.3%
	Total	**4**	**1.5%**	**4**	**1.5%**	**6**	**2.3%**	**14**	**5.3%**
Total	<25	2	.7%	0		1	.3%	3	1%
	26-35	16	6%	9	3%	18	7%	43	16.5%
	36-45	53	20.3%	27	10.3%	63	24%	143	55%
	46-55	17	6.5%	14	5.3%	10	4%	41	16%
	Missing							**31**	12%
	Total	**88**	**34%**	**50**	**19%**	**92**	**35%**	**261**	

The sample had slightly fewer Highly/ Moderately proficient L2 speaker parents than native speakers or Low Proficiency/ Non-Irish speaker parents, and over half of the sample fell into the 36-45 years old age group. The Cronbach's alpha of the B-LBQ with the sample of parents was .957, which indicates the scale has strong internal reliablility for this population.

Socio-economic status (SES) information was sought from the parent who completed the B-LBQ only by means of information about their occupation or that of the main wage-earner, following COST Bi-SLI procedures. Parents' occupations were categorised according to the International Standard Classification of Occupations (ISCO; 2010). Those with occupations classified as managerial, professional or technical were categorised as High SES, clerical support workers, service and sales workers or skilled agriculture were categorised as Medium SES, and craft and related trades, plant and machine operators or elementary occupations were categorised as Low SES.

Table 7.5 Parents of child participants by SES

Parents' Occupation	n	
High SES	79	30.3%
Medium SES	49	18.8%
Low SES	17	6.5%
Not Categorised	116	44.4%
Total	**261**	**100**

The distribution of parents according to SES provided in Table 7.5 is weighted towards High SES. However, 44.44% of parents who could not be categorised due to 29.5% of parents reporting occupations such as home-maker and self-employed, which could not be used to categorise the children according to SES and another 24.5% of parents did not provide any information about occupation. These parents accounted for 134 child participants. In the absence of information about parent occupation for these participants, it was necessary to draw on other sources of information about SES, namely the DEIS status of the school. The DEIS status of schools is based on the level of disadvantage of the school as identified by the Department of Education and Skills. Participants with missing parental occupation data were classified as Medium SES if the school did not have DEIS status, which accounted for 56 participants, and as Low SES if the school did have DEIS status, which accounted for 78 participants. Based on all available data, the sample was evenly distributed across High, Medium and Low SES. Table 7.6 present the distribution of the child participants according to language background group and by SES.

Table 7.6 Child sample by language background and SES

SES	Irish Dominant Home		Bilingual Home		English Dominant Home		Total	
Low	44	14.4%	19	6.2%	30	9.8%	93	30.4%
Medium	20	6.5%	34	11.1%	57	18.6%	111	36.27%
High	31	10.1%	28	9.2%	35	11.4%	94	30.7%
Missing							8	2.6%
Total	**95**	**31%**	**81**	**26.5%**	**122**	**40%**	**306**	

A note of caution is necessary about this categorisation. The categorisations were made in the absence of data in relation to parents' education level, which was considered by Gathercole et al (in press) in addition to parental occupation. There was a high rate of both missing data and data which could not be used to categorise children according to SES. Given the small size of the communities in which the data were collected, information about parental occupation, education and income is a sensitive topic and this may account for the high rate of missing data in relation to occupation. Finally, school information was used to supplement parent information. The use of a group variable may not be specific to every child and may be inaccurate for some individuals.

The Teachers

Every teacher of participants in the study was asked to complete a Child Rating Form for the pupils in their class participating in the research, in which they rated participants' understanding, reading, writing and speaking in Irish and in English relative to the other pupils in the class. The results of this part of the testing will be returned to in Chapter 8 for fuller consideration.

Teachers were also asked to complete the B-LBQ, which focused on their own language background. Teachers were categorised as native speakers if they had acquired Irish in the home as their L1 and reported a high proficiency in Irish, as measured by a self-rating scale. The remaining teachers were categorised as Highly Proficient L2 speakers, as they reported that they had acquired Irish outside of the home, typically in education, and rated their own Irish skills as being highly proficient.

Table 7.7 Teachers of child participants by language background and age

Age	Native Speaker		Highly Proficient L2 speaker		Total	
26-35	6	20%	3	10%	9	30%
36-45	5	17%	3	10%	8	27%
46-55	5	17%	3	10%	8	27%
55+	1	3%	0		1	3%
Missing					4	13%
Total	17	57%	9	30%	30	

Table 7.7 shows that the sample was weighted towards native speaker teachers (57%), with an even distribution across the three age groups from 26 to 55. Other data revealed that the majority of teachers (17) were from the west of Ireland, and the remaining six teachers for whom information was provided were distributed between the south of Ireland (2), the east of Ireland (3) and one from outside of Ireland. The Cronbach's alpha of the B-LBQ with the sample of teachers was .802, indicative of acceptable internal reliablility for this population.

These data were cross-referenced with the number of participants in the study being taught by each teacher at the time of testing: 184 (60%) of the child participants were being taught by a native speaker, 99 (32%) were being taught by a L2 speaker and information was not available for 23 (7.5%).

Procedure

Group Testing Part 1

Data were collected in all of the schools by the researcher only, which increased the consistency of the test administration. Group Testing Part 1 was carried out either in the classroom with the non-participating children present, in the classroom without the non-participating children present, or in another room. The number of children completing Group Testing Part 1 never exceeded 15 and on average was 11.

For Group Testing Part 1, each participating child was given an individual Answer Booklet (see Appendix 3). All materials were made identifiable to ensure accurate matching of the various subtests but identifiers were replaced by an individual code at the point of data entry. The first page required participants to indicate their assent before continuing with the data collection. All children whose parents had given consent assented to take part. The Child Use of Irish Questionnaire, provided in very simple Irish only, comprised four questions on children's language use with their mother, father, siblings and friends. Children were reminded that not all questions would apply to everyone. All questions were read aloud by the researcher, who circulated the room, addressing misunderstandings and monitoring compliance with the response format.

A video of a hand puppet, "Marcas from Mars", was used to give instructions for each of the five subtests of the Receptive Measure of Irish Morphosyntax (RMIM), which measured receptive knowledge of semantic and grammatical gender. For each subtest, the puppet gave the instructions in Irish and the researcher provided any clarifications required by the participants, also in Irish. Following the completion (aloud) of sample items, participants individually completed the items in the Answer Booklet. This procedure was repeated for the subsequent four subtests, using the video introduction in a game-like fashion in each case. This part of Group Testing Part 1 lasted approximately 20 minutes. After a short break, instructions were given for completing *Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge* (TGD-G1), the measure of Irish vocabulary. Following completion of the sample items, the participants were given 10 minutes to complete this measure individually. The researcher circulated the room to monitor performance and to discourage talking or copying.

Group Testing Part 2

Group Testing Part 2 usually took place on the morning of the second day of testing. The participants were instructed to attend to the stimuli for the Matrices subtest of the WASI, projected from a laptop to a large screen. In compliance with school ethos requirements, the instructions were an Irish translation of the instructions in the manual, recited aloud by the researcher with checks on children's comprehension. Upon completion of the sample items, the 35 items of the measure were displayed individually in a fixed sequence. The items were timed 10, 20 or 30 seconds, depending on the complexity of the item. Participants were permitted extra time on some items if requested, up to a maximum time of 30 seconds. They were required to indicate their response on an individual Answer Booklet. The Drumcondra Primary Reading Test-Revised, a measure of English vocabulary, was then administered in English only. Following completion of the sample items, the participants were given 10 minutes to complete all items individually. Some participants completed the Group Testing Part 2 after the individual testing and others completed it before.

Individual Testing

All individual testing was completed in an unused classroom with pairs of participants, who were seated as far away from each other as possible. The non-target member of each pair was kept occupied by writing a story or reading a book (the use of headphones had been piloted but participants reported being uncomfortable wearing them). The target participant sat beside the researcher. Their first task was to look at the LITMUS MAIN picture sequence and describe the pictures aloud. Some limited requests for more information were made when participants said very little. This task aimed to elicit natural spoken language as well as functioning as a warm-up for the Measure of Irish Morphosyntax (MIM). The MIM required participants to look at the stimuli on the computer. Participants were asked to help the fictional character Marcas from Mars learn Irish by telling him the names and colours of things he saw. Responses were recorded on a digital recorder and on a scoring sheet. Upon completion of the MIM, any participant who had used lenition was engaged in a metalinguistic awareness interview by being asked to describe any strategies they used when deciding to use lenition or not. Their responses were recorded and transcribed later. The other of the pair of participants then undertook the tasks while the first participant wrote a story or read a book.

Summary

Upon completion of data collection in each school, the data consisted of the Principal Questionnaire, Teacher Child Rating Form and the Teacher B-LBQ for all teachers who taught the participating children. From parents there was a signed Consent Form, B-LBQ and C-LBQ (including the Parent Child Rating Form). From the children, there was a completed Child Assent Form, Child Use of Irish Questionnaire, RMIM, the Vocabulary subtest of the TGD-G1 and of the DPRT-R and WASI Matrices subtest. Finally, there was a sample of spoken language elicited by the LITMUS MAIN, scores on the MIM and metalinguistic interview for participants who completed that part of the testing.

RESULTS PART 1: GRAMMATICAL GENDER

Descriptives

Each of the following four tables contains the means and standard deviations for performance on the measure of non-verbal IQ, Irish and English vocabulary, and each of the subtests of the RMIM and of the MIM according to language background and age. The first set of results is for the background variable of non-verbal IQ (see Table 7.8).

Table 7.8 WASI % correct by language background and age

			Non-verbal IQ	
Age	**Language Background**	**n**	***M***	***SD***
6-9	Irish Dominant Home	58	61.41	*16.16*
	Bilingual Home	51	62.96	*19.38*
	English Dominant Home	54	64.23	*13.56*
	Total	**163**	**62.83**	***16.41***
10-13	Irish Dominant Home	31	71.26	*9.93*
	Bilingual Home	27	72.71	*11.64*
	English Dominant Home	64	72.74	*12.90*
	Total	**122**	**72.36**	***11.86***
Total	Irish Dominant Home	89	64.84	*15.00*
	Bilingual Home	78	66.34	*17.65*
	English Dominant Home	118	68.85	*13.82*
	Total	**285**	**66.91**	***15.36***

The older participants outperformed the younger participants even after controlling for differences in the number of items completed, and this difference was evident across all three language backgrounds. Looking within the age groups, the participants from the EDH had slightly higher scores than the participants from IDH and the BH in both age groups. As

the differences were slight, the results do not point to any fundamental differences between the groups in terms of their non-verbal intelligence and this was confirmed using an ANOVA, $F(2, 279) = .063$, $p = .939$. Non-verbal IQ will be included as a variable in the regression analyses.

The next set of results are for the measures of Irish reading vocabulary and English reading vocabulary. These measures will be used as independent variables in the following analyses but further analyses will be conducted on them as dependent variables in Chapter 8.

Table 7.9 Irish vocabulary and English vocabulary: Mean % correct scores by language background and age

Measure	Age	Language Background	n	M	SD
Irish Vocabulary	6-9	Irish Dominant Home	49	77.01	17.73
		Bilingual Home	49	75.10	15.99
		English Dominant Home	54	66.17	14.74
		Total	152	72.54	16.75
	10-13	Irish Dominant Home	35	83.19	10.89
		Bilingual Home	27	70.74	21.00
		English Dominant Home	67	67.56	17.27
		Total	129	72.47	17.88
	Total	Irish Dominant Home	84	79.58	15.49
		Bilingual Home	76	73.55	17.91
		English Dominant Home	121	66.94	16.14
		Total	281	72.51	17.25
English Vocabulary	6-9	Irish Dominant Home	49	67.45	19.80
		Bilingual Home	49	75.25	19.74
		English Dominant Home	54	69.04	22.21
		Total	152	70.52	10.69
	10-13	Irish Dominant Home	35	65.83	13.84
		Bilingual Home	27	67.87	19.82
		English Dominant Home	67	71.80	16.47
		Total	129	69.39	16.75
	Total	Irish Dominant Home	84	66.89	17.90
		Bilingual Home	76	72.73	19.95
		English Dominant Home	121	70.59	19.16
		Total	281	70.03	19.08

Table 7.10 presents the descriptives (means and SD) results for performance on the RMIM subtests, with scores provided as percentage correct scores in order to facilitate cross-subtest comparison. The results for each subtest are graphed by language background only in Fig. 7.2.
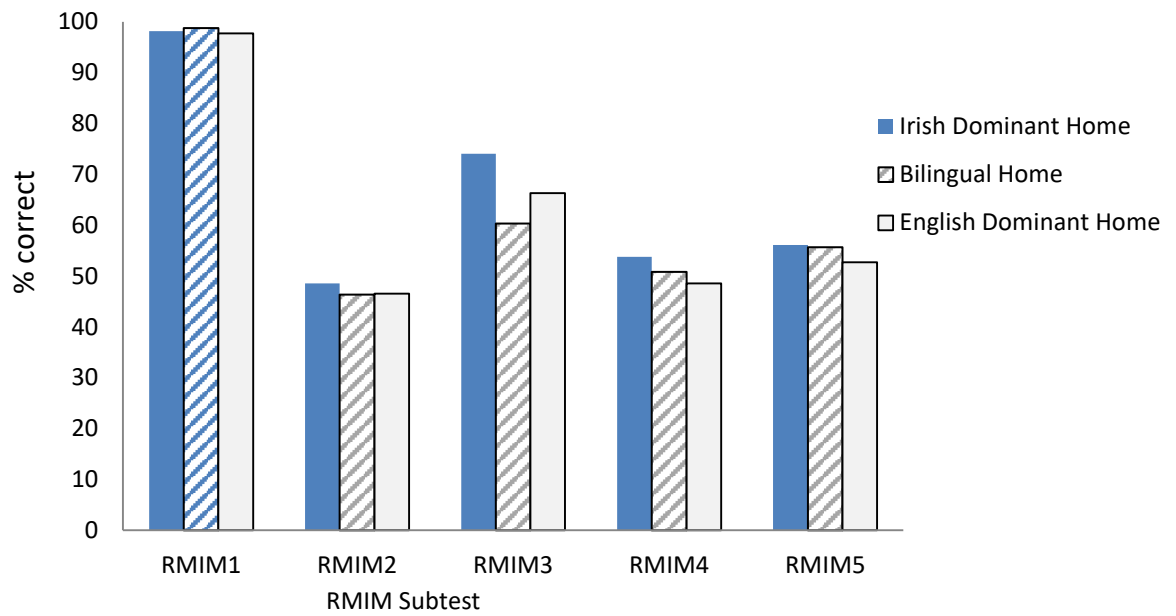
Figure 7.2 RMIM Mean % correct scores by language background

Brown (1973) operationalised acquisition of a given feature as 90% accuracy of use in obligatory contexts. The results in Fig. 7.2 show that only assignment of semantic gender to human nouns in RMIM 1 could be regarded as fully acquired. Participants' receptive scores in all other subtests was just above or below chance.

Table 7.10 RMIM: Mean % correct scores by language background and age

	Age	Language Background	n	*M*	*SD*
RMIM 1: Semantic gender assignment (human **nouns) using pronouns**	6-9	Irish Dominant Home	58	97.70	*5.38*
		Bilingual Home	49	98.98	*3.26*
		English Dominant Home	54	96.23	*13.26*
		Total	**161**	**97.60**	***8.49***
	10-13	Irish Dominant Home	35	98.98	*2.54*
		Bilingual Home	27	98.41	*3.03*
		English Dominant Home	66	98.83	*2.87*
		Total	**128**	**98.83**	***2.80***
	Total	Irish Dominant Home	93	98.18	*4.56*
		Bilingual Home	76	98.78	*3.17*
		English Dominant Home	120	97.72	*9.16*
		Total	**289**	**98.15**	***6.62***
RMIM 2: Grammatical gender assignment (inanimate nouns) using pronouns	6-9	Irish Dominant Home	58	47.67	*17.30*
		Bilingual Home	49	47.19	*16.39*
		English Dominant Home	54	45.75	*18.34*
		Total	**161**	**46.89**	***17.29***
	10-13	Irish Dominant Home	35	50.00	*12.13*
		Bilingual Home	27	44.71	*14.22*
		English Dominant Home	66	47.20	*15.51*
		Total	**128**	**47.46**	***14.41***
	Total	Irish Dominant Home	93	48.54	*15.54*
		Bilingual Home	76	46.33	*15.62*
		English Dominant Home	120	46.56	*16.76*
		Total	**289**	**47.15**	***16.05***
RMIM 3: Semantic gender assignment (human **nouns) using 3rd person possession**	6-9	Irish Dominant Home	58	52.34	*29.20*
		Bilingual Home	49	50.44	*28.55*
		English Dominant Home	54	45.06	*31.40*
		Total	**161**	**49.29**	***29.76***
	10-13	Irish Dominant Home	35	74.08	*33.01*
		Bilingual Home	27	60.32	*38.64*
		English Dominant Home	66	66.31	*33.34*
		Total	**128**	**67.17**	***34.48***
	Total	Irish Dominant Home	93	60.52	*32.30*
		Bilingual Home	76	53.95	*32.59*
		English Dominant Home	120	56.73	*34.04*
		Total	**289**	**57.22**	***33.10***
RMIM 4: Grammatical gender assignment (inanimate nouns) using 3rd person possession	6-9	Irish Dominant Home	58	52.80	*19.03*
		Bilingual Home	49	51.02	*17.46*
		English Dominant Home	54	50.00	*21.99*
		Total	**161**	**51.32**	***19.55***
	10-13	Irish Dominant Home	35	55.36	*15.84*
		Bilingual Home	27	50.46	*11.22*
		English Dominant Home	66	47.35	*14.30*
		Total	**128**	**50.20**	***14.46***
	Total	Irish Dominant Home	93	53.76	*17.85*
		Bilingual Home	76	50.82	*15.46*
		English Dominant Home	120	48.54	*18.13*
		Total	**289**	**50.82**	***17.46***

(table continues overleaf)

Table 7.10 continued					
	6-9	Irish Dominant Home	58	55.12	*8.29*
		Bilingual Home	49	55.73	*9.03*
		English Dominant Home	54	52.03	*8.63*
		Total	**161**	**54.26**	***8.73***
RMIM 5: Grammatical gender assignment (animals) using pronouns	10-13	Irish Dominant Home	35	57.77	*7.78*
		Bilingual Home	27	55.56	*8.24*
		English Dominant Home	66	53.26	*10.69*
		Total	**128**	**54.97**	***9.62***
	Total	Irish Dominant Home	93	56.12	*8.16*
		Bilingual Home	76	55.67	*8.70*
		English Dominant Home	120	52.71	*9.81*
		Total	**289**	**54.57**	***9.13***

Table 7.11 presents the mean scores and standard deviations by language background and age on the productive measure (MIM), which were individually administered tests. Again, scores are provided here as percentage correct scores to facilitate cross-subtest comparison, but in the case of the MIM only, all scores represent the total score for nouns requiring active marking of grammatical gender in order to avoid inflating scores when participants were using a 'mark nothing' default.

Table 7.11 MIM: Mean % correct by language background and age

Measure	Age	Background	n	*M*	*SD*
MIM 1: Det + N	6-9	Irish Dominant Home	56	6.76	*7.87*
		Bilingual Home	28	5.61	*7.11*
		English Dominant Home	30	8.57	*9.64*
		Total	**114**	**6.95**	***8.20***
	10-13	Irish Dominant Home	34	11.55	*13.74*
		Bilingual Home	22	9.74	*13.14*
		English Dominant Home	55	7.40	*8.91*
		Total	**111**	**9.14**	***11.48***
	Total	Irish Dominant Home	90	8.57	*10.67*
		Bilingual Home	50	7.43	*10.30*
		English Dominant Home	85	7.82	*9.13*
		Total	**225**	**8.03**	***9.99***
MIM 2: N + Adj	6-9	Irish Dominant Home	56	.00	*.00*
		Bilingual Home	28	.00	*.00*
		English Dominant Home	30	.42	*2.28*
		Total	**114**	**.11**	***1.17***
	10-13	Irish Dominant Home	34	.92	*3.49*
		Bilingual Home	22	.00	*.00*
		English Dominant Home	55	.11	*.84*
		Total	**111**	**.34**	***2.04***
	Total	Irish Dominant Home	90	.35	*2.17*
		Bilingual Home	50	.00	*.00*
		English Dominant Home	85	.22	*1.51*
		Total	**225**	**.22**	***1.66***
MIM 3: In third person possession	6-9	Irish Dominant Home	56	32.02	*19.17*
		Bilingual Home	28	19.13	*9.23*
		English Dominant Home	30	15.00	*10.16*
		Total	**114**	**24.37**	***16.97***
	10-13	Irish Dominant Home	34	32.77	*21.55*
		Bilingual Home	22	18.03	*10.00*
		English Dominant Home	55	17.01	*8.19*
		Total	**111**	**22.09**	***15.62***
	Total	Irish Dominant Home	90	32.30	*19.98*
		Bilingual Home	50	18.66	*9.87*
		English Dominant Home	85	16.30	*8.93*
		Total	**225**	**23.25**	***16.32***

To demonstrate the degree to which scores appear inflated when performance on nouns requiring no active marking to be correct are included, the total score for masculine and feminine nouns for each subtest of the MIM are graphed in Fig. 7.3.
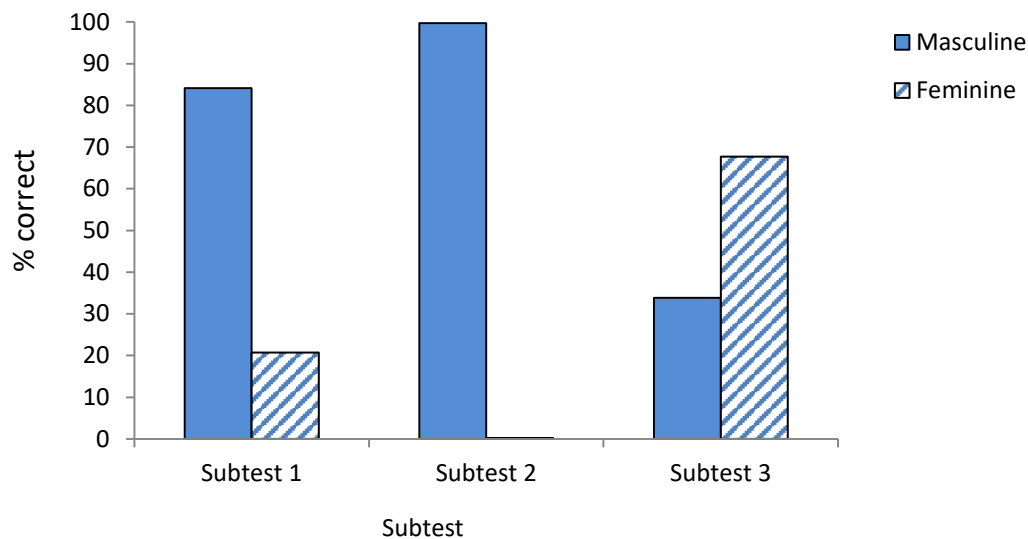
Figure 7.3 MIM Subtests 1-3 accuracy on all masculine and feminine nouns

It should be noted that there is some variability in how masculine and feminine nouns are marked, as vowel-initial masculine nouns are subject to /t-/ prefixing following the definite article (Subtest 1), and vowel-initial feminine nouns are subject to /h-/ prefixing in marking third person possession (Subtest 3). Fig. 7.4 shows an even greater difference between accuracy on nouns not requiring and nouns requiring active marking.
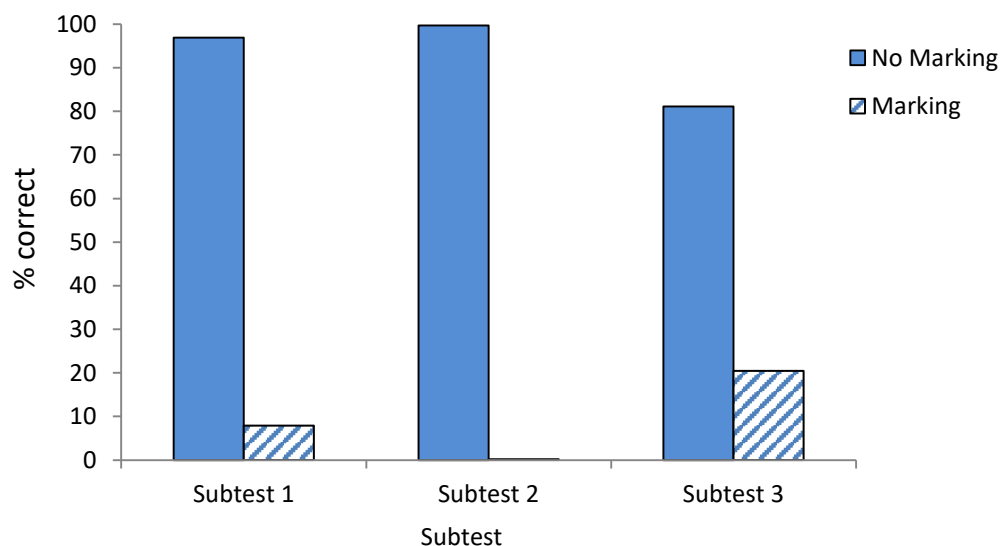
Figure 7.4 MIM Subtests 1-3 accuracy on all nouns requiring and not requiring active marking

Therefore further examination is predominantly confined to nouns requiring active marking of grammatical gender (accuracy on masculine versus feminine nouns is compared for each subtest later in this chapter).

Statistical analyses

Statistical analyses were conducted to explore differences in receptive or productive grammatical gender according to language background and age, as they are the primary variables in this research, before including these variables in regression analyses.

Receptive tests: RMIM Subtest 1: Gender identification for human *nouns*

A 3 x 2 ANOVA was conducted to explore the impact of language background (IDH, BH, EDH) and age (6-9, 10-13) on performance on Subtest 1 of the RMIM. The interaction between language background and age was not significant, $F(2, 283) = 1.34$, $p = .264$. A statistically significant difference was not found between the 6-9 year olds and the 10-13 year olds, $F(1, 283) = 1.94$, $p = .164$, nor was a statistically significant difference found for language background, $F(2, 283) = .718$, $p = .488$. Examination of the mean accuracy scores according to age and language background indicates that all participants were performing at ceiling and that this is a potential reason for the lack of significant difference between them. It appeared that for human nouns (i.e. semantic gender assignment), even the younger children had no difficulty in distinguishing which referent was intended by the pronoun *sé* and *sí*.

RMIM Subtest 2: Gender identification for inanimate nouns

A 3 x 2 ANOVA was conducted to explore performance on Subtest 2 according to language background and age, which revealed that the interaction was not significant, $F(2, 283) = .474$, $p = .623$. The main effect of age was not significant, $F(1, 283) = .047$, $p = .829$, nor was language background, $F(2, 283) = .768$, $p = .465$. Given that mean accuracy for all groups was around 50%, it appeared that participants were performing at chance and did not have an accurate receptive understanding of grammatical gender of inanimate nouns. The results indicated that even the oldest children were guessing which inanimate was intended by the pronouns *é* and *í*.

RMIM Subtest 3: Third person possession by human *nouns*

A 3 x 2 ANOVA did not find a significant interaction between language background and age for this subtest, $F(2, 285) = .860$, $p = .424$, nor did it find a statistically significant difference according to language background, $F(2, 285) = 1.72$, $p = .182$. However, a statistically significant difference was found according to age, $F(1, 285) = 20.13$, $p < .001$. The analysis

showed that the older group were significantly more accurate in understanding gender marking in possession for human nouns (as possessors) than the younger participants (see Fig. 7.5).
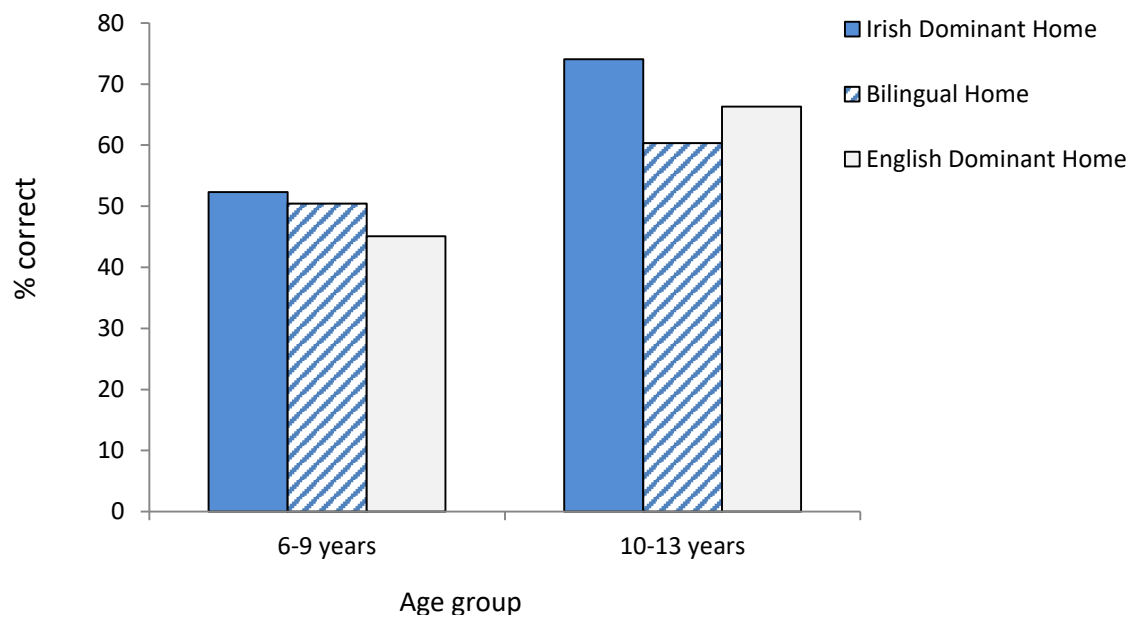
Figure 7.5 RMIM Subtest 3 Mean % correct by language background and age

Fig. 7.5 also points to somewhat higher accuracy among the participants from IDH across both age groups. The younger participants from BH had higher scores than the younger participants from EDH as their accuracy was nearly equal to those from IDH, but the participants from EDH caught up with and surpassed them in the older age group.

RMIM Subtest 4: Third person possession by inanimate nouns

A 3 x 2 ANOVA was conducted to explore the impact of language background and age on performance on Subtest 4 of the RMIM. The interaction between language background and age was not significant, $F(2, 283) = .562$, $p = .571$, nor was the main effect for age, $F(1, 283) = .01$, $p = .919$, or language background, $F(2, 283) = 2.42$, $p = .090$. The same conclusion may be drawn here as was drawn for Subtest 2, which also measured accuracy for inanimate nouns. The mean performance for all groups was around 50% accuracy, which indicated that no differences according to language background or age emerged as the majority of participants were using a guessing strategy.

RMIM Subtest 5: Gender identification for animals

A 3 x 2 ANOVA was performed on data from Subtest 5 of the RMIM as the dependent variable and language background and age as the independent variables. The interaction between language background and age was not significant, $F(2, 283) = .474$, $p = .623$, nor was the main effect of age, $F(1, 283) = 1.24$, $p = .267$. However, a statistically significant difference for language background was found on this measure, $F(2, 283) = 5.08$, $p < .01$. Scheffé post-hoc analysis found a significant difference between the mean accuracy of participants from Irish Dominant Homes ($M = 56.12$, $SD = 8.16$) and participants from English Dominant Homes ($M = 52.71$, $SD = 9.81$), $p < .05$.

Fig. 7.6 graphs the means by language background. Higher accuracy was found among the older participants compared to the younger participants gender assignment for animal terms, with the exception of the participants from the BH, whose accuracy was equivalent to the older participants from the same language background group.
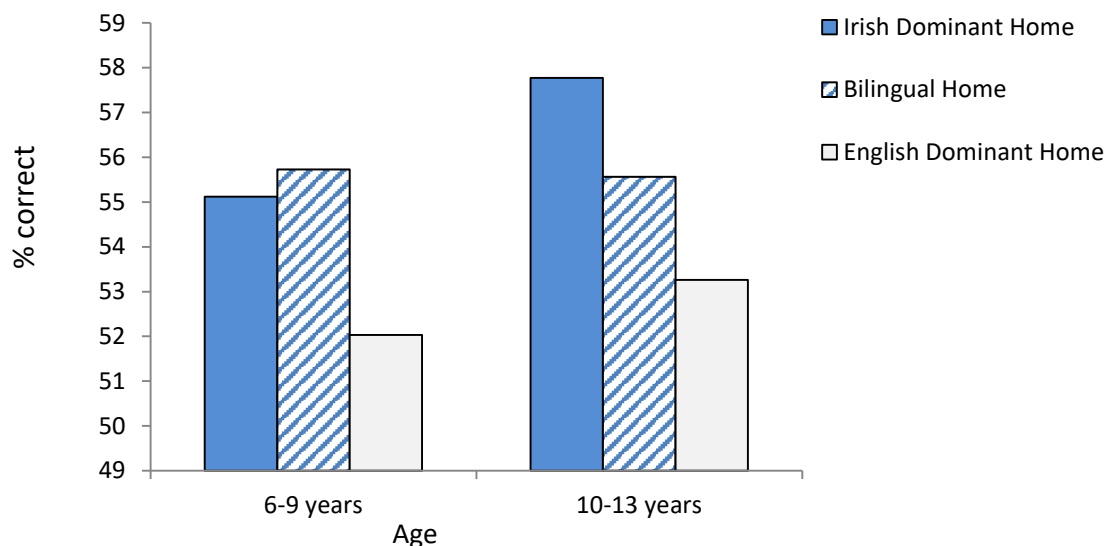
Figure 7.6 RMIM Subtest 5 Mean % correct by language background and age

Furthermore, there was a direct positive relationship between amount of Irish in the home and accuracy on this measure, again with the exception of the participants from BH, whose accuracy exceeded that of the participants from IDH in the younger age group. The accuracy of the younger participants from BH is not in line with the pattern found for the other age groups and language backgrounds. However, it must be noted that the range of scores graphed in Fig. 7.6 was 49-59 as the absolute difference in scores was quite small.

Measure of Irish Morphosyntax (MIM) Subtest 1: Following the definite article (Det + N)

Looking next to performance on the production tests (MIM), a 3 x 2 ANOVA was conducted on Subtest 1 with language background and age as the independent variables. The interaction was not significant, $F(2, 219) = 2.05$, $p =.131$, nor was the main effect of age, $F(1, 219) = 3.39$, $p =.067$, or language background, $F(2, 219) = .444$, $p = .642$. It is likely that no differences emerged on this measure due to the very low accuracy among all participant groups, regardless of language background or age. Participants were on the whole very inaccurate in their assignment of grammatical gender to animate and inanimate nouns following the definite article.

MIM Subtest 2: In noun-adjective combinations (N + Adj)

A 3 x 2 ANOVA Subtest 2 of the MIM, did not find a significant interaction between language background and age, $F(2, 219) = 3.00$, $p =.052$. The difference between age groups was not significant, $F(1, 219) = .782$, $p =.377$, nor was the difference between language background groups, $F(2, 219) = 1.23$, $p = .296$. As was the case for Subtest 1, it is likely that no differences according to language backround or age emerged on this measure due to the extremely low accuracy overall.

MIM Subtest 3: Semantic and grammatical gender in marking third person possession

In the final 3 x 2 ANOVA, for Subtest 3 of the MIM, the interaction between language background and age was not significant, $F(2, 218) = .168$, $p =.845$. A statistically significant main effect for age was not found, $F(1, 218) = .071$, $p =.790$. However, a statistically significant difference according to language background was found on this measure, $F(2, 218) = 28.41$, $p < .001$. Scheffé post-hoc analysis found significantly greater accuracy among the participants from IDH ($M = 32.30$, $SD = 19.98$) than participants from BH ($M = 18.66$, $SD = 9.87$), $p < .001$, and participants from EDH ($M =16.30$, $SD = 8.93$), $p < .001$.
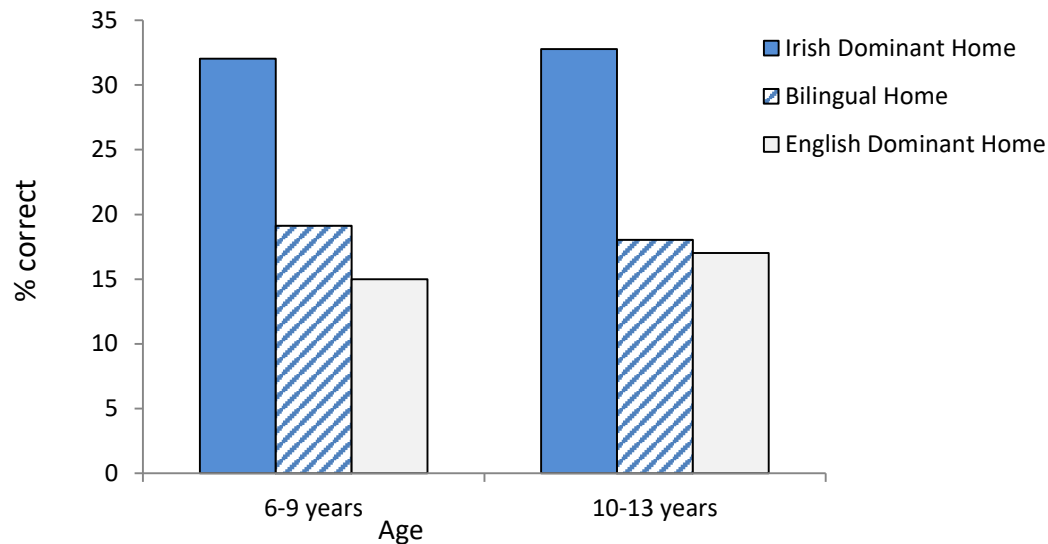
Figure 7.7 MIM Subtest 3 Mean % correct by language background and age

Fig. 7.7 shows significantly greater accuracy among the participants from IDH compared to the other two language background groups, though still at only approximately 33%. Overall there was no significant difference according to age, but examination of the plotted results for the participants from EDH showed higher scores among the older participants. This suggests that, while the participants from EDH were not performing as accurately as the participants from IDH, they showed some progress as they grew older.

The results of these exploratory ANOVAs are summarised in Table 7.12. The expected differences according to age and language background were only found for some contexts of grammatical gender use. Where no differences were found, this appeared to be due to all participants performing at chance levels (for Subtests 2 and 4 of the RMIM) or at floor level (Subtest 1 and 2 of the MIM). Performance on Subtest 1 of the RMIM was the only result which appeared to be due to all participants performing at ceiling. These differences will be considered further in the following regression analyses.

Table 7.12 Summary of results of exploratory ANOVAs

Measure	Result for Age	Result for Language Background
RMIM 1: Semantic gender assignment (human nouns) using pronouns	No difference	No difference
RMIM 2: Grammatical gender assignment (inanimate nouns) using pronouns	No difference	No difference
RMIM 3: Semantic gender assignment 3rd person possession, human nouns as possessors	**10-13 > 6-9**	No difference
RMIM 4: Grammatical gender assignment 3rd person possession, Inanimate noun as possessors	No difference	No difference
RMIM 5: Grammatical gender assignment (animals) using pronouns	No difference	**IDH > EDH**
MIM 1: Det + N	No difference	No difference
MIM 2: N + Adj	No difference	No difference
MIM 3: In third person possession	No difference	**IDH > BH > EDH**

IDH = Irish Dominant Home BH = Bilingual Home EDH = English Dominant Home

Correlation matrix

The following variables were included in an exploratory correlation analysis to determine which variables were relevant to performance on each of the individual subtests of the RMIM and the MIM. Correlational analyses were used to assess the strength of the relationship between each of the independent variables listed below. (When the strength of the correlation is commented on, the following rule of thumb is applied: $r > .70$ Very strong relationship; $r = .40$ to $.69$ Strong relationship; $r = .30$ to $.39$ Moderate relationship; $r = .20$ to $.29$ weak relationship; $r < .19$ No/negligible relationship.)

Child background variables
1. Age (as a continuous variable)
2. Sex
3. SES (Low, Medium, High)
4. Non-verbal IQ as percentage correct score

Language Background variables
5. Child language background (IDH, BH, EDH)
6. Parent language background (native speaker, Highly/ Moderately Proficient L2 speaker, Low Proficiency/ Non-Irish speaker)

School variables
7. Teacher language background (native speaker, Highly Proficient L2 speaker)
8. School model (English-medium, Irish immersion, Irish-medium)
9. Percentage of children from Irish Dominant Homes in school as percentage

Language measures completed by child participants

10. Irish vocabulary as percentage correct score
11. English vocabulary as percentage correct score
12. Performance on each of the subtests of the RMIM as percentage correct score
13. Performance on each of the subtests of the MIM as percentage correct score for the nouns requiring active mutation of the initial phoneme only

Each of these variables excluding sex was inputted to create a correlation matrix, which is displayed in Table 7.13.

Table 7.13 Intercorrelations between study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Child Background																	
2 Parent Background	.74**																
3 Teacher Background	.026	.08															
4 Age	-.23**	-.20**	.04														
5 SES	-.09	-.03	-.11	-.14*													
6 % IDH in school	.62**	.63**	.04	-.33**	.23**												
7 School model	.44**	.47**	.54**	-.22**	-.11	.63**											
8 Non-verbal IQ	-.11	-.15*	.01	.28**	-.16**	-.29**	-.08										
9 IR Vocab	.31**	.21**	.17**	-.098	-.18**	.19**	.30**	.20**									
10 ENG Vocab	-.08	-.09	-.04	-.14*	.29**	-.12*	-.12*	.30**	.47**								
11 RMIM 1	.03	-.04	-.07	.051	.041	.001	-.026	.131*	.078	.074							
12 RMIM 2	.05	.03	-.11	.045	-.056	.099	.015	.013	.053	-.037	.064						
13 RMIM 3	.05	.01	.09	.27**	.12*	-.008	.094	.20**	.29**	.15*	.028	-.062					
14 RMIM 4	.13*	.09	.00	-.054	-.012	.23**	.22**	.002	.110	-.043	.102	.11	.063				
15 RMIM 5	.16**	.14*	.03	-.036	-.035	.037	.061	.005	.067	.002	.056	.145*	-.049	-.028			
16 MIM 1	.03	-.01	.08	.093	.011	-.042	.024	.112	.157*	.174*	.061	-.036	.24**	-.076	.086		
17 MIM 2	.03	-.01	.07	-.027	-.07	.076	.008	.009	-.014	.005	.034	.061	.001	.063	.102	.28**	
18 MIM 3	.44**	.35**	-.06	-.20**	.062	.298**	.154*	-.072	.304**	.191**	.047	.002	.182**	.008	.125	.34**	.24**

*<.05 ** p<.01

Regression Analyses

Standard multiple regression analyses were carried out for each of the subtests of the RMIM and the MIM. Language background and age were included as predictor variables for each analysis as they were the primary variables in the research. Additional variables were included in each model on the basis of the results of the correlation matrix. Some of the variables were categorical variables and necessitated dummy variables. Examination of the normal probability plot and the histogram of the residual error showed that the data in Subtests 1, 2 and 4 of the RMIM and Subtests 1 and 2 of the MIM were not normally distributed. Only the analyses which did not violate normality are reported here. In each case, preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearilty and homoscedasticity.

RMIM Subtest 3: Marking third person possession for human *nouns*

A standard multiple regression analysis was conducted to calculate how much of the variance in scores on Subtest 3 (semantic gender assignment using third person possession), was accounted for by language background, age, SES, non-verbal IQ, Irish vocabulary, English vocabulary and performance on Subtests 1 and 3 of the MIM. All the variables were entered into the model and the total variance explained was 22.9%, $F(3, 188) = 15.20$, $p < .001$. Those that made a unique contribution to this model were age (*beta* = .300, $p < .001$) and Irish vocabulary (*beta* = .254, $p < .001$).

Table 7.14 Outcome of regression on RMIM Subtest 3

	Unstandard. Beta	Standard. Beta	p	CI		Part Correlation	Tolerance
				Lower	Upper		
Age	6.981	.300	.001**	3.74	10.23	.263	.773
Irish vocabulary	.487	.254	.001**	-1.91	20.03	.101	.637

** when p = .01 CI = Confidence Interval

The results of this model show that the strongest predictor of accuracy in identifying the semantic gender of human nouns (when identification of gender was dependent on how lenition is used to mark third person possession) was age. That is accuracy increased in line with an increase in age. The other predictor of accuracy was size of Irish reading vocabulary, whereby greater Irish vocabulary predicted more accurate identification of semantic gender of human nouns in the context of marking third person possession.

RMIM Subtest 5: Gender assignment for animals

A standard multiple regression analysis was conducted to calculate how much of the variance in accuracy in identifying the grammatical gender of animals was accounted for by language background, age, sex and performance on Subtest 2 of the RMIM. The model explained only 8.6% of the variance, $F(5, 281) = 5.28$, $p < .001$. While accuracy appeared to be at chance for most participants, some differences emerged: participants from EDH were less accurate than those from IDH (*beta* = -.202, *p* < .01), males were more accurate than females (*beta* = .192, *p* < .01), and more accurate performance on Subtest 2 of the RMIM predicted more accurate performance on Subtest 5 (*beta* = .126, *p* < .05).

MIM Subtest 3: Grammatical gender in marking third person possession

A standard multiple regression analysis was conducted to calculate how much of the variance in accuracy in the use of grammatical gender in marking third person possession was accounted for by language background, age, parental language background, percentage of pupils in the school being raised in IDH, school model, Irish vocabulary, English vocabulary, performance on Subtest 3 of the RMIM and performance on Subtests 1 and 2 of the MIM. All the variables were entered into the model and the total variance explained was 39.5% (adjusted R^2), $F(13, 184) = 10.90$, $p < .001$.

Table 7.15 Outcome of regression on MIM Subtest 3

	Unstandard. Beta	Standard. Beta	*p*	CI		Part Correlation	Tolerance
				Lower	Upper		
EDH	-15.64	-.475	.001**	-22.75	-8.54	-.241	.256
BH	-14.38	-.395	.001**	-20.31	-8.56	-.265	.451
MIM Subtest 1	.39	.239	.001**	.192	.586	.251	.816
Age	-1.99	-.174	.008**	-3.45	-.537	-.150	.738
MIM Subtest 2	1.33	.134	.024*	.178	2.48	.126	.887

** when *p* = .01 * when *p* = .05 CI = Confidence Interval BH = Bilingual Home EDH = English Dominant Home

The variables which contributed significantly to this model were language background, age, performance on Subtest 1 of the MIM and Subtest 2 of the MIM. Both dummy variables for language background had the highest beta values: the participants from IDH were significantly more accurate than the participants from EDH (*beta* = -.475, *p* < .001) and from BH (*beta* = -.395, *p* < .001). The participants from IDH used grammatical gender to mark possession most accurately, followed by participants from BH and then from EDH. The language used in the home did make a difference for accurate performance.

The next highest beta value was for performance on Subtest 1 of the MIM (*beta* = .239, *p* < .001). Accuracy in identifying the gender of nouns predicted accuracy in marking gender in third person possession. Age was next (*beta* = -.174, *p* < .01), whereby lower age predicted higher accuracy on this measure. The last variable in the model was performance on Subtest 2 of the MIM (*beta* = .134, *p* < .05). Higher accuracy in achieving agreement in noun-adjective combinations predicted higher accuracy in marking third person possession. The strength of performance in Subtests 1 and 2 of the MIM as predictors of performance on Subtest 3 is not unexpected given that the noun gender must be identified, as was tested in the MIM Subtests 1 and 2, before it can be used in marking third person possession. This model shows that accuracy in the productive use of grammatical gender in marking third person possession is not dissociable from its use in the other contexts.
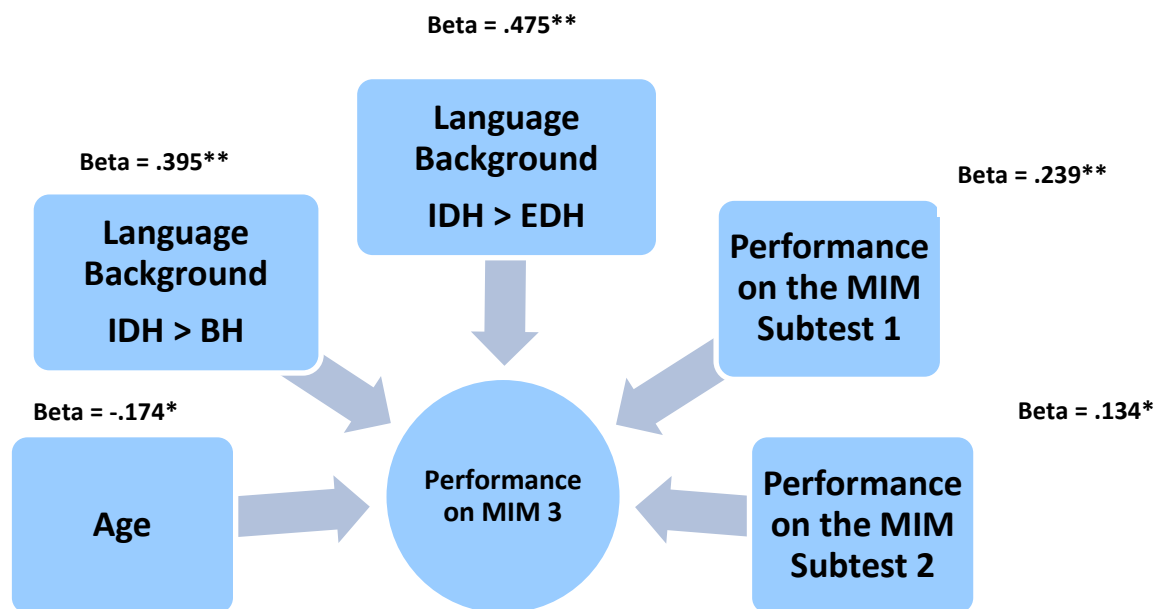
Figure 7.7 Regression model for MIM Subtest 3

The results of these regression analyses are summarised in Table 7.16.

Table 7.16 Summary of results of regression analyses

Measure	Result
RMIM 1	Data were not normally distributed due to ceiling effect, regression not possible
RMIM 2	Data were not normally distributed and regression analysis was not possible
RMIM 3	Regression model: **23% of variance explained by age and Irish vocabulary**
RMIM 4	Data were not normally distributed and regression analysis was not possible
RMIM 5	Regression model: **9% of variance explained by the difference between the participants from EDH and IDH, sex and performance on RMIM Subtest 2**
MIM 1	Data were not normally distributed due to floor effect, regression not possible
MIM 2	Data were not normally distributed due to floor effect, regression not possible
MIM 3	Regression model: **40% of variance explained by language background, age, performance on Subtest 1 of the MIM and Subtest 2 of the MIM**

IDH = Irish Dominant Home BH = Bilingual Home EDH = English Dominant Home

The earlier results of the ANOVAs were supported in the regression analyses: with the exception of Subtests 3 and 5 of the RMIM and Subtest 3 of the MIM, accuracy was very low and the data were not normally distributed (though the lack of variance in Subtest 1 of the RMIM was due to a ceiling effect). Where there was variability in the rate of accuracy, either or both age and language background were strong predictors of accuracy. In relation to language background, participants from IDH emerged as the most accurate and participants from EDH as the least accurate, which supports the expectation that language experience does have an influence on accuracy in gender marking. However, this difference was only seen in the small number of contexts where accuracy rose from a floor or chance level of accuracy. There was an unexpected result for age, whereby the younger participants were more accurate than the older participants on Subtest 3 of the MIM, though the absolute difference in mean score between the younger and older participants was very small across all three language backgrounds.

Comparing accuracy of gender marking on animate and inanimate nouns

The results of the RMIM pointed to a higher level of accuracy in the identification of the semantic gender of human human nouns (Subtest 1), but more variable accuracy for animal terms (Subtest 5), while performance was at chance levels for inanimate nouns (Subtest 2). Additional analyses were conducted on the responses to Subtest 1 and 3 of the MIM which differentiated between animate and inanimate nouns to address the research question:

Are there differences in children's accuracy in marking animate and inanimate nouns in tests of productions?

Subtest 2 was not re-analysed as there were only six instances of lenition on adjectives and they were equally distributed between animate and inanimate nouns.

Subtest 1: Following the definite article (Det + N)

The analysis compared the percentage correct scores for accurate marking of all animate (human and animal) nouns (6) and inanimate nouns (8) requiring active lenition (all consonant-initial feminine nouns) or /t-/ prefixing (/s/ initial feminine nouns and vowel-initial masculine nouns). Fig. 7.8 shows the scores by language background and age.
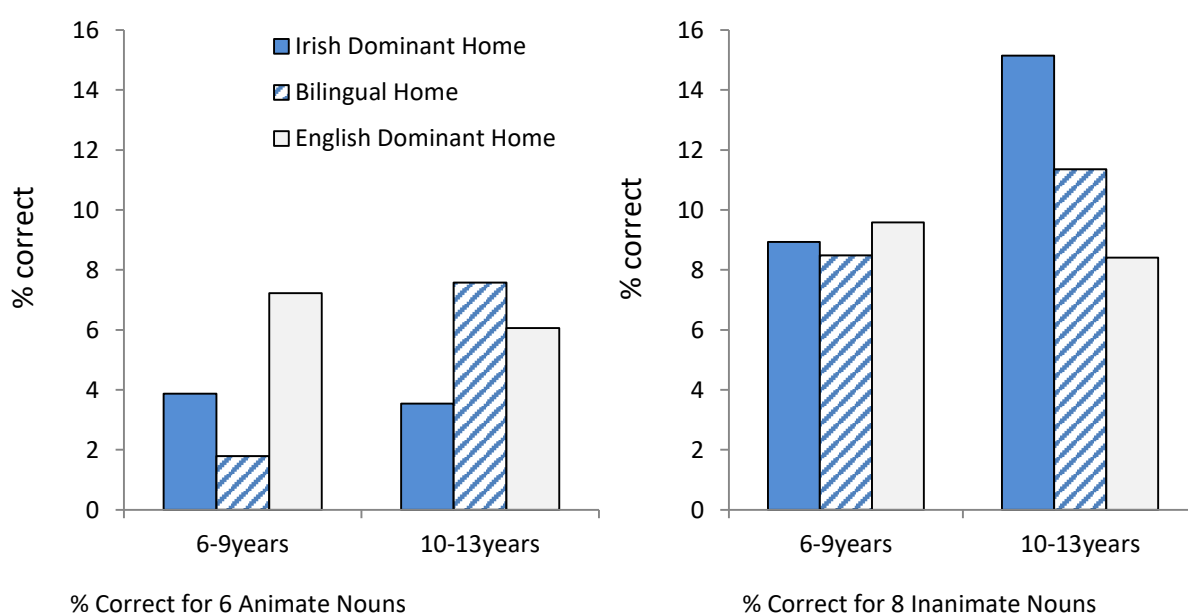
Figure 7.8 MIM Subtest 1 Mean % correct on animate and inanimate nouns requiring active gender marking by language background and age

The results do not show more accurate performance for animate nouns as was seen in the receptive test (RMIM). Firstly, overall percentage correct scores for animate (max. 8%) and inanimate nouns (max. 16%) was very low, which points to item-based learning and not the application of a rule-based strategy. Secondly, within this overall low accuracy of gender marking, accuracy for inanimate nouns appears to be greater than for animate nouns in productive use. An increase across the age groups was evident for participants from IDH and BH for the inanimate nouns, and for participants from BH for animate nouns. For the animate nouns the trend was for the younger participants from IDH and EDH to be slightly more accurate than the older participants.

A repeated measures ANOVA with a Greenhouse-Geisser correction determined that accuracy for animate and inanimate nouns on Subtest 3 of the MIM, using language background and age as the independent variables, differed significantly, $F(1, 218) = 29.80$, $p < .001$, Wilks' Lambda = .88, $\eta_p^2 = .120$. A significant interaction was found between animacy and language background, $F(2, 218) = 3.82$, $p < .05$, Wilks' Lambda = .966, $\eta_p^2 = .034$. Comparing across language background groups for the animate nouns, the participants from EDH were more accurate than the BH, who in turn were more accurate than the IDH. The opposite trend was found for inanimate nouns: the participants from IDH were more accurate than the BH, who in turn were more accurate than the EDH. The results do not point to the use of a consistent rule in relation to gender identification in this context for either animate or inanimate nouns.

Differences of language background and age aside, the performance of participants for animate nouns in productive use did not approach the high level of accuracy the participants exhibited on Subtest 1 of the RMIM, which measured gender identification for human nouns. While some of this may have been due to lower accuracy in the identification of gender for animal than for human referents, the group which assigned gender to **animate** nouns most accurately (the participants aged 10-13 from BH) were still only at 8% accuracy, which does not approach the 98.41% accuracy of this group on Subtest 1 of the RMIM.

Subtest 3: In marking third person possession
The data in Subtest 3 were re-analysed, separating the scores for all animate nouns (humans and animals) (6) and inanimate nouns (7) requiring active lenition (all masculine noun possessors of consonant-initial nouns) or /h-/ prefixing (all feminine noun possessors of vowel-initial nouns).
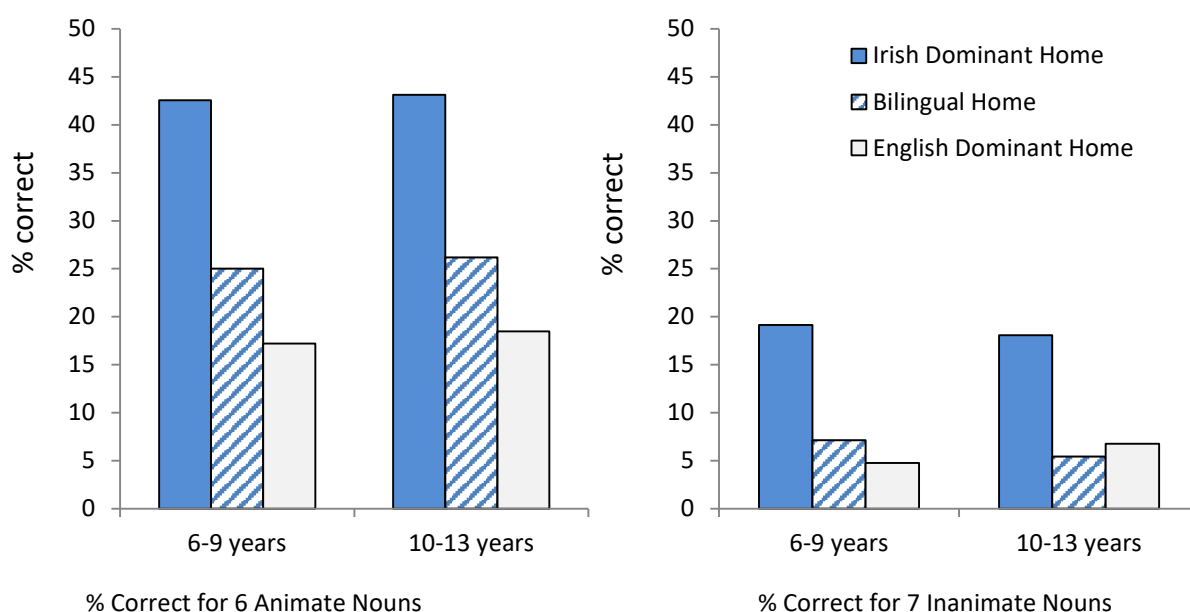
Figure 7.9 MIM Subtest 3 Mean % correct on animate and inanimate nouns requiring active gender marking by language background and age

The results of this analysis correspond much more closely with the RMIM results in terms of the difference between animate and inanimate nouns than was found in the previous case. Overall, in the context of grammatical gender identification in marking third person possession, accuracy for animate nouns was greater than for inanimate nouns. A repeated measures ANOVA with a Greenhouse-Geisser correction determined that accuracy for animate and inanimate nouns on Subtest 3 of the MIM, using language background and age as the independent variables, differed significantly, $F(1, 218) = 184.63$, $p < .001$, Wilks' Lambda = .541, $\eta_p^2 = .459$. A significant interaction was found between animacy and language background, $F(2, 218) = 8.16$, $p < .001$, Wilks' Lambda = .930, $\eta_p^2 = .07$. Scheffé post-hoc found a significant difference between the accuracy of participants from IDH and participants from BH, $p < .001$, and from EDH, $p < .001$.

Accuracy for both animate and inanimate nouns was roughly equivalent across the age groups within the language background groups. Looking within the language background groups, for both the animate nouns and inanimate nouns, the participants from IDH were more accurate than the BH, who in turn were more accurate than the EDH, though the difference here was very small for the inanimate nouns. The accuracy in productive use of the participants from IDH was not equivalent to the high level of accuracy participants from this language background exhibited on Subtest 1 of the RMIM but it was closer to it than in following the definite article, and was equivalent to performance on Subtest 3 of the RMIM,

which measured gender identification of human nouns on the basis of the cue of third person possession. Evidently the animacy of the noun did provide a cue to mark the noun in productive use in the context of third person possession that the inanimate nouns did not provide, but this difference did not emerge in the context of grammatical gender marking following the definite article. It seemed that their understanding of third person possession marking was interwoven with animacy for both age groups, where they were more likely to mark gender of possessors correctly if it was on animate nouns. Yet this was still not applied to inanimate nouns even by the age of 12.

The possibility of a 'mark-nothing' default

The results of Subtest 3 of the MIM showed that performance was relatively accurate for some participants, with significantly greater accuracy among those from IDH. However, performance on Subtests 1 (Det + N) and 2 (N + Adj), was very low, and no differences were found according to language background or age. It was hypothesised that participants used a 'mark nothing' default in these contexts in particular, whereby grammatical gender was not marked at all, regardless of the context.

Following the definite article, lenition is applied to the feminine noun and the masculine noun is the 'unmarked default'. The same rule applies to noun-adjective combinations. However, in the case of third person possession, the feminine possessor becomes the unmarked default and nouns possessed by masculine nouns undergo lenition. Therefore, what was ostensibly called a 'masculine default' by Boloh and Ibernon (2013) and others would be more accurately termed an 'unmarked default' for Irish. This hypothesis was tested by examining the participants' relative accuracy for masculine and feminine nouns in productive use, as measured by the MIM.

Subtest 1: Following the definite article (Det + N)

Examination of the relative number of accurate and inaccurate responses for the masculine and feminine nouns (see Appendix 9) points to a trend of greater accuracy on the masculine nouns than the feminine nouns. A repeated measures ANOVA with a Greenhouse-Geisser correction determined that percentage correct accuracy for all (regardless of whether they should be marked or not) masculine and feminine nouns on Subtest 1 of the MIM, using language background and age as the independent variables, differed significantly, $F(1, 219) = 4582.38$, $p < .001$, Wilks' Lambda = .05, $\eta_p^2 = .954$. The three way interaction between noun

gender, language background and age was not significant $F(2, 219) = 2.18$, $p < .116$, Wilks' Lambda = .98, $\eta_p^2 = .02$. The interaction between noun gender and language background was not significant $F(2, 219) = .718$, $p < .489$, Wilks' Lambda = .993, $\eta_p^2 = .007$, and the interaction between noun gender and age was not significant $F(1, 219) = 2.31$, $p < .13$, Wilks' Lambda = .99, $\eta_p^2 = .01$.

Secondly, goodness of fit chi-square tests were conducted on each item to test whether the difference in frequency of correct or incorrect response differed significantly from what would be expected by chance alone. The test was significant for all nouns, which showed the participants were using some type of strategy in their responses. It was evident from the analysis of the relative number of accurate responses for masculine and feminine nouns that participants were not responding at chance to any of the items in the measure because many participants were not applying lenition to any nouns, which led to a much higher error rate for feminine nouns than masculine nouns.

Subtest 2: In noun-adjective combinations (N + Adj)

Only five participants applied lenition to any adjective and only for one or two adjectives: three of these were from EDH and two were from IDH. It appeared that a 'mark nothing' default was used by all participants for nearly all feminine noun-adjective combinations.

A repeated measures ANOVA with a Greenhouse-Geisser correction determined that accuracy for masculine and feminine nouns on Subtest 2 of the MIM, using language background and age as the independent variables, differed significantly, $F(1, 219) = 136367.06$, $p < .001$, Wilks' Lambda = .002, $\eta_p^2 = .998$. The three way interaction between noun gender, language background and age was not significant $F(2, 219) = 2.34$, $p < .099$, Wilks' Lambda = .979, $\eta_p^2 = .021$. The interaction between noun gender and language background was not significant $F(2, 219) = .626$, $p < .536$, Wilks' Lambda = .994, $\eta_p^2 = .006$, and the interaction between noun gender and age was not significant $F(1, 219) = .156$, $p < .694$, Wilks' Lambda = .99, $\eta_p^2 = .000$. The difference between accuracy for masculine nouns and feminine nouns was significant as participants were much more accurate in the non-marking of adjectives in combination with masculine nouns than they were in marking lenition on adjectives in combination with feminine nouns. It was clear that participants' representation of grammatical gender did not dictate their response pattern and a 'mark nothing' default was used extensively by all.

Subtest 3: Marking third person possession

Examination of the relative number of accurate and inaccurate responses for the masculine and feminine nouns suggested greater accuracy for feminine nouns. A repeated measures ANOVA with a Greenhouse-Geisser correction determined that accuracy for masculine and feminine nouns on Subtest 3 of the MIM, using language background and age as the independent variables, differed significantly, $F(1, 218) = 265.71$, $p < .001$, Wilks' Lambda = .451, $\eta_p^2 = .549$. The three way interaction between noun gender, language background and age was not significant $F(2, 218) = .005$, $p < .995$, Wilks' Lambda = 1, $\eta_p^2 = .000$. The interaction between noun gender and age was not significant $F(1, 218) = .000$, $p < .971$, Wilks' Lambda = 1, $\eta_p^2 = .000$. However, a significant interaction was found between noun gender and language background $F(2, 218) = 35.89$, $p < .001$, Wilks' Lambda = .752, $\eta_p^2 = .248$. Scheffé post-hoc analysis revealed that that accuracy on masculine and feminine nouns differed significantly between participants from IDH and participants from EDH ($p < .05$) and participants from BH ($p < .05$). The results were plotted in Fig. 7.10 to explore the nature of the interaction.
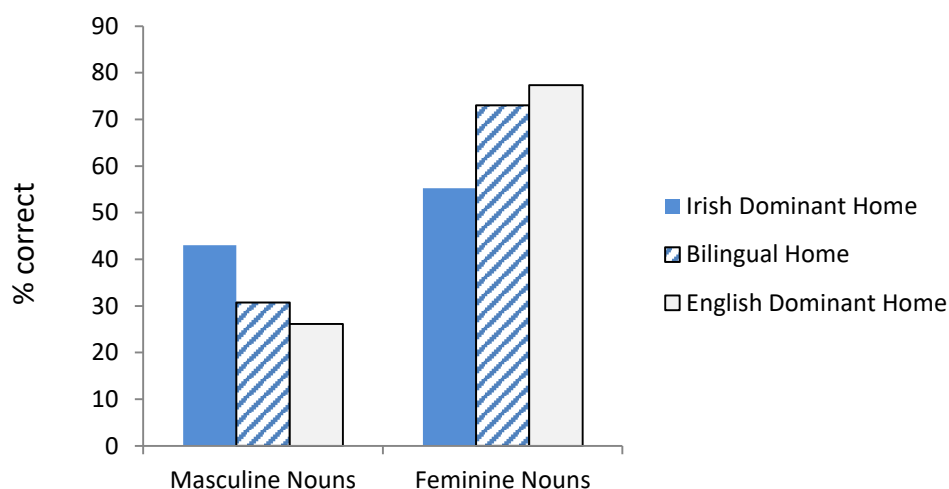
Figure 7.10 MIM Subtest 3 Mean % correct on masculine and feminine nouns by language background

The results demonstrate the significant difference between accuracy for masculine nouns and feminine nouns for all language backgrounds. The participants from BH and EDH patterned similarly in terms of their accuracy for masculine nouns and their accuracy for feminine nouns. It is apparent that participants were largely depending on a 'mark nothing' default as they were highly accurate for feminine nouns requiring no marking and significantly less accurate for nouns requiring active marking of noun gender. However, the

pattern diverged for the participants from IDH. These participants were more accurate than those from BH and EDH for masculine nouns but were less accurate than both other language background groups for feminine nouns. Their accuracy was approximately 55% for feminine nouns, which points to a high error rate for feminine nouns, despite the appropriate response for feminine nouns being no marking.

Overlenition on Subtest 3

To explore this finding further an examination of those who overextended lenition to feminine nouns in marking possession was conducted. The overextension of lenition in this way could be viewed as support for a masculine bias, as it indicates that they were overextending the appropriate marking for masculine nouns to feminine nouns, which is directly contradictory to a theory of a 'mark nothing' default. The scores in the following analysis represent the number of instances of overextension of lenition, i.e. the feminine nouns to which lenition was overextended.

Table 7.17 Use of overlenition in MIM Subtest 3 by language background and age

Language Background	Age	n	*M*	*SD*
	6-9	56	4.29	*3.05*
Irish Dominant Home	10-13	34	4.47	*3.22*
	Total	90	4.36	*3.10*
	6-9	28	1.75	*1.76*
Bilingual Home	10-13	21	1.86	*1.85*
	Total	49	1.80	*1.78*
	6-9	30	1.37	*2.25*
English Dominant Home	10-13	55	1.04	*1.53*
	Total	85	1.15	*1.81*
	6-9	**114**	**2.89**	**2.91**
Total	10-13	**110**	**2.25**	**2.69**
	Total	**224**	**2.58**	**2.82**

A two-way between-groups ANOVA was conducted to test for differences according to language background and age on the overextension of lenition in marking grammatical gender in third person possession. The interaction was not significant $F(2, 218) =.252$, *p* =.778, nor was the main effect of age, $F(1, 218) = .000$, *p* =.970. There was a main effect for language background $F(2, 218) = 38.345$, *p* < .001. Scheffé post-hoc analysis revealed that lenition was overextended more by participants from IDH than BH, *p* < .001, and participants from EDH, *p* <.001.
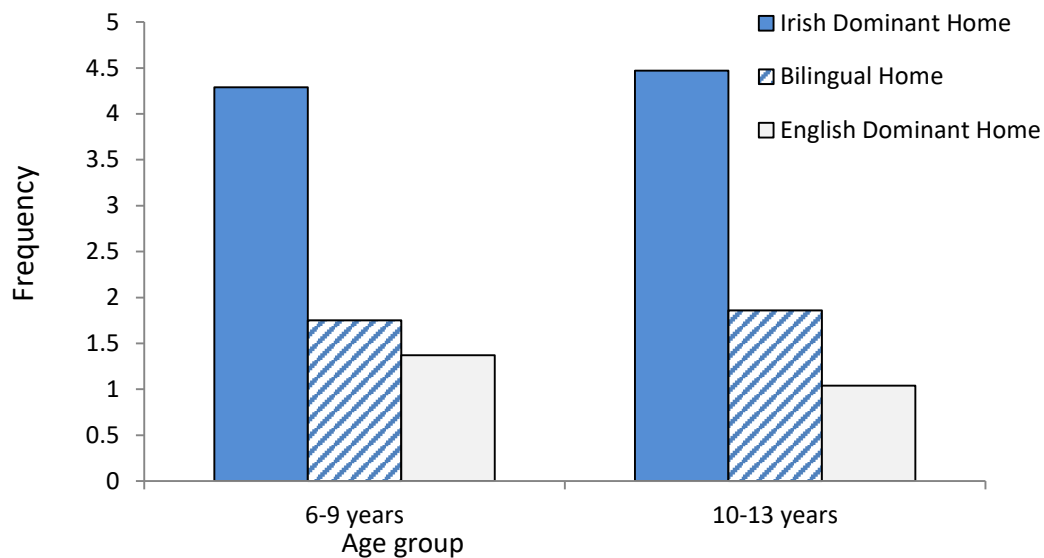
Figure 7.11 MIM Subtest 3 overlenition by language background and age

These results indicate that a significantly greater number of participants from IDH than in other group who used lenition to mark third person possession so extensively that they used it inaccurately at times. This indicates that the participants receiving mainly Irish input in the home were the ones who used overlenition as a strategy more than either other language background. These participants had likely aquired the most examples of this construction and were overextending a rule but in doing so overgeneralised the use of lenition in marking third person possession to feminine nouns.

Metalinguistic Awareness

As an alternative method of investigating why participants responded in the way they did, those who indicated some morphosyntactic awareness by marking grammatical gender in any context were engaged in a metalinguistic awareness interview following their completion of the MIM. The aim of this interview was to explore the strategies used by participants in their active use of lenition in marking grammatical gender in any of the three contexts measured, though in nearly all cases participants commented on Subtest 3 (marking third person possession), as this was the subtest they had just completed. In some cases, participants were asked to explain their reason for leniting a particular noun and not leniting another. In other cases, metalinguistic reflection was elicited by asking the participants to re-consider the final picture. This picture depicted a boy named Seán, and participants were asked to imagine Seán was a girl, and to re-consider their response. This

gave participants a concrete example to demonstrate their metalinguistic understanding of the differentiation between masculine and feminine possessors.

Responses from a total of 86 participants were analysed using content analysis, following Willig (2008), to explore any consistencies in their responses. Fourty two were from IDH, 15 were from BH and were from 26 EDH. No language background information was provided for 3 of them. A coding frame for anlysing the responses in the metalinguistic awareness interview was developed. This is displayed in Table 7.18, including the frequency with which a given strategy was used, a quoted response and a distribution by language background. Some participants reported using multiple strategies depending on the context.

The most popular strategy was based on accurate and explicit knowledge of the rule regarding lenition in marking third person masculine possession and most of these participants were from IDH. This strategy aside, the majority of participants were distributed across the other strategies. Understandably given the age profile of the participants, many reported not knowing why they constructed their response in the way they did. Several others knew lenition was used to denote ownership but did not know how to express its use, i.e. seven participants reported that lenition is used to mark any ownership and five reported that lenition is always used after the pronoun *a*, which would account for the overextension of the rule for masculine possession to feminine nouns evident in the previous analysis. Other stategies unrelated to ownership or gender were, e.g. saying it the way that sounds right, say it the way it is said at home and using lenition to signal plurality. These strategies reflected a more piecemeal approach despite the need for a rule-based approach in this context.

In the hypothetical case of "if Seán was Áine", thereby giving participants a concrete example to use to demonstrate they understood the need for differentiation between masculine and feminine possession, the participants who responded were nearly evenly distributed between accurate and inaccurate responses. Examination of the language background of accurate participants showed a greater number of participants from IDH than either of the other backgrounds. Looking at the distribution according to background of those who were inaccurate, the number of participants from IDH was equal to the number from EDH. Inaccuracy was common across all backgrounds but the results of metalinguistic awareness questionaire indicated somewhat more accurate awareness at least among participants from IDH.

Table 7.18 Coding frame for responses to metalinguistic awareness interview

Strategy	Freq	Language Background		
		IDH	BH	EDH
Lenition for masculine ownership: *"[you use h] when you are talking about a boy and without h when you are talking about a girl"*	19	10	5	4
*Lenition to denote ownership: *"because it belongs to someone"*	7	3	0	4
*Lenition when there is more than one item: *"if there is more than one"*	7	5	0	2
*Lenition because it sounds right: *"you don't say a muinéal because it doesn't sound right so you have to say a mhuinéal"*	6	4	1	1
*Say it the way family at home say it: *"that was the way my mother taught me to speak Irish and the way I speak when I am talking about boys and groups of people"*	5	5	0	0
*Lenite all items after *a* pronoun: *"when there is a before it you add lenition"*	5	1	1	3
*Change pronoun depending on gender: *"because a that's for a boy and í is for a girl"*	2	1	0	1
*Lenition when noun is part of a bigger noun: *"because it is part of the pig"*	2	2	0	0
*Depending on the initial phoneme: *"because you are not able to lenite d but you are able to lenite bróg so an bhróg"*	1	0	0	1
*Lenition for all animals: *"because it is an animal"*	1	1	0	0
*It's the way of the rules in school: *"[I learned it] probably in a book"*	1	0	0	1
*If Seán was Áine: Lenition does not change (inaccurate):	17	7	3	7
If Seán was Áine: Lenition is eliminated (accurate):	16	10	4	2
Don't know	16	10	1	5
Guess	2	2	0	0

Note: * strategies which do not guarantee accuracy and <u>could</u> lead to errors

The data for the 19 participants who cited an accurate rule in marking third person possession were examined in order to examine whether accurate metalinguistic awareness of the correct rule would lead accurate application of this rule in use.

Table 7.19 MIM Subtest 3: % correct for participants with/without explicit rule knowledge

	n	*M*	*SD*
Knowledge of rule	19	37.97	*22.72*
No reported knowledge of rule	66	29.55	*16.85*
Total	85	31.43	*18.52*

Examination of the means suggests a trend of greater accuracy among those with metalinguistic awareness of the rule than those without on Subtest 3 of the MIM. A one-way ANOVA was conducted to test this difference and no statistically significant difference found, $F(1, 84) = 3.132$, $p = .080$. This is a similar finding to that of Ó Duibhir (2009), who found that the children who engaged in 'focus-on-form' exercises in class had greater metalinguistic awareness (of the copula in this case) than the other children in the study, but that this did not significantly increase their accuracy in use. He suggested that metalinguistic awareness may be a step towards accurate use in a long trajectory of acquisition.

A sophisticated level of metalinguistic awareness was exhibited by some participants, though was lacking or was inaccurate among others. When compared to actual performance on the MIM, a trend towards more accurate performance by those with accurate metalinguistic awareness was found but this trend was not significant, in line with findings by Ó Duibhir (2009) in second language learning in older children.

DISCUSSION

A multi-rater, multi-measure approach was taken in the present study to achieve a triangulated and thorough exploration of language acquisition in Irish. The raters were the Principals, the teachers, the parents and the children. The multiple measures included in the study were measures of receptive knowledge and productive use of grammatical gender in Irish, non-verbal intelligence, Irish vocabulary and English vocabulary. Data were collected from 306 children. The primary aim of the present study was to examine the differences between children raised in homes with varying amounts of Irish in the acquisition of grammatical gender, stimulated by the findings of extensive crosslinguistic research that successful language acquisition is highly dependent on language input and experience (Gruter & Paradis, 2014; Thordardottir, 2014; 2011; Gathercole, Thomas, Roberts, Hughes & Hughes, 2013; Blom, 2010; de Houwer, 2007; Gathercole & Thomas, 2009; Thomas & Gathercole, 2007; Hickey, 1997).

The children from Irish Dominant Homes (for whom Irish was their L1 or one of their L1s) appeared to have a strong receptive knowledge of sematic gender on human nouns. While they were more accurate than the participants from Bilingual Homes and English Dominant Homes in their receptive knowledge of gender assignment for inanimate nouns, for human nouns when based on third person possession and for animals, accuracy appeared to be just above chance, which is not indicative of a strong representation of the nouns' gender. The results show relatively more advanced acquisition of receptive knowledge of grammatical gender among those with the most Irish exposure in the home, but absolute accuracy did not point to acquisition being complete.

In productive use, their accuracy was very low for gender assignment following definite article and in noun-adjective combinations. The participants from Irish Dominant Homes did not appear to use grammatical gender marking in these contexts with any more frequency or accuracy than participants from the other language backgrounds did. Of the three language background groups, they were the most accurate in marking third person possession and language background was the strongest predictor of accuracy on this measure, though accuracy was at approximately 40% and only for some of the participants from IDH. Additionally, they had some metalinguistic awareness of why they marked third person possession when they did. Again, the results point to relatively more advanced but ongoing acquisition of productive use of grammatical gender marking, but only in marking third person possession.

Looking to differences between the participants aged 7-9 years and those aged 10-13 years, progression in acquisition was seen for receptive knowledge of gender assignment for human nouns when based on third person possession and for animals. In the regression analysis, age was the strongest predictor of accuracy in assigning gender to animals. However, no progression was found in receptive knowledge of sematic gender on human nouns (likely due to highly proficient understanding by all participants), grammatical gender of inanimate nouns and grammatical gender of inanimate nouns when based on third person possession. In terms of their productive use, no progression was found in productive use of grammatical gender in any of the three contexts. In fact, there was a slight decrease in accuracy from the younger to the older age group in marking third person possession, and age was retained as a (weak) predictor of variance in this context in a regression.

It was clear that participants' representation of grammatical gender did not dictate their response pattern and a 'mark nothing' default was used extensively by all. Montanari

(2014) noted that she could not examine agreement within the noun phrase because the L1 German speakers in the study rarely used adjectives. It is possible that performance was particularly inaccurate in this context because children do not use adjectives frequently in their natural speech, thereby limiting their experience of achieving agreement between adjectives and nouns within the noun phrase.

With respect to control aspects of Welsh vocabulary, Gathercole, et al (2013) found a lag in the very young bilingual Welsh-English speakers' acquisition, followed by an advantage for the participants from homes in which only Welsh or mostly Welsh were spoken in middle childhood, followed by indistinguisable performance across language backgrounds by the teen ages. While it can be argued that some of the children in the present study will continue on a trajectory of normal acquisition, given the very low accuracy even among the participants aged 10-13, most significantly in noun-adjective combinations, it seems unlikely that the present acquisition trajectory will lead to eventual acquisition. It is possible that the literacy activities engaged in by students in secondary school are necessary for this noticing and system construction to happen.

While further research with older participants which would follow the trajectory into the teens would provide insight here, the experiences voiced by the native speakers interviewed in Chapter 6 suggest that this trajectory does not lead to successful acquisition for them. The native speakers reported very little knowledge of standard grammar, which they perceived to be due to the under-emphasis of this aspect of their Irish in secondary school. The native speakers are not receiving sufficiently accurate or salient input for them to acquire these complex features by ear, but are also not receiving targeted pedagogical input as it is assumed that they already 'have it'. They cannot use this feature accurately and consistently, to the detriment of their confidence and sense of being authoritative Irish speakers.

The use of grammatical gender in third person possession was different. In this context, the participants who used lenition to mark third person possession most, though sometimes inaccurately, were the participants from Irish Dominant Homes. The results suggest that the distinction made according to grammatical gender in marking third person possession is more salient to children because of its greater frequency in input from adults and its more salient function for communicative competence. This increases children's awareness of the need for lenition in this context but they are not receiving enough accurate

and consistent input for them to know how to *identify* the gender of nouns, particularly inanimate nouns, and how to tailor their output.

Children acquiring Irish as a first language form an idiosyncratic group in the context of language acquisition worldwide. This was the first study to utilise a constructivist theoretical approach in the examination of later Irish acquisition. The analysis of the measures of Irish vocabulary and English vocabulary will be examined in more depth in Chapter 8 and the analysis of the LITMUS MAIN narrative elicitation task will be presented in Chapter 9, before moving on to the General Discussion in Chapter 10.

Chapter 8 Results of the child study: Acquisition of vocabulary

OVERVIEW OF THE CHAPTER

The rationale for this study is outlined in the first part of this chapter, followed by information about the participants and the procedure used. The results for the measures of Irish reading vocabulary and English reading vocabulary are compared to the available norms and are then investigated for differences by language background and age, and then compared to each other to investigate test differences. Furthermore, performance on the measures of Irish vocabulary and English vocabulary is compared to parent and teacher ratings of proficiency. Finally, the results are discussed.

RATIONALE FOR THE STUDY

Given the sociolinguistic context in the *Gaeltacht* discussed in Chapter 3, where even Irish dominant children become bilingual at an early age, it was considered necessary to assess vocabulary proficiency in both languages being acquired by these bilinguals. Performance on measures of Irish vocabulary and English vocabulary were considered as variables in the analyses in Chapter 7 as they are also components of Irish acquisition. In the regression analysis of accuracy in identifying the gender of human nouns from third person possession marking (Subtest 3 of the Receptive Measure of Irish Morphosyntax), scores on the measure of Irish vocabulary emerged as one of the strongest predictors.

Here children's scores on tests of Irish and English receptive vocabulary using a reading task will be examined separately from the analysis of grammatical gender, both in relation to the norms for these measures for pupils in schools in Ireland, and in relation to differences according to language background and age. Percentage correct scores on the measure of Irish vocabulary correlated positively with child language background, parent language background, teacher background, percentage of children from IDH in school, school model and non-verbal IQ, and negatively with SES (see the correlation matrix in Chapter 7). Performance on the measure of English vocabulary correlated positively with SES and non-verbal IQ and negatively with age, percentage of children from IDH in school and school model. These correlations will also be explored further in this chapter. In addition, the

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relationship between the vocabulary scores in Irish and English and Parents' and Teachers' ratings of each child's Irish and English proficiency is explored in this chapter.

The research questions addressed in the Child Study Part 2 are:

1. Are there differences between children on measures of Irish and English vocabulary?

2. Are parent and teacher ratings of children's Irish and English proficiency in line with actual performance on a measure of Irish vocabulary and a measure of English vocabulary?

METHOD

Participants

The same participants completed the measures of Irish reading vocabulary and English reading vocabulary as did the measures of receptive knowledge and productive use of grammatical gender detailed in Chapter 7. The descriptive statistics presented in Table 8.1 relate specifically to the sample who completed the measures of Irish reading vocabulary and English reading vocabulary. The sample was evenly distributed between the two age groups 6-9 and 10-13, with most participants falling into the 7-11 range. Despite all attempts to maximise recruitment of Irish native speakers, the sample was slightly weighted towards the English Dominant Home (EDH) category. The distribution according to sex and SES in each of the three background groups was evenly distributed, though with slightly more female participants in the Irish Dominant Home (IDH) group.

Table 8.1 Child sample by language background and age: TGD-G1

Age	Irish Dominant Home		Bilingual Home		English Dominant Home		Total	
6	1	.4%	0		0		1	.4%
7	9	3%	14	5%	6	2%	29	10%
8	20	7%	16	5.7%	11	4%	47	17%
9	19	7%	19	7%	37	13%	75	27%
6-9	**49**	**17.4%**	**49**	**17.4%**	**54**	**19%**	**152**	**54%**
10	20	7%	18	6.4%	30	10%	68	24%
11	11	4%	5	2%	27	10%	43	15%
12	3	1%	3	1%	10	3.5%	16	6%
13	1	.4%	1	.4%	0		2	.8%
10-13	**35**	**12.5%**	**27**	**10%**	**67**	**24%**	**129**	**46%**
Total	**84**	**30%**	**76**	**27%**	**121**	**43%**	**281**	

Procedure

The Children

The measures of Irish vocabulary and English vocabulary were administered in two separate sessions with the children who assented to participate and whose parents had given consent. The Irish reading vocabulary test from the *Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge* (TGD-G1) was always administered in Group Testing Part 1, following the completion of the Child Use of Irish Questionnaire and the Receptive Measure of Irish Morphosyntax (see Chapter 7). In the TGD-G1, following completion of the sample items, the participants had 10 minutes to complete this measure individually. The researcher circulated in the room to monitor performance and to discourage talking or copying. The Drumcondra Primary Reading Test-Revised (DPRT-R) was always administered in English in Group Testing Part 2, following the completion of the Matrices subtest of the Weschler Abbreviated Scales of Intelligence (WASI; see Chapter 7). In the DPRT-R, following the completion of the sample items, the participants had 10 minutes to complete all items in an individual Answer Booklet. All materials were identifiable to ensure accurate matching of the various subtests but identifiers were subsequently replaced by a code.

Parents' and Teachers' Ratings of Children's Irish and English

The Child Rating Form required parents and teachers to separately rate the child's speaking, reading, writing and understanding of Irish and English relative to other children in their class (for the teachers) or how they expected their child to perform relative to other children their age (for the parents). In testing, all teacher forms were in Irish only while parents' forms were bilingual.

RESULTS

Table 8.2 and Fig. 8.1 contain the means and standard deviations for performance on the measure of the measures of Irish and English reading vocabulary. As the participants completed different levels of the measures depending on their class in school, which was closely correlated with age, the scores were converted into percentage correct scores to facilitate cross-age group and cross measures comparison. The first part of the results addressed the research question whether there are differences among children on a measure of Irish vocabulary and on a measure of English vocabulary.

Table 8.2 Irish and English vocabulary: Mean % correct score by language background and age

	Age	Language Background	n	*M*	*SD*
	6-9	Irish Dominant Home	49	77.01	*17.73*
		Bilingual Home	49	75.10	*15.99*
		English Dominant Home	54	66.17	*14.74*
		Total	**152**	**72.54**	***16.75***
	10-13	Irish Dominant Home	35	83.19	*10.89*
Irish		Bilingual Home	27	70.74	*21.00*
Vocabulary		English Dominant Home	67	67.56	*17.27*
		Total	**129**	**72.47**	***17.88***
	Total	Irish Dominant Home	84	79.58	*15.49*
		Bilingual Home	76	73.55	*17.91*
		English Dominant Home	121	66.94	*16.14*
		Total	**281**	**72.51**	***17.25***
	6-9	Irish Dominant Home	49	67.45	*19.80*
		Bilingual Home	49	75.25	*19.74*
		English Dominant Home	54	69.04	*22.21*
		Total	**152**	**70.52**	***10.69***
	10-13	Irish Dominant Home	35	65.83	*13.84*
English		Bilingual Home	27	67.87	*19.82*
Vocabulary		English Dominant Home	67	71.80	*16.47*
		Total	**129**	**69.39**	***16.75***
	Total	Irish Dominant Home	84	66.89	*17.90*
		Bilingual Home	76	72.73	*19.95*
		English Dominant Home	121	70.59	*19.16*
		Total	**281**	**70.03**	***19.08***

Figure 8.1 Irish and English vocabulary: Mean % correct score by language background and age

Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge

Comparison with the norms

TGD-G1 was normed on a national sample of children in Irish-medium primary schools in Ireland, though no differentiation was made between L1 and L2 Irish speakers or *Gaeltacht* and Irish-immersion pupils. The raw scores of participants in this study were transformed into standard scores and compared to these norms. The scores for 24 participants could not be transformed to standard scores as they had not completed the full measure. Table 8.3 shows that almost a quarter of the sample (23.4%) in the present study was above the norm for performance on this measure of Irish vocabulary. A further 67.4% of the sample was average. The final 9.4% were below the norms for their age.

Table 8.3 TGD-G1 Standard scores

Standard Score	Descriptor	Observed		Expected	O-E	$\frac{(O-E)^2}{E}$	$\frac{O-E}{\sqrt{E}}$
131-145	Well above average	3	1.2%	2%	-.8	.32	-.566
116-130	Above average	57	22.2%	14%	8.2	4.8	**2.19***
100-115	Average	96	37.4%	34%	3.4	.34	.583
85-99	Average	77	30.0%	34%	-4.0	.47	-.686
70-84	Below average	21	8.2%	14%	-5.8	2.4	**-1.55***
0-69	Well below average	3	1.2%	2%	-.8	.32	-.566
Total		**257**			**X² =**	**8.65**	

Goodness of fit chi-square tests were conducted for each level to assess if the percentage of participants differed significantly from the expected percentage. Looking first at the percentage of participants well above average, this was slightly below the expected number but not significantly. The percentage of participants above average was significantly above what was expected in line with the norms. The number of participants whose standard score was within one SD of the mean (85-115) was in line with expectations, though the percentage between the mean and 1 SD above was slightly higher than the percentage between the mean and 1 SD below. Significantly fewer participants than expected were below the mean, and slightly fewer than expected were well below the mean but this was not significant. Overall it appears the Irish reading vocabulary scores of the participants in the present study were above the normed average, as more participants than expected scored above average and fewer than expected scored below average. This accords with the language background data, according to which 30% of the present sample were from IDH.

Differences according to language background and age

A 3 x 2 ANOVA was conducted on the standard scores of the TGD-G1 and the interaction between language background and age was not significant, $F(2, 250) = 2.98$, $p = .052$. No statistically significant difference for age was found between the 6-9 year olds and the 10-13 year olds, $F(1, 250) = 2.64$, $p = .106$. However, there was a statistically significant difference found for language background, $F(2, 250) = 7.79$, $p < .001$. Scheffé post-hoc analysis found significantly higher Irish vocabulary among the participants from IDH ($M = 108.04$, $SD = 14.26$) than participants from EDH ($M = 100.51$, $SD = 13.3$), $p < .01$.
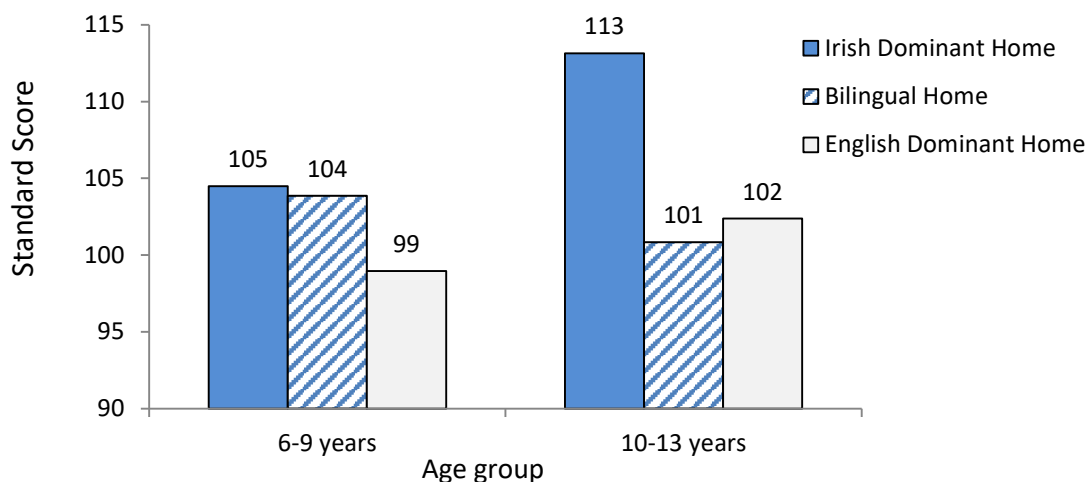
Figure 8.2 TGD-G1 standard scores by language background and age

The plotted results in Fig. 8.2 show relatively little difference between the mean standard scores of older and younger BH and EDH participants, but the mean standard score of the older participants from IDH was 8 points higher at 113 among the older IDH group compared to the younger IDH mean standard score of 105, and was 12 points higher than the BH participants and 11 points higher than the EDH children. (It should be noted that as versions of the TGD-G1 of differing difficulty were administered according to class in school, with varying numbers of items of increasing difficulty, the scores presented are the mean standard scores at each test-level. Thus the finding of a lack of a significant difference by age should not be interpreted as the older children failing to increase their vocabulary from the age of 6 to the age of 13, but rather that on these graded tests, the mean standard scores for each age-group did not change significantly.)

Looking within the age groups, the younger participants from IDH had only a slight advantage on Irish vocabulary compared to the BH and EDH children, but in the older age-group the IDH children showed a clear advantage over both other groups. This may be an effect of literacy in Irish helping to increase their exposure to rich sources of Irish vocabulary

input at this age. The BH participants showed an early advantage in Irish vocabulary standard scores, looking very like the IDH children at that point, but in the older age-group the participants from EDH had caught up with them and slightly surpassed them in terms of Irish vocabulary standard scores. This narrowing of the gap reflects the longer exposure of the older EDH children to Irish in school, and may also point to a decline occurring in the amount of Irish that is spoken to older BH children in their homes. Overall, the standard score results show effects of home language that are in line with differential input, with an advantage for both IDH and BH children early on, but with IDH children showing the greatest increase in the older age-group, and with the EDH children catching up on the BH children but not on the IDH children in Irish vocabulary standard scores. As was found for Welsh by Gathercole and Thomas (2009), at all ages the IDH children significantly outperform the EDH children in Irish vocabulary.

Drumcondra Primary Reading Test-Revised (DPRT-R)

Comparison with the norms

The English reading vocabulary measure, DPRT-R, was normed on a national sample of children in primary school in Ireland, though no differentiation is made between L1 speakers and L2 English speakers. The participants' raw scores were transformed into standard scores and compared to these norms. The scores for 13 participants could not be transformed to standard scores as they had not completed the full measure. Table 8.4 shows that about a sixth of the sample (17.6%) was above the norm for performance on this measure. Three quarters (73.5%) of these *Gaeltacht* children, most of whom were in mainly-Irish-medium schools, had scores that were average by national Irish norms for L1 English speakers being educated through English. Only 9% of this sample were below average on these norms for L1 English speakers, and none of the participants were well below average.

Table 8.4 DPRT-R Standard scores

Standard Score	Descriptor	Observed		Expected	O-E	$\frac{(O-E)^2}{E}$	$\frac{O-E}{\sqrt{E}}$
131-145	Well above average	12	4.5%	2%	2.5	3.13	**2.21***
116-130	Above average	35	13.1%	14%	-.9	.058	-.241
100-115	Average	90	33.6%	34%	-.4	.004	-.069
85-99	Average	107	39.9%	34%	5.9	1.02	1.01
70-84	Below average	24	9.0%	14%	-5	1.79	-1.34
0-69	Well below average	0		2%	-2	2	-1.41
Total		**268**			**X² =**	**8.00**	

Goodness of fit chi-square tests were conducted for each level. Looking first at the percentage of participants well above average, this was significantly above the expected percentage. The percentage of participants above average was slightly lower than was expected in line with the norms, though not significantly. The number of participants whose standard score was within one SD of the mean (85-115) was in line with expectations; the percentage between the mean and 1 SD above the mean was very closely in line with the norms though the percentage between the mean and 1 SD below the mean was greater. Looking at those below average, fewer participants than expected were below the norms, and none were well below the mean. Overall it appears that the English reading vocabulary scores of a percentage of participants in the present study was above the normed average as more participants than expected scored well above average and fewer than expected scored below average, though more than expected were in the average range. However, in the present sample there was a mixture of participants for whom English was their L1, their L2 and their bilingual L1, and all (except those in one school) were in mainly Irish-medium schools. Therefore differences of language background will be considered below.

Looking first at differences in age, in the National Assessment of English Reading and Mathematics Performance 2014 (Shiel, Kavanagh and Millar, 2014) in which the DPRT-R was used, an average 70% (raw score) of vocabulary items were answered correctly by Second class pupils in mainstream schools (aged 7-8), compared to 77.06% (raw scores) in the present sample. Pupils from Sixth class in mainstream schools (aged 11-12) answered an average 70.4% (raw scores) of English vocabulary items correctly, compared to 68.97% (raw scores) items by children in sixth class in the present sample. Based on this national sample, the older participants in the present research are representative of the national norm but the younger group appear to be slightly above the norm for English vocabulary. Comparable data were not available for Irish.

Differences according to language background and age

A 3 x 2 ANOVA was used to test for differences according to language background and age on performance on the standard scores of the DPRT-R. The interaction was not significant, $F(2, 255) = .657$, $p = .519$, nor was the main effect of age, $F(1, 255) = 1.5$, $p = .222$. A significant main effect was found for language background, $F(2, 255) = 5.62$, $p < .01$. Scheffé post-hoc analysis found a significant difference between participants from IDH ($M = 97.24$, $SD = 11.41$) and participants from BH ($M = 103.53$, $SD = 15.09$), $p < .05$, and from EDH ($M =$

104.34, *SD* = 14.52), *p* < .01. The standard scores for each language background and age-group are presented in Fig. 8.3.
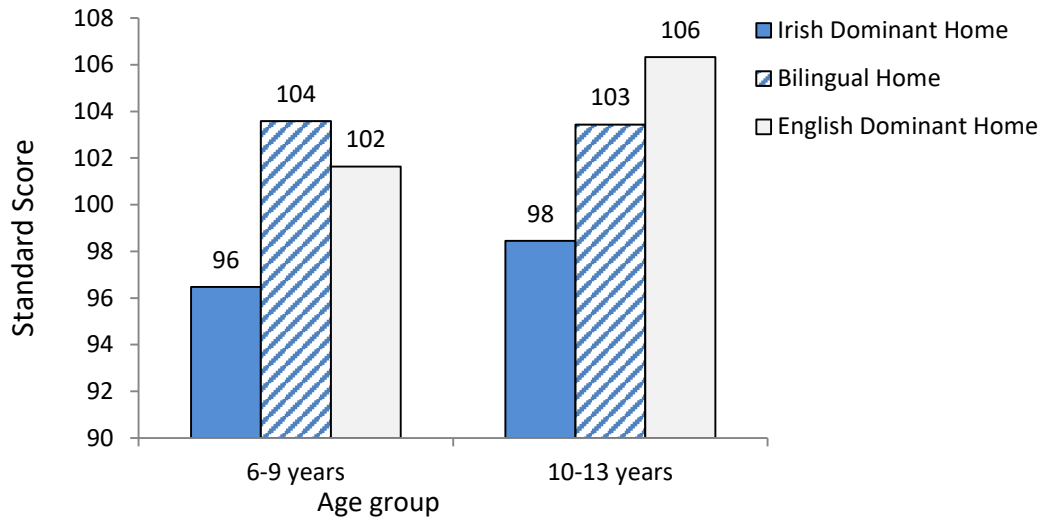
Figure 8.3 DPRT-R standard scores by language background and age

Fig. 8.3 shows higher standard scores among participants who receive some or only English as home, that is the BH and EDH participants, whose scores were 8 and 6 standard scores respectively above the younger IDH children, and 5 and 8 standard scores above the older IDH children. The younger group of children from BH homes showed the same advantage in English that they had shown in Irish, in scoring more similarly to the children who received more input in the tested language, but this advantage was not maintained in the older age-group. This could partly be explained by the results of the comparison of these data with the NAIMS data, which showed that the participants in Second Class in the present research were above the norm. Looking further across the age groups, the standard scores of the IDH children increased by 2 in the 10-12 age-group, but the EDH standard scores increased by 4, and for the older group the EDH children increased their advantage, mirroring the increase of the IDH children in Irish vocabulary, with the BH children again falling between the other two groups in the older age-group. Thus, exposure appeared to influence acquisition of English reading vocabulary, with the opposite trend across language backgrounds as was found for Irish reading vocabulary. The standard score data indicate that the children from IDH did not catch up in English vocabulary standard scores in the way that would be expected based on the Gathercole and Thomas (2009) analysis of Welsh and English vocabulary data, but continue to show a differential effect for home language.

Regression analyses

Regression analyses were conducted with scores for the measure of Irish reading vocabulary and English reading vocabulary as dependent variables. Language background and age were included as predictor variables for each analysis as they were the primary variables in the research. Additional variables were included in each model on the basis of the results of the correlation matrix (see Chapter 7). Some of the variables were categorical variables and necessitated dummy variables.

Standard multiple regression analyses were carried out with scores for the measure of Irish vocabulary and English vocabulary as dependent variables. In each case, preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearilty and homoscedasticity.

Irish vocabulary

A standard multiple regression analysis was conducted to calculate how much of the variance in Irish reading vocabulary scores was accounted for by child language background, age, parent language background, teacher language background, SES, percentage of pupils in the school being raised in IDH, school model, non-verbal IQ, English vocabulary, performance on Subtest 3 of the RMIM, performance on Subtests 1 and 3 of the MIM and parent and teacher ratings of Irish Vocabulary and Irish Reading (variables that were significantly correlated with the criterion variable). Variables were entered into the model using the standard method and a significant model emerged $F(20, 115) = 9.5$, $p < .001$, which explained 62.3% of the variance in Irish vocabulary scores. Table 8.5 gives information about regression coefficients for the predictor variables entered into the model which emerged as significant: English reading vocabulary (*beta* = .332, *p* < .001) and Teacher rating of Irish Reading (*beta* = .238, *p* < .01), school model for the dummy variable of the difference between the Irish-medium schools and the English medium school, (*beta* = -.235, *p* < .05), child language background (the dummy variable of the difference between participants from IDH and BH (*beta* = -.173, *p* < .05) and the dummy variable of the difference between participants from IDH and EDH (*beta* = -.204, *p* = .094) was approaching significance); and parents' Irish proficiency (dummy variable of the difference between Highly/ Moderately Proficient L2 speaker and Low Proficiency L2/ Non-Irish speaker parents, which was borderline significant (*beta* = -.134, *p* = .05).

Table 8.5 Outcome of Regression on the Measure of Irish Vocabulary

	Unstandard Beta	Standard. Beta	p	CI		Part Correlation	Tolerance
				Lower	Upper		
English vocabulary	.341	.332	.001**	.202	.481	.278	.7
Teacher rating: Irish reading	3.9	.238	.017*	.71	7.01	.139	.34
School model	-13.7	-.235	.022*	-25.43	-1.97	-.133	.319
BH vs IDH	-6.68	-.173	.045*	-13.21	-.14	-.116	.449
Parent language background	-4.63	-.134	.05*	-13.94	.01	-.113	.713

** significant when *p* = .01 *significant when *p* = .05 BH = Bilingual Home EDH = English Dominant Home

The regression analysis found that 62.3% of the variance in scores on the measure of Irish reading vocabulary was accounted for these predictor variables. The strength of English vocabulary score as a predictor of Irish vocabulary score points to what Gathercole, Thomas, Roberts, Hughes and Hughes (2013) noted was a general vocabulary learning ability as children grow older. Child language background, parent language background and school model are all aspects of language exposure and demonstrate that language exposure has a significant effect on later vocabulary development. The participants from the IDH had a higher mean scores in Irish vocabulary than participants from BH and EDH (though the latter was only approaching significance). Parents' own language background was also a predictor of children's scores on the measure of Irish reading vocabulary, with the children of native speaker parents gaining higher scores than children of parents with low or no proficiency in Irish, again in line with expectations. Thirdly, the participants from the mainly English-medium school scored significantly lower than the rest of the participants in mainly-Irish-medium schools.

Teacher rating of Irish reading also emerged as a strong predictor variable, which points to literacy development in Irish being closely tied to vocabulary development in the language, as has been discussed for Irish by Stenson and Hickey (forthcoming, 2016). Age did not emerge as a significant variable, but as already noted this may have been a test effect. Furthermore, SES did not emerge as a significant predictor of score on the measure of Irish vocabulary, and this finding also corroborates the observation of Gathercole, Kennedy & Thomas (in press) who found that SES did not significantly predict Welsh or English vocabulary in this age group.

English vocabulary

A standard multiple regression analysis was conducted to calculate how much of the variance in scores on the measure of English reading vocabulary was accounted for by child language background, age, SES, percentage of pupils in the school being raised in IDH, school model, non-verbal IQ, Irish vocabulary, performance on Subtest 3 of the RMIM, performance on Subtests 1 and 3 of the MIM and parent and teacher ratings of English Vocabulary and English Reading. All the variables were entered into the model using the standard method and a significant model emerged $F(17, 124) = 5.63$, $p < .001$, which explained 43.6% of the total variance in English vocabulary scores. Table 8.6 gives information about regression coefficients for the predictor variables entered into the model which emerged as significant: Irish vocabulary (*beta* = .42, *p* < .001); school model for the dummy variable of the difference between the Irish-medium schools and the English medium school, (*beta* = .338, *p* < .01); and child language background, both the dummy variable of the difference between participants from IDH and BH (*beta* = .247, *p* < .01) and EDH (*beta* = .219, *p* = .05), which were the same variables as those which contributed significantly to the analysis of Irish reading vocabulary. The differences were that Teacher rating of English Reading only approached significance (*beta* = .311, *p* = .058), whereas Teacher rating of Irish Reading was a significant predictor of Irish reading vocabulary. The dummy variable of the difference between participants from High SES and Low SES homes approached significance (*beta* = .176, *p* = .057) in the English vocabulary model. A final difference was that for English reading vocabulary, the variable relating to Parents' Irish language background (the difference between Highly/ Moderately Proficient L2 speaker parents and the Low Proficiency L2/ Non-Irish speaker parents) was not significant. This is summarised in Table 8.6.

Table 8.6 Outcome of Regression on the Measure of English Vocabulary

	Unstandard. Beta	Standard. Beta	*p*	CI		Part Correlation	Tolerance
				Lower	Upper		
Irish vocabulary	.406	.42	.001**	.221	.59	.293	.486
School model	18.73	.338	.001**	7.75	29.7	.228	.455
BH	9.4	.247	.005**	2.87	15.93	.192	.604
EDH	7.53	.219	.05*	-.034	15.09	.133	.37

** significant when *p* = .01 *significant when *p* = .05 BH = Bilingual Home EDH = English Dominant Home

The result of a regression analysis found that 43.6% of the variance in scores on the measure of English reading vocabulary was accounted for by Irish vocabulary, school model and child language background. The strength of Irish vocabulary score as a predictor of English vocabulary score again points to a general vocabulary learning ability during the primary school years. As was found for the analysis of scores on the measure of Irish, variables relevant to language exposure, specifically child language background and school model, predicted a significant amount of the variance on this measure of English reading vocabulary development. Participants from IDH had lower scores than participants from BH and EDH, and participants in the mainly English-medium school had higher scores on average than participants in the Irish-medium schools, pointing to strong home and school exposure effects even for English, the higher-status language in this bilingual context. In predicting the variance in scores for English vocabulary, age and SES did not emerge as predictor variables, nor Teachers' ratings of English reading.

Correlation of Teacher Ratings and Parent Ratings and Performance

The degree of correlation between the teacher and parent Child Ratings in Irish and English and the children's actual performance on the measures of Irish and English reading vocabulary was examined. McVeigh (2012) collected Parent and Teacher rating of participants' Irish and English proficiency as part of her study of working memory and executive function in bilingual children in Irish-medium schools in Northern Ireland, and compared them with participants' actual performance on the Interactive Computerised *Assessment* System (InCAS), a national assessment of education outcomes which includes Irish Reading and English Reading. Here, the parents' and teachers' rating of each child are compared with that child's scores in Irish and English vocabulary in order to address the research question of whether parents and teachers rate Irish and English proficiency in line with children's performance on measures of vocabulary in each language.

Comparison of teacher and parent ratings of overall proficiency

Parents completed this measure for 258 of the child participants, giving an individual rating for their child's proficiency in understanding, speaking, reading and writing in Irish and English on a scale of 1 to 5. Of these 258, 82 were from IDH, 72 were from BH and 99 were from EDH. Teachers also completed this measure for 280 of the child participants. Of these 280, 79 were from IDH, 77 were from BH and 115 were from EDH. Parents' mean proficiency rating for children's Irish was 3.65 (*SD* = .75), with a minimum rating of 2 and a maximum

rating of 5. Teachers' mean proficiency rating for childrens' Irish was very similar (*M* = 3.68, *SD* = .9), with a minimum rating of 1 and a maximum of 5.

Fig 8.4 shows a high correlation (*r* = .402) between teachers' and parents' ratings and children's Irish vocabulary scores, although teachers rated children's overall Irish proficiency higher than parents did, regardless of language background. Both parents and teachers rated the overall Irish proficiency of those from IDH as higher than the other two language groups.
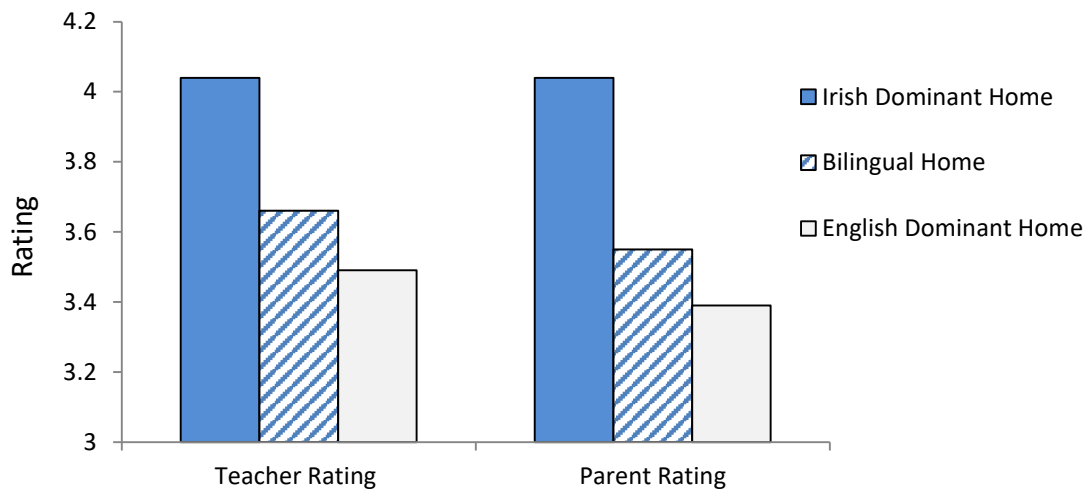
Figure 8.4 Teacher and Parent Rating for Irish by language background

Parents' mean proficiency rating for English was 3.90 (*SD* = .738), with a minimum rating of 2 and a maximum rating of 5. Teachers' mean proficiency rating for English was slightly lower (*M* = 3.71, *SD* = .882), with a minimum rating of 1 and a maximum of 5. Fig 8.5 presents these results.
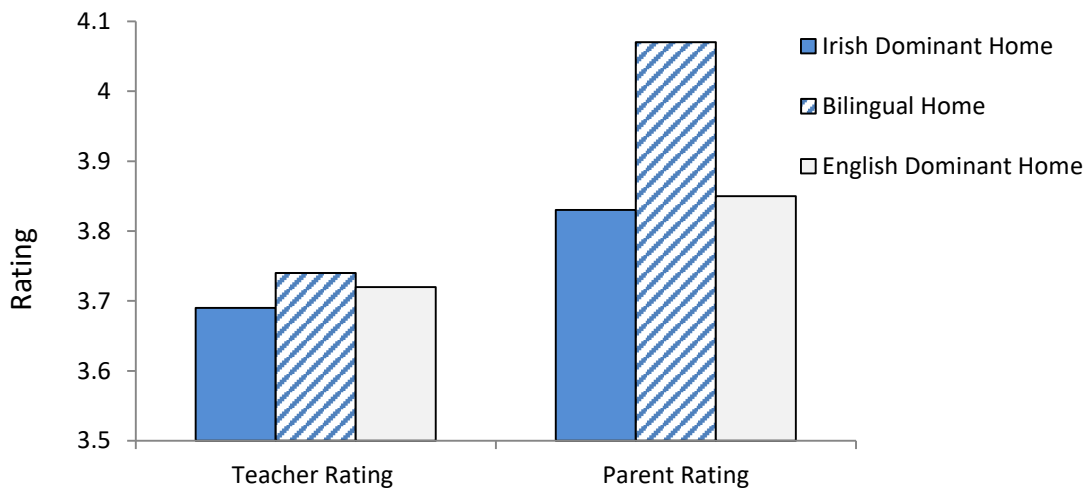
Figure 8.5 Teacher and Parent Rating for English by language background

A very different pattern emerged in the case of English rating and the correlation between parents and teachers was much lower (r = .210). Parents of all language backgrounds rated children's English proficiency higher than teachers did. The children from IDH and EDH were rated as being very similar in English proficiency, which may indicate parents' awareness of the pervasive influence of English, even in homes in which Irish is the dominant language, but may over-estimate the English proficiency of the IDH children. Parents of children from BH rated their children's English proficiency .5 points higher on average than parents from the other two language backgrounds. It was interesting that language background did not appear to influence teachers' ratings of children's English proficiency and they rated children of all backgrounds, including EDH, quite similarly, though participants from IDH were rated slightly lower in English than those from BH and EDH backgrounds.

Correlation of teacher and parent ratings with actual performance

The following correlations relate performance on the measure of Irish reading vocabulary and teacher and parent rating of Irish Understanding and Irish Reading. They are ranked in order of strength of the correlation in Table 8.7.

Table 8.7 Correlation coefficients: TGD-G1 and teacher and parent ratings

Correlation Variable	n	*r*	*p*	Variance explained
Teacher rating of Irish Reading	265	**.603**	**.001****	36.36%
Teacher rating of Irish Understanding	265	**.491**	**.001****	24.1%
Parent rating of Irish Reading	239	**.419**	**.001****	17.55%
Parent rating of Irish Understanding	239	**.329**	**.001****	10.82%

**Correlation is significant at the .001 level

These results show that the teacher rating of Irish Reading had the strongest positive correlation with children's performance on the measure of Irish vocabulary. The teacher rating of children's Irish Understanding was the second strongest correlation. On both measures teachers' ratings of children's Irish appeared to be more accurate than parents' rating. Also, both teacher and parent ratings of Irish Reading had a stronger correlation with performance on the TGD-G1 than ratings of childen's Irish Understanding.

The next correlation examined the relationship between performance on the measure of English reading vocabulary and teacher and parent rating of English Understanding and English Reading. They are ranked in order of strength of the correlation in Table 8.8.

Table 8.8 Correlation coefficients: DPRT-R and teacher and parent ratings

Correlation Variable	n	*r*	*p*	Variance explained
Teacher rating of English Reading	254	**.526**	**.001****	27.67%
Teacher rating of English Understanding	254	**.502**	**.001****	25.2%
Parent rating of English Reading	235	**.285**	**.001****	8.12%
Parent rating of English Understanding	236	.127	.052	1.61%

**Correlation is significant at the .001 level

These results show that the teacher ratings of children's English Reading had the strongest correlation with performance on the DPRT-R and it indicates a strong positive relationship, as was found in the correlation between teacher rating of Irish Reading and performance on the measure of Irish reading vocabulary. The teacher rating of children's English Understanding was again the second strongest correlation. Thus we note that teachers' rating of children's English proficiency was lower but more in line with their English vocabulary performance than the parent ratings of their children's English. Also, both teacher and parent ratings of English Reading had a stronger correlation with performance on the DPRT-R than ratings of English Understanding. In fact, the correlation between parent rating of English Understanding and performance on the DPRT-R was not statistically significant, indicating that parents estimate of children's understanding in English did not correlate highly with children's English reading vocabulary performance on the DPRT-R.

Comparison with McVeigh's (2012) Parent and Teacher Ratings

McVeigh (2012) correlated teacher and parent rating with children's performance on an assessment of Irish Reading and English Reading in Irish-immersion schools in Northern Ireland. The results of the analysis of teacher and parent rating of Irish and English (Reading only) are included as the closest point of comparison. McVeigh analysed the participants aged 7-8 and 9-10 separately, therefore the age groups were separated according to the same boundaries. Caution is exercised in the interpretation of the folllowing comparisons for two reasons. The first is that the present study used the TGD-G1 and the DPRT-R as the measures of Irish and English vocabulary and McVeigh used the InCAS, which assessed English and Irish reading, and equivalence cannot be assumed for these two measures. Secondly, the language situation in Northern Ireland is different to the curent sample in a *Gaeltacht* area in the Republic of Ireland. McVeigh reported that only 5% of Northern Irish

parents of children in Irish-immersion education could speak Irish. Therefore it is expected that McVeigh's parent rating of Irish proficiency will be less accurate than *Gaeltacht* parents as the vast majority do not interact with their children in Irish. This lack of experience is expected to hamper parents' ability to rate the proficiency of their child in the language of the school, more so than in the context of the present research, making valid conclusions of teacher and parent rating tentative. The results displayed in Table 8.9 confirm this expectation.

Table 8.9 Correlation coefficients: TGD-G1, teacher/parent ratings (present study, McVeigh, 2010

Correlation Variable	n	*r* in Present data	n	*r* in McVeigh data
Teacher rating of Irish Reading 7-8	72	**.466***	29	**.594***
Teacher rating of Irish Reading 9-10	136	**.613***	27	**.726***
Parent rating of Irish Reading 7-8	68	**.408***	13	Not significant
Parent rating of Irish Reading 9-10	133	**.491***	15	Not significant

*Correlation is significant at the .01 level

Table 8.9 shows that the *Gaeltacht* parents's ratings of their children's Irish correlated significantly more highly with their children's Irish reading vocabulary scores than did the Northern Ireland parents with low Irish proficiency, whose rating of Irish Reading did not correlate significantly for performance on the InCAS for either age group. Leaving the parent rating aside, a similar trend emerged in the present data and in McVeigh's data. The teacher rating for the older age group (9-10 in this analysis) was more strongly correlated with actual performance on Irish vocabulary than the younger participants (7-8). This is likely to be due to some of the younger participants being relatively new to reading, with more variance between them.

Table 8.10 shows the correlations between parents and teachers' English Reading rating and performance on standardised measures of English were correlated next.

Table 8.10 Correlation coefficients: DPRT-R and teacher/parent ratings (present study,McVeigh, 2010)

Correlation Variable	n	*r* in Present data	n	*r in* McVeigh data
Teacher rating of English Reading 7-8	71	**.503***	14	**.927***
Teacher rating of English Reading 9-10	128	**.595***	22	**.823***
Parent rating of English Reading 7-8	75	**.360***	13	**.566***
Parent rating of English Reading 9-10	133	**.298***	15	**.628***

*Correlation is significant at the .01 level

In the *Gaeltacht* sample, the teacher rating of children's English reading in the older participants was more strongly correlated with their vocabulary performance than for the younger participants, as was the case in the equivalent analysis of Irish. In McVeigh's Irish-immersion sample, a stronger correlation was found between performance on the InCAS and teachers' rating of English reading for the younger participants than the older.

The trend reversed for the parent rating of children's English reading. In this case, the *Gaeltacht* parents were less acurate overall than the Northern Irish parents, and more accurate in rating the younger children's English reading than the older ones, while the opposite was found by McVeigh (2010). Based on the present comparison it cannot be said conclusively that teachers and parents are more accurate in their rating of English Reading for older children than for younger children. However, regardless of age, teachers rating of children's English Reading correlated more strongly than parents with children's English vocabulary scores in both the present study and in McVeigh's results, despite the fact that most of the children being rated were in Irish-medium schools.

Comparison according to language background

Bedore, Pena, Joyner and Macken (2010) found that, in a sample of Spanish L1 children, parent rating of Spanish proficiency was more highly correlated with their children's grammaticality in Spanish stories while teachers' ratings were more highly correlated with English grammaticality, since they interacted with the pupils in English, and this finding was supported by Gutierrez-Clellan and Kreiter (2003). In contrast to the present participants however, in both of these studies the language of the home was Spanish and the language of the school was English, and the participants in Bedore et al (2010) were pre-school children, though the participants in Gutierrez-Clellan and Kreiter (2003) were aged 7-8 and therefore within the range of the present sample. This was explored further here by separating the

participants from IDH from the participants from BH and EDH to examine whether there were differences in how teachers' and parents' ratings correlated with the more objective vocabulary score.

Table 8.11 Correlation coefficients: TGD-G1 and teacher/parent ratings by language background

Language Background	Correlation Variable	n	r
Irish Dominant Home	Teacher rating of Irish Reading	78	**.494****
	Teacher rating of Irish Understanding	78	.352**
	Parent rating of Irish Reading	73	.168
	Parent rating of Irish Understanding	73	.054
Bilingual Home/ English Dominant Home	Teacher rating of Irish Reading	186	**.622****
	Teacher rating of Irish Understanding	186	**.481****
	Parent rating of Irish Reading	166	**.476****
	Parent rating of Irish Understanding	166	**.311****

**Correlation is significant at the .01 level

The results show that the teacher rating of Irish Reading had the strongest correlation with performance on the measure of Irish reading vocabulary, regardless of language background. The teacher rating of Irish Understanding was the second strongest. However, it was interesting that teachers' ratings of children's Irish were more strongly correlated with Irish vocabulary scores for participants from BH or EDH than participants from IDH, pointing to some over-estimation of the Irish of the children from Irish dominant homes. Nevertheless, teacher ratings of each group correlated more strongly with actual performance in Irish than did their parents' ratings. What was most noteworthy was that IDH parents' ratings of Irish Reading and Irish Understanding did not correlate significantly with the reading vocabulary scores of the Irish L1 children, whereas the parents ratings for Irish for the other language backgrounds did correlate significantly with their children's reading vocabulary scores, albeit at a lower level of significance.

Thus parents' ratings of Irish Reading and Irish Understanding were more closely aligned with actual performance for participants from non-IDH than for those from IDH. Given that both parents and teachers rated participants from IDH more positively than participants from the other language backgrounds (Fig. 8.4), this suggests that both parents and teachers of IDH children tended to over-estimate the Irish proficiency of these children, while parents and teachers of BH and EDH children gave ratings that correlated more strongly with their Irish reading vocabulary scores.

The separation of participants from IDH and participants from BH and EDH was maintained to explore any differences in the correlation between parent and teacher rating of English Reading and English Understanding and performance on the DPRT-R according to language background.

Table 8.12 Correlation coefficients: DPRT-R and teacher/parent ratings by language background

Language Background	Correlation Variable	n	*r*
Irish Dominant Homes	Teacher rating of English Reading	71	**.417***
	Teacher rating of English Understanding	71	**.426***
	Parent rating of English Reading	74	.139
	Parent rating of English Understanding	74	.125
Bilingual Homes/ English Dominant Homes	Teacher rating of English Reading	176	**.562***
	Teacher rating of English Understanding	176	**.522***
	Parent rating of English Reading	159	**.343***
	Parent rating of English Understanding	160	.143

*Correlation is significant at the .01 level

Correlations of children's English reading vocabulary scores were highest with their teachers' ratings of their English Reading, regardless of language background, and correlations with teachers' rating of English Understanding were the second strongest. However, teachers' ratings were more strongly correlated with English reading vocabulary scores among the BH or EDH children than the IDH children, pointing to them under-estimating the English of the children from Irish dominant homes.

Nevertheless, teacher ratings always correlated more strongly with performance in English than parent ratings. Parent rating of English Reading and English Understanding did not correlate significantly with performance on the DPRT-R for participants from IDH, as was the case for Irish vocabulary. Parent rating of English Reading and English Understanding did correlate with performance on the DPRT-R for participants from BH and EDH but the correlations were weaker than for the teacher ratings.

Thus, the IDH children were rated more positively by parents than by teachers for their English proficiency (see Fig. 8.5). Furthermore, the mean percentage correct score on the measure of English reading vocabulary for participants from IDH was only slightly below the other two language backgrounds (see Table 8.2). This suggests that teachers of participants from IDH may have been under-estimating their English proficiency while parents may have been over-estimating it.

To summarise, given the difficulties in testing groups of bilingual children in both their languages on an ongoing basis, it is useful to assess how teachers' and parents' ratings of children's language competence relates to children's performance scores. Here the correlations were examined between children's Irish and English reading vocabulary scores and Teacher and Parent Child Ratings in Irish and English, using the Child Rating Form adapted from McVeigh (2012). Teacher ratings were found to correlate more highly with children's reading vocabulary scores in both languages than did parent ratings, somewhat in line with the findings of McVeigh (2012) but they did show a tendency to overestimate IDH children's Irish and underestimate their English.

DISCUSSION

The aim of this study was to examine acquisition of reading vocabulary by children from varying language backgrounds, ages, socio-economic backgrounds and school types. Examination of vocabulary development in both Irish and English was necessary as the participants were bilinguals with varying exposure to English and Irish. Vocabulary was measured using group-administered, standardised reading vocabulary tests in each language, as individual testing would have rendered the test burden unfeasible and because a measure of oral vocabulary in Irish does not currently exist. It is acknowledged that the measures used are of reading vocabulary and required some literacy knowledge in addition to vocabulary knowledge, and that it is possible that this may have led to an under-estimation of the participants' oral vocabulary. However, the English measure used was a standardised measure and comprised of multiple forms, age-matched to the participants expected level and to Irish norms. Furthermore, Murray, McCrory, Thornton, Williams, Quail, Swords, Doyle and Harris (2011) argued that the English reading vocabulary sub-test was a "sufficient indicator of ability for research purposes" (p. 96) and used this to measure English proficiency in the *Growing Up in Ireland* national longitudinal study testing almost 9,000 children.

Irish reading vocabulary was measured using *Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge*. Comparison with norms for pupils in Irish-medium schools showed that the participants in the present study were slightly above the norms. The norms do not distinguish between Irish L1 and L2 speakers and the present study had a high proportion of L1 speakers, which likely accounts for this finding.

A regression analysis found that 62.3% of the variance in scores on the measure of Irish reading vocabulary was accounted for by child language background, parent language background, school model, English reading vocabulary and teacher rating of Irish reading. Age did not emerge as a significant predictor and further examination showed that in the younger age group (7-9) the difference between the participants from IDH and BH was minimal. However, greater differences emerged in the older age group as percentage correct scores in Irish vocabulary was higher for the participants from IDH but not for the participants from BH. This result points to a continuing advantage for participants from IDH as they receive input in Irish from the home and in school. On the other hand, the participants from BH also had an early advantage but did not appear to continue on the same trajectory as the participants from IDH, possibly due to lower exposure overall to Irish. The third pattern was seen among those with the least amount of Irish input in the home, whose Irish vocabulary scores lagged behind the participants with Irish input in the home, but who acquired a sufficient amount of input in school to catch up with those with some Irish in the home by the end of their primary school years.

School model also predicted a significant amount of variance in percentage correct score on the measure of Irish reading vocabulary, as the participants from the mainly English-medium school scored significantly lower on Irish vocabulary than the participants in Irish-medium schools. It is noteworthy that an equivalent difference was not found for the participants in the Irish-immersion school, most of whom were English L1 speakers. The percentage of participants being raised in IDH was equivalent in the Irish-immersion school and in the English-medium school, and neither school was located in a strongly Irish speaking area. However, the mean scores in Irish reading vocabulary among participants in the Irish-immersion school and the Irish-medium schools were very similar while the percentage correct scores for Irish reading vocabulary of participants in the English-medium school in the *Gaeltacht* was much lower than the other two school models. This points to differences in language acquisition outcomes according to school model and independent of other variables.

The measure of English reading vocabulary used was from the Drumcondra Primary Reading Test- Revised (DPRT-R). The norms for this test do not distinguish between Irish L1 and English L1 speakers and the present study had a high proportion of Irish L1 speakers. Therefore it would be expected that the present sample would show performance slighly below the norm, but this was not found, as their performance on English reading vocabulary

was in line with national norms. Furthermore, comparison with another national sample (Shiel et al, 2014) indicated that the participants in Second Class (aged 7-8) in the present study had above-average English reading vocabularies. The participants in Sixth Class (aged 11-12) had English reading vocabularies comparable to this national sample.

A second regression analysis found that 43.6% of the variance in scores on the measure of English reading vocabulary was accounted for by Irish reading vocabulary, school model and child language background. The strength of Irish reading vocabulary score as a predictor of English reading vocabulary score and (in the previous analysis) of English reading vocabulary as a predictor of Irish reading vocabulary scores points to a general vocabulary learning ability as children grow older. As was found for the analysis of scores on the measure of Irish, aspects of language exposure, i.e. child language background and school model, predicted a significant amount of the variance on this measure of reading vocabulary development. The participants from the IDH had a lower mean percentage correct scores in English vocabulary than participants from BH and EDH.

School model also predicted a significant amount of variance in percentage correct score on the measure of English reading vocabulary, as the participants from the mainly English-medium school in this sample scored higher than the participants in Irish-medium schools on English vocabulary, showing an exposure effect. As was found in the analysis of scores on the measure of Irish reading vocabulary, again no significant difference was found between the scores of the participants in the Irish-immersion school and the mainly English-medium school on the measure of English reading vocabulary. The participants in this mainly English-medium (*Gaeltacht*) school had mean percentage correct scores in English reading vocabulary equivalent to the L1 English participants in the Irish-immersion school, but did not exceed them, despite having several more hours per day exposure to English in their school, unlike they immersion pupils. It must be noted that the higher English reading vocabulary scores of the pupils in the mainly-English-medium *Gaeltacht* school were accompanied by lower Irish reading vocabulary scores, whereas in the immersion school tested, the pupils had higher scores in both English and Irish reading vocabulary.

SES did not emerge as a significant predictor of scores on the measure of either Irish or English reading vocabulary. Gathercole et al (in press) examined differences in SES according to a range of language backgrounds and ages on measures of English and Welsh vocabulary. In their analyses, SES did not remain a significant variable in the regression model created for participants in the primary school age group for either Welsh or English

vocabulary. In both cases home language was the greatest predictor of the variance in the vocabulary scores, and this is supported here also. Further research is needed to examine differences in vocabulary of children from differing SES.

Teacher ratings correlated more with vocabulary scores than parent ratings, somewhat in line with the findings of McVeigh (2012) but showing some differences from the more separate linguistic domains of home and school in the studies of Bedore et al (2011) or Gutierrez-Clellan and Kreiter (2003). This result could be explained by considering the influence of accent on perception of Irish proficiency. The participants from IDH are likely to be those who sound the most proficient, and this may contribute to the tendency found here for both parents and teachers to overestimate their Irish proficiency, at least when compared to their Irish vocabulary scores. Furthermore, this may be contributing to the experience of native speakers described in the interviews with the young adult speakers (see Chapter 6), where native speakers questioned their own status as authorities in Irish as they did not feel they had the linguistic control deserving of this status, despite being regarded as highly proficient by their teachers and peers.

Analysis of performance on the measure of Irish reading vocabulary revealed an Irish vocabulary advantage for participants from IDH but the equivalent advantage for participants from EDH was not found in scores on English reading vocabulary. It is significant that the participants from IDH had gained English reading vocabulary scores that were similar to the L1 English speakers from EDH without a detrimental loss to their Irish reading vocabulary scores, a finding which is at odds with the conclusions of some recent studies of Irish acquisition (Lenoach, 2014, for example). The vocabulary scores of the participants from IDH and in the immersion school appeared to show that they had gained English vocabulary scores similar to the L1 English speakers but not at the detriment to their Irish. Despite the pressure from English, additive bilingualism in L1 and L2 acquisition is possible with the necessary support and enrichment for the acquisition of the minority language.

Chapter 9 Results of the child study: Picture description task

OVERVIEW OF THE CHAPTER

This chapter presents the results of a picture description task, included to complement the formal tests reported in previous chapters. The participants' brief stories were assessed according to length in number of words, a more global measure of fluency, lexical diversity D, and a measure of their codeswitching. Use of grammatical gender in natural spoken language by participants from Irish Dominant Homes was also assessed. The chapter will conclude with a short discussion.

RATIONALE

The data analysed in previous chapters were elicited from formal tests of language proficiency, including tests of receptive knowledge and productive use of grammatical gender, and Irish and English vocabulary. Montrul, Foote and Perpinán (2008) differentiated between the metalinguistic, explicit knowledge needed to perform accurately on formal measures and the fast and implicit processing of knowledge needed on oral tasks. The inclusion of an elicited speech task will be of value to the multifaceted approach advocated by those such as Sheng, Lu and Gollan (2013).

The pictorial stimuli from the LITMUS MAIN was chosen as it is contemporary in terms of picture style, and short, which was important given the number of other measures in the test battery and the need to limit the test burden on participants, while also generating rich data. The measure took less than five minutes and participants usually found it enjoyable. Some consideration was given to using the Frog Story to elicit a narrative (Berman and Slobin, 1994), but this would have placed an unacceptable burden on participants, given its length and story complexity. A second advantage of using the LITMUS MAIN picture stimuli is that it opens the possibility of future crosslinguistic comparisons.

In addition to the broad-brushstroke measures applied to all of the participants' stories, it was also decided to carry out a finer-grained analysis of the narratives of the participants from Irish dominant homes, given Slobin's (2014) recommendation that examination of participant's natural language production is important in complementing data arising from the experimental isolation of features of interest because it allows the

spontaneous use of those aspects of language to be viewed in context and showing the communicative purpose they serve for the speaker. Furthermore, a similar methodology was used by Thomas (2000; also using a picture description task) in her analysis of Welsh grammatical gender marking. While it was not feasible to extend this part of the analysis to the stories of all of the participants, it was considered that it would be useful to carry out such analysis on the stories from participants raised in Irish Dominant Homes (IDH), and these were examined for the use of grammatical gender following the definite article, in noun-adjective combinations, in marking third person possession, as well as their use of pronouns. The research questions addressed in Child Study Part 3 are:

1. Are there differences among children from different language backgrounds and at different ages in their picture descriptions?

2. Can children from Irish Dominant Homes mark grammatical gender accurately in elicited speech?

METHODOLOGY

Participants

A total of 247 participants produced an oral narrative. The participants were the same as those recruited for the study described in Chapter 7. The categorisation of Irish Dominant Home (IDH), Bilingual Home (BH) and English Dominant Home EDH) were maintained. Their distribution by language background and age is presented in Table 9.1

Table 9.1 LITMUS MAIN by language background and age

Age	Irish Dominant Home		Bilingual Home		English Dominant Home		Total	
7-9	56	23%	38	15%	38	15%	132	53%
10-12	32	13%	23	10%	60	24%	115	47%
Total	**88**	**36%**	**61**	**25%**	**98**	**39%**	**247**	**100%**

The sample was slightly weighted towards the participants from EDH, similar to the distribution of participants who completed the measures in Chapter 7. Overall the sample was reasonably well-distributed across age and language background.

Procedure

A series of six cartoon pictures was printed on a one-sided A4 page in colour. The series of pictures elicited a story about a boy, a hungry dog and a bag of sausages. In this task, the participant was shown the pictures and asked to tell the story aloud. The only input from the researcher was prompts for more information. The participants were recorded and their speech was transcribed later by the conventions of CHAT (MacWhinney, 2000).

RESULTS

In this study, a sample of spoken Irish data was elicited from each of the child participants, using structured pictorial stimuli, allowing a comparison of all participants' productive use of Irish on a simple task that is natural for school age children[14]. During data collection it was noted that some participants produced quite long stories in response, while others offered very sparse or limited output in response to these picture stimuli. Therefore it was decided to focus first on overall length of output. Mean length of utterance (MLU) was considered, but given the difficulties identified by Hickey (1990) with use of MLU in morphemes for Irish, the fact that all the participants were aged over five and that all narratives were shorter than the required 100 utterances (Brown, 1973), it was decided that this was not appropriate. Thus, the total length in words of each participant's output on this task was examined. To augment this measure of length, the second analysis used a global rating of the participant's fluency, based on factors that might be considered by parents in assessing a child's fluency informally.

The third analysis focused on lexical diversity using *D* (Malvern and Richards, 2002). The spoken language elicited by the task was a picture description, but its quality as a coherent story will not be considered as it is not in keeping with the aims of the research. However, one feature that is considered across all of the participant's picture descriptions is the use of code-switching or mixing, given that this is a contentious feature of contemporary Irish use. The final set of analyses reported later in the chapter focused on examination of gender marking, third person possession marking and pronoun use in the data from the participants raised in Irish Dominant Homes.

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[14] While the terms narrative and story are sometimes for brevity used here to refer to the participant's output from this task, no formal analysis of the output as narratives was carried out.

Length of picture description

In carrying out a detailed analysis of narratives elicited from Inukitut speaking children, Allen, Crago and Pesco (2006) used a measure of total number of words per narrative in order to estimate their fluency. The limitation of the method, which is that length of narrative alone is not a valid measure of fluency (Berman and Slobin, 2013; 1994), was acknowledged by the authors. Nevertheless, as a first step, the length in words of each child's picture description was calculated by summing the words spoken across the whole narrative, following Allen et al (2006). Number of words was compared according to language background and age and are presented in Table 9.2 and graphed in Fig. 9.1.

Table 9.2 Mean length of narrative by language background and age

Language Background	*Age*	*n*	*M*	*SD*
	6-9 years	57	97.68	*29.23*
Irish Dominant Home	10-13 years	33	102.81	*26.73*
	Total	90	99.55	*28.30*
	6-9 years	38	93.16	*28.79*
Bilingual Home	10-13 years	24	89.30	*25.65*
	Total	62	91.70	*27.49*
	6-9 years	38	103.55	*32.63*
English Dominant Home	10-13 years	60	95.53	*31.67*
	Total	98	98.64	*32.11*
Total	6-9 years	133	98.07	*30.15*
	10-13 years	117	96.31	*29.37*
	Total	250	97.20	*29.83*
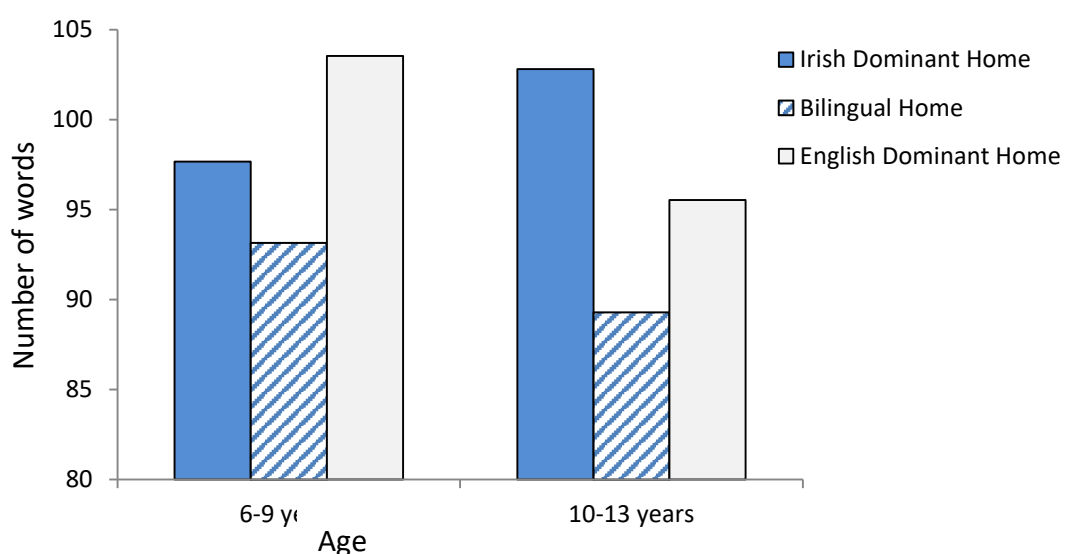
Figure 9.1 Mean length of narrative by language background and age

A two-way between-groups ANOVA did not find a statistically significant interaction between language background and age, $F(2, 241) = 1.087$, $p = .339$. There was no statistically significant main effect for age, $F(1, 241) = .318$, $p = .574$, nor was there a main effect for language background, $F(2, 241) = 1.84$, $p = .162$. It is possible that overall length was too global and not sufficiently sensitive a measure to distinguish between participants' elicited narratives at this age. Allen et al (2006) found that length of utterance did increase with age. The authors also found a difference according to language experience, whereby participants living in small communities used more words than participants living in large communities, which they had not expected to find.

Subjective Measure of Fluency

The results from the comparison of length of narrative in words indicated that fluency cannot accurately be operationalised as length of narrative, as Allen et al (2006) did. Nevertheless, given that parents and teachers tend to make informal judgement of children's fluency, it was decided that development of a subjective measure of overall fluency would have some utility. It was decided that the most salient features that might influence a non-expert judge in assessing the fluency of a child's picture description would be the frequency and length of pauses, the speed and ease of speech and their accent. A 5-point rating scale was developed for each of these features, whereby 1 was indicative of the least fluent use of this feature (i.e. many pauses, very slow/hesitant output, or words mispronounced or pronounced with English phonology) and 5 represented highly fluent (no pauses, normal speed of production and native-like pronunciation and accent). The researcher (a fluent Irish speaker) listened to the recording of each participants' narrative and rated them on each scale, and overall fluency rating was the average of these. The reliability of these ratings was checked by comparing with the ratings of another informed fluent speaker who applied the same scales to a subset of the data. The Inter-rater agreement on Pauses was 88.89%, on Production was 88.89% and on Pronunciation and Accent was 88.89%, and the overall agreement across each of the participants was 86.46%. Table 9.4 presents the mean fluency rating by language background and age-group and they are graphed in Fig. 9.2.

Table 9.3 Global Fluency Ratings by language background and age

Language Background	Age	n	*M*	*SD*
Irish Dominant Home	6-9 years	56	3.99	.42
	10-13 years	33	4.05	.43
	Total	89	4.01	.43
Bilingual Home	6-9 years	38	3.41	.58
	10-13 years	23	3.20	.46
	Total	61	3.33	.54
English Dominant Home	6-9 years	38	3.14	.58
	10-13 years	60	2.79	.79
	Total	98	2.93	.73
Total	6-9 years	132	3.58	.63
	10-13 years	116	3.23	.84
	Total	248	3.42	.76
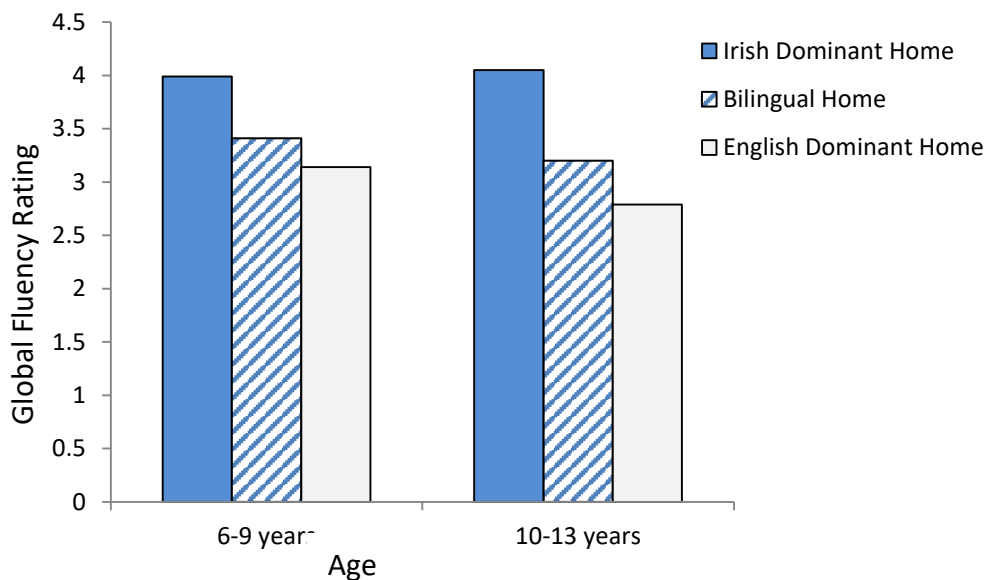
Figure 9.2 Global Fluency Ratings by language background and age

These results on the Global Fluency Rating do appear to show a difference in subjective ratings of fluency and home language background, with more Irish in the home linked to greater fluency ratings. A two-way between-groups ANOVA was conducted to explore these observations. The interaction between language background and age was not statistically significant, $F(2, 242) = 2.82$, $p = .062$. The main effect for age was significant, $F(1, 242) = 4.56$, $p < .05$, as was language background, $F(2, 242) = 73.59$, $p < .001$. Fig. 9.2 shows that overall the difference for age here was due to the younger participants in both the BH and EDH groups gaining higher fluency ratings, an unexpected effect which may be due to this rating being influenced by hesitancy and pausing that can also be caused by self-consciousness and higher levels of grammatical monitoring among the older participants.

This may be a test effect, as the older participants may have been more conscious of the researcher and more self-conscious than the younger participants, leading to less fluent speech during the task. The language background effect was found to lie with the participants from IDH being rated as more fluent than the participants from BH, who in turn were rated as more fluent in Irish than the participants from EDH.

Some aspects of (dis)fluency were observed to be evident across most participants in the English-medium school in a Category C *Gaeltacht* and the Irish-immersion school. The picture descriptions elicited from the participants from the English-medium school were effortful, stilted and bare. Participants spoke English when requesting a prompt when they were unable to retrieve the target noun. Several participants quickly blurted out an English utterance when they struggled to construct the utterance in Irish. The range of their vocabulary was limited and many high frequency nouns were codeswitched. These participants, who received the least input in Irish in school and at home, were distinguishable from other participants from EDH and from the other school in a Category C *Gaeltacht*. It was evident that the participants from a *Gaeltacht* school that is now mainly functioning through English were not developing even a moderate level of fluency in spoken Irish.

The language output of the participants from the Irish-immersion school provided the closest comparison to the participants from the English-medium school as the number of participants being raised in IDH in both schools was very similar (i.e. very low). However, what was notable was that the participants from the immersion school spoke Irish with a much higher level of fluency than the participants from the English-medium school. Their fluency rating was depressed by the efforts they appeared to make to control their vocabulary, by pausing for several seconds to retrieve the correct noun or by circumventing nouns they did not know the Irish for. For example, instead of codeswitching when they did not have the verb *scaoil* (let go) participants used circumventions like:

a) *D'oscail sé a lámh agus chuaigh an balún amach.*

Opened he his hand and went the balloon out.

He opened his hand and the balloon went out.

b) *Ní raibh greim aige ar an balún.*

Not have hold had him on the balloon.

He did not have a hold on the balloon.

Neither of these phrases are inaccurate, but they describe the same action as the verb *scaoil*. The majority of participants from the immersion school spoke Irish when requesting a prompt from the researcher and had excellent vocabulary. However, the Irish spoken by these participants did have characteristics of the very fluent but morphosyntactically and syntactically inaccurate language attributed to Irish speakers generated by Irish-immersion education. Participants from the immersion school typically seemed less aware of the accuracy of their syntax and morphosyntax than of their vocabulary. Errors such as the use of the dependent form of the verb *bhfaca* (saw; past tense question form) instead of *chonaic* (saw; past tense) were frequent.

Lexical Diversity

Total number of words per narrative may have been too broad an approach, given the difference in length of the picture descriptions. Further analyses were conducted to examine lexical diversity. Lexical diversity is the range in variety of lexical items in a sample of speech or text (Allen et al, 2006). Richards and Malvern (1997) proposed the measure D as a measure of lexical diversity, which is based on the analysis of the probability of new vocabulary being added to increasingly long segments of speech. McKee, Malvern and Richards (2000) demonstrated that the measure is valid and more reliable than previously used measure such as Type/Token Ratio. Furthermore, as it is not a function of the number of tokens in the segment, there is no need to standardise the number of items it is based on. Five participants were excluded as their picture description did not contain a sufficient number of tokens to run the analysis.

Table 9.4 Lexical Diversity (D) by language background and age

Language Background	Age	n	*M*	*SD*
Irish Dominant Home	6-9 years	57	22.59	*6.82*
	10-13 years	32	24.08	*5.92*
	Total	89	23.13	*6.51*
Bilingual Home	6-9 years	37	19.42	*5.73*
	10-13 years	23	21.00	*6.72*
	Total	60	20.03	*6.12*
English Dominant Home	6-9 years	35	18.43	*4.74*
	10-13 years	54	20.44	*6.65*
	Total	89	19.65	*6.02*
Total	6-9 years	129	20.55	*6.24*
	10-13 years	109	21.63	*6.60*
	Total	238	21.05	*6.42*
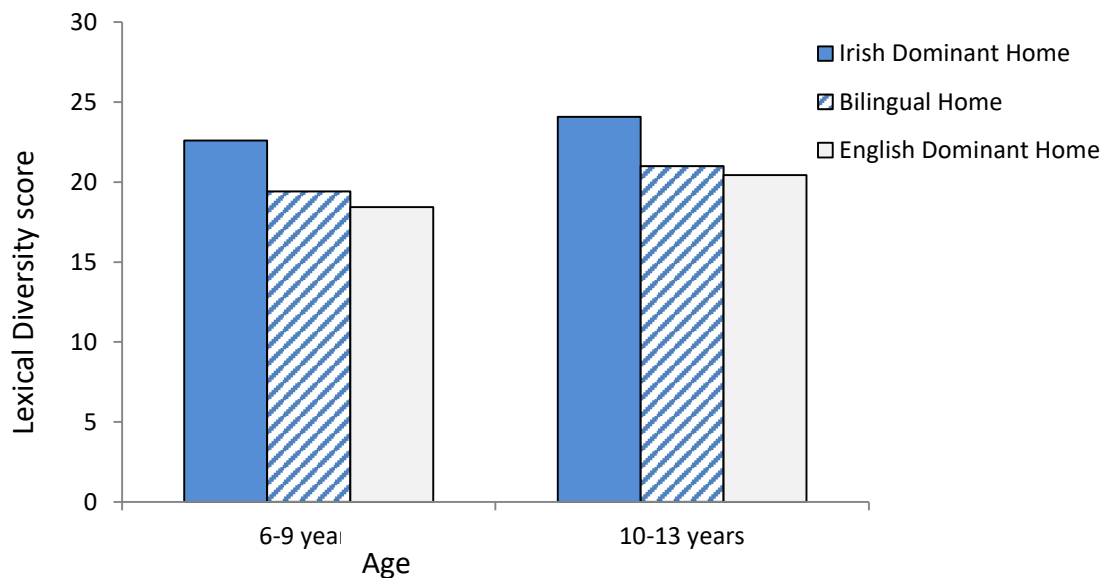
Figure 9.3 Lexical Diversity (D) by language background and age

These results point to greater lexical diversity among participants from IDH than the other two backgrounds and also a slight increase in lexical diversity from the younger to the older group. A two-way between-groups ANOVA was conducted to test the statistical significance of these observations. The interaction between language background and age was not statistically significant, $F(2, 232) = .041$, $p =.960$. The main effect of age was significant, $F(1, 232) = 4.00$, $p =.046$, indicating here that overall the lexical diversity of the older participants was significantly greater than that of the younger participants, which is in line with the results of Allen et al (2006). There was also a significant main effect of language background, $F(2, 232) = 8.92$, $p < .001$. Scheffé post-hoc analysis found a significant difference between participants from IDH ($M = 23.13$, $SD = 6.51$) and BH ($M = 20.03$, $SD = 6.12$), $p < .05$, and

participants from EDH (*M* = 19.65, *SD* = 6.02), *p* < .01, with participants from IDH showing significantly higher lexical diversity than the participants from BH, who in turn had significantly higher D than the participants from EDH. This is somewhat in line with Allen et al (2006) as they also found differences according to language experience, whereby participants living in small communities (which Allen et al reported was indicative of more Inuktitut use as these communities were practically monolingual) showed greater lexical diversity than those living in large communities (in which English and French are more dominant and there is a significant non-Inuktitut population).

Thus, the lexical diversity of participants from IDH was significantly greater than both other language backgrounds, though the scores of participants from BH were also greater than the participants from EDH. This result is in line with the hypothesis that the lexical diversity of children with the most input in the home would be greater than those with less. Furthermore, the older participants showed greater lexical diversity than the younger, which was also in line with expectations. It was noteworthy that the significant age difference on this measure, D, did not interact with language background, which points to an advantage for older participants over younger participants irrespective of the language input received in the home. Cognitive advances may be implicated here as they interact with linguistic development as children age (see McVeigh, 2012 for a more detailed consideration of the cognitive development).

Codemixing

The frequency with which participants used English codeswitches in their Irish speech was examined in order to gain some quantitative information on an issue that is generally discussed only in an anecdotal and derogatory fashion. A small amount of codemixing was expected in the natural speech as codemixing English in Irish utterances is a typical characteristic of modern *Gaeltacht* speakers, particularly younger ones.

All instances of codeswitching in the picture descriptions were noted and the number of types codeswitched summed. It was decided that types of codesmixes would be counted instead of tokens in order not to overestimate the codeswitching of participants who used a small number of types multiple times (a feature of older native speakers discussed by Hickey, 2009). Cognates such as *balún* (balloon) and *leaidín* (little boy) were not included as they have been integrated into current Irish use. Verbs borrowed from English but which were somwhat integrated, for example *climbáil* (climb, should be *dreap*) and *dropáil*

(drop, should be *scaoil le*), were included as codemixes on the basis that they are unlikely to occur in the speech of adult proficient speakers. As expected, the majority of participants whose picture descriptions were analysed used at least one English type in their speech. The most frequent codeswitches were 'sausages', 'mouse' and 'stuck' (in the tree). These were used across all ages and language backgrounds. The discourse marker 'so' was codeswitched by a small number of participants.

There was a minority of participants who used extensive codeswitching to tell parts of the narrative or to request prompts. As discussed already, the majority of these participants were from the English-medium school in the English-medium school. The mean rate of codeswitching for participants from this type of school was 7.43 (*n* = 21, *SD* = 6.99), whereas the mean for all other schools ranged from .2 to 4.08 (*M* = 1.9). This school was therefore removed from the following analysis of differences according to language background and age as they would have inflated the differences between participants from EDH and the other background groups. The results are presented in Table 9.5 and graphed in Fig. 9.4.

Table 9.5 Number of codemixes by language background and age

Language Background	Age	n	*M*	*SD*
Irish Dominant Home	6-9 years	56	2.11	*2.2*
	10-13 years	32	.91	*1.09*
	Total	88	1.67	*1.95*
Bilingual Home	6-9 years	38	1.92	*1.7*
	10-13 years	21	1.33	*1.68*
	Total	59	1.71	*1.70*
English Dominant Home	6-9 years	38	3.89	*4.35*
	10-13 years	42	1.38	*1.64*
	Total	80	2.58	*3.45*
Total	6-9 years	132	2.57	*2.99*
	10-13 years	95	1.21	*1.49*
	Total	227	2.00	*2.56*
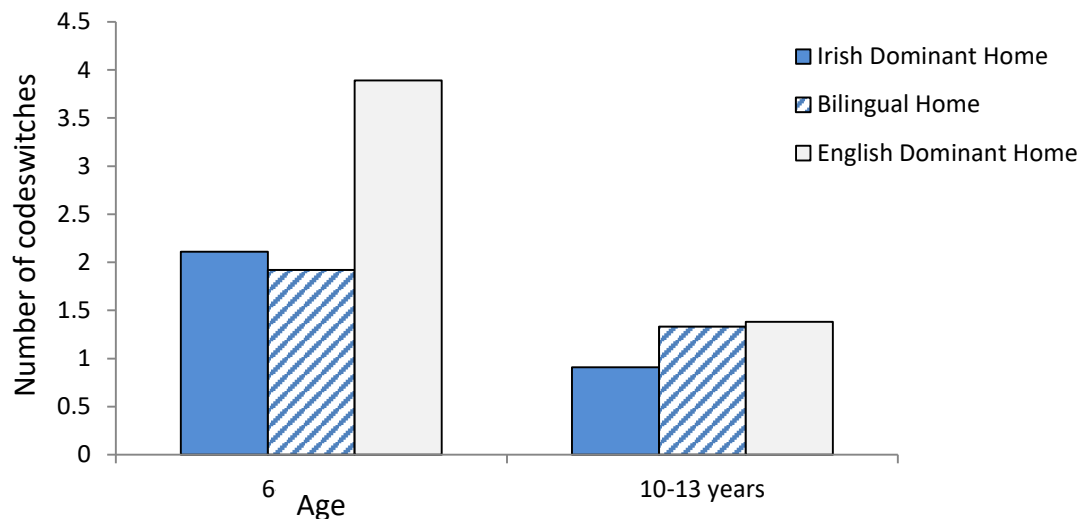
Figure 9.4 Number of codemixes by language background and age

Codeswitching is a feature of *Gaeltacht* Irish and is now part of the natural speech of native speakers and it was noteworthy that the majority of participants used at least a small number of codemixing types in their picture description. A 3 x 2 ANOVA was conducted to test for difference in frequency of use of codeswitched types across language background and age. The interaction between language background and age was not significant F(2, 22,1) = 2.9, p = .057. There was a statistically significant main effect for age F(1, 221) = 18.5, p < .001 and for language background F(2, 221) = 5.14, p < .01. Scheffé post-hoc analysis did not find a significant difference between any of the language background groups, though the difference between IDH and EDH approached significance (p = .054).

The number of types used was relatively constant for the older participants regardless of language background and indicates that the participants were able to produce the picture description in Irish without depending on English vocabulary, though possibly by exerting more control over their vocabulary than they would in typical speech, as indicated by their slightly lower than expected fluency ratings. As noted earlier, it was postulated that the higher scores of the younger participants in terms of their fluency rating was due to lower self-consciousness and/or lower levels of concern about using accurate and 'correct' Irish, than the older participants. This would also account for the difference in use of codeswitching, as the older participants endeavoured to control this aspect of their language use. It was interesting that very little difference was found between the mean frequency of codemixing by participants aged 10-13 across language backgrounds, which may point to a 'school effect' in terms of teachers and schools impressing upon older pupils that frequent English codemixing is not desirable. Among the younger participants aged 6-9, the highest

level of codemixing was by participants from EDH. The use of a greater number of codemixing types by participants from EDH may reflect limitations in their vocabulary and use of English as a substitution strategy to support their productive language use as they catch up with their more Irish dominant peers.

Summary

The first analysis was a macro-level measure of length of picture description, which found no significant difference between participants according to language background or age. For lexical diversity, a difference emerged according to amount of Irish in the home across the three language backgrounds, and for the older participants over the younger participants. This difference according to language background was also evident in the subjective measure of fluency, though here, the younger participants were more fluent the older participants. The younger participants may have been less self-conscious of their accuracy than the older participants, leading to this difference. The frequency of codeswitching was examined according to language background in age, and the results pointed to older participants exerting more control over their output, which affected their fluency, while the younger speakers spoke more fluent, codeswitched Irish.

Grammatical gender in elicited speech

Narrative elicitation generates very rich data and can be used to examine development of vocabulary, morphosyntax, morphology and pragmatics. Given time and length considerations, it was beyond the scope of the present study to examine all aspects of the picture descriptions. In the present analysis, the features under scrutiny in the previous chapter, i.e. grammatical gender following the definite article, in noun-adjective combinations and in marking third person possession, were examined in the context of natural speech of those participants who receive the most Irish in the home. An additional consideration of pronoun use was included as the choice of pronoun is indicative of the grammatical gender attributed to that noun. It was decided that only the picture descriptions of those from IDH would be included in this analysis as their Irish represents the most most native Irish in current usage.

This part of the research sought to address the question can participants from Irish Dominant Homes mark grammatical gender accurately in elicited speech? The elicited stories of a total of 40 participants were analysed (see sample in Table 9.6 for the age

distribution). Length of picture description in this sample ranged from 59 to 200 words (*M* = 114.23, *SD* = 27.89).

Table 9.6 Participants in analysis of grammatical gender in narratives by age

Age	n	Irish Dominant Home
7	7	17.5%
8	10	25%
9	10	25%
10	7	17.5%
11	6	15%
Total	**40**	

Identification of use of grammatical gender

The first stage of the analysis was to identify all of the tokens relevant to an analysis of grammatical gender used by participants in the narratives. It is evident from Table 9.7 that the majority of nouns, adjectives and pronouns used by participants were masculine.

Table 9.7 Tokens with grammatical gender used in narratives

Animate Nouns	Inanimate Nouns		Adjectives	3rd person Pronoun
Buachaill *Masc*	Balún *Masc*	Taobh *Masc*	Beag	A *Masc/ Fem*
Fear *Masc*	Mála *Masc*	Poll *Masc*	Buí	Ina *Masc/ Fem*
Duine *Masc*	Bóthar *Masc*	Lámh *Fem*	Donn	Sé *Masc*
Madra *Masc*	Cloigeann *Masc*	Gaoth *Fem*	Óg	É *Masc*
Gadhar *Masc*	Crann *Masc*	Páirc *Fem*		Aige *Masc*
Luch *Fem*	Ispíní *Masc*	Cos *Fem*		Leis *Masc*
				Air *Masc*
				Uaidh *Masc*

No lenition is applied to masculine nouns following the definite article and in noun-adjective combinations, nor is it applied to /l/ initial nouns, therefore correct usage of these nouns in speech does not confirm accurate identification as it could also be the case that the participant applied a 'mark nothing' default. However, in marking third person possession, as the majority of nouns used by participants were masculine, lenition was required for nearly all nouns. One of the protagonists was a mouse (*luch*) and this noun is feminine. Therefore the use of pronoun is indicative of the participants' representation of the gender of this noun.

Usage in obligatory contexts

The second stage of the analysis was to sum all uses of grammatical gender in obligatory contexts. Each of the contexts of use, i.e. grammatical gender following the definite article, in noun-adjective combinations, in marking third person possession and in pronoun use, were analysed separately. Accuracy was assessed and a percentage correct score for accuracy for use in obligatory contexts was calculated. Contexts in which lenition was required were extracted in order to examine these contexts specifically as participants' accuracy could not be inflated by using a 'mark nothing' default. All instances of overlenition were also extracted in order to examine all uses of grammatical gender marking in the narratives. The results are presented in Table 9.8 and displayed graphically in Fig. 9.5.

These results are in line with the results for the same contexts of use as measured by the Measure of Irish Morphosyntax (MIM; see Chapter 7). Looking first at grammatical gender following the definite article, the majority of these nouns were masculine therefore highly accurate performance was expected. This expectation was fulfilled and it was evident that IDH participants could accurately use masculine nouns following the definite article, with no marking. However, it is less likely that this was due to accurate assignment of noun gender than to the use of a 'mark nothing' default. The only feminine noun to which lenition was applied in these data was *gaoth* (wind), by two participants, both of whom lenited it accurately (*an ghaoth* Det N-Fem). This may be due to the formulaic phrase *ar nós na gaoithe* (on the-pattern of-the wind 'like the wind') familiar to many Irish speakers. The noun *gaoth* is in the genitive case in this phrase and its feminine gender is easily discernible from the shift of the article to *na* (whereas *an* is retained in the genitive for masculine nouns). It appears that these participants were able to transfer their knowledge of the grammatical gender of *gaoth* from the genitive to following the definite article. It was also notable that lenition was inaccurately applied to masculine nouns in a very small number of cases (as was found in the MIM tests previously reported), but no pattern emerged as to the nouns to which lenition was overextended.

Table 9.8 % correct use of grammatical gender in IDH narratives

	Age	Total use		Total accurate use		Percentage correct		Accuracy when lenition required		Overlenition	
		M	SD	M	SD	M	SD	M	SD	M	SD
Following def. article	7	12.71	1.7	10.57	2.23	84.41	19.41	0	0	.14	.378
	8	12.1	6.08	11.6	5.78	96.66	5.14	.2	.422	.1	.316
	9	11.5	3.75	10.9	3.9	94.08	8.43	0	0	.3	.483
	10	9.14	4.95	9.0	4.66	99.21	2.1	0	0	.14	.378
	11	11.33	2.81	10.67	2.81	94.02	8.0	0	0	.17	.408
	Total	11.43	4.28	10.65	4.13	93.92	10.61	.05	.221	.18	.385
Noun-adjective	7	1	1.16	.43	.535	62.5	47.87	0	0	0	0
	8	.7	1.06	.7	1.06	100	0	0	0	0	0
	9	2	2.06	1.8	2.15	87.5	35.36	0	0	0	0
	10	1.57	1.62	1.57	1.62	100	0	0	0	0	0
	11	.5	.837	.5	.837	100	0	0	0	0	0
	Total	1.2	1.51	1.05	1.48	88.64	30.6	0	0	0	0
Third person possession	7	1.86	1.57	1	.577	70.83	33.23			0	0
	8	1.4	1.78	.6	.966	40.67	37.89			.1	.316
	9	2.1	1.29	.9	.738	46.30	37.06			.8	.919
	10	2.14	1.07	1.43	.535	73.81	25.2			.14	.378
	11	1.67	1.03	1.33	.816	83.33	23.57			.17	.408
	Total	1.83	1.38	1	.784	61.82	34.31			.27	.599
Pronoun	7	5.57	3.74	5.43	3.6	98.15	4.54				
	8	11	5.83	9.9	5.38	84.25	30.65				
	9	6.8	2.44	5.9	2.42	87.23	11.87				
	10	8	5.86	7.71	5.85	96.53	6.05				
	11	8.83	4.4	7.67	3.56	88.24	6.78				
	Total	8.15	4.79	7.4	4.45	90.0	17.32				
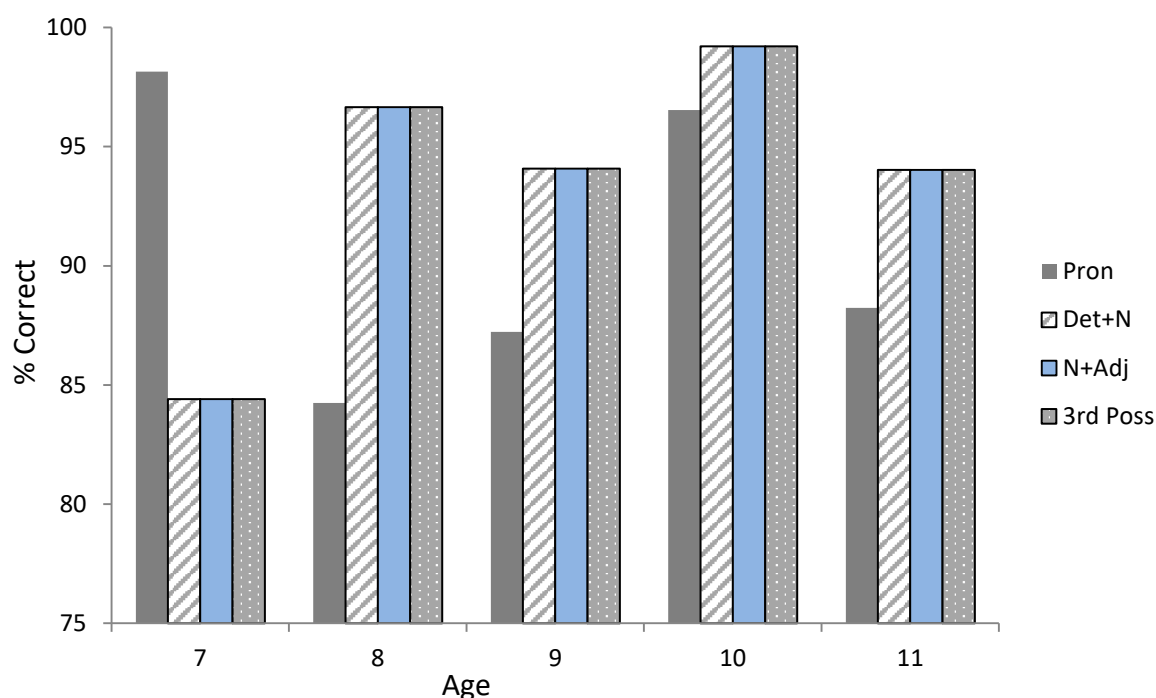
Figure 9.5 Mean % correct use of grammatical gender in IDH narratives

Only a small number of participants used adjectives in their picture description (the mean use across all ages was 1.2). This is itself is surprising as it would be expected that participants would be familiar with commenting on at least the colour and size of objects. What was found was that those who did use adjectives never lenited them, regardless of the gender of the noun. The most frequently used feminine noun-adjective combination was *luch beag* (small mouse). This combination accounts for the majority of all inaccuracies made as no participant applied lenition after this feminine noun. The results for the use of noun-adjective combinations in natural speech are very closely aligned with the results of the MIM for this context and indicate that lenition is not applied to adjectives by young speakers of Irish in current usage.

Unlike the previous two contexts, lenition is required when marking possession for masculine nouns. Participants from IDH did use lenition to mark masculine possession in their speech, with increasing accuracy across the age range, with the exception of the 7 year olds, who were as accurate as the 10 year olds. By the age of 11 participants had an average accuracy level of 83.33% across both feminine and masculine nouns, though the majority of nouns used here were masculine. This context was also the one in which the most variability and accuracy was seen among the same participants in the MIM, though accuracy rarely approached the levels seen here, because more feminine possessor nouns were included in

testing. The participants marked the grammatical gender of animate nouns only in their picture descriptions, whereas the inanimate nouns included in the MIM were evidently more challenging. The combined results show that, by the age of 11, participants from IDH do appear to control grammatical gender marking in third person possession for animate nouns, but are significantly less accurate on inanimate nouns. Lenition was overextended to feminine nouns in a limited number of contexts given the small number of feminine nouns used by participants. The most frequent context was:

Rith an madra ina *dhiaidh (an luch).

Ran the dog after *him (the mouse).

The dog ran after it.

The construction *ina dhiaidh* is likely a formula in Irish, which the participants have not broken into its constitutient parts of 'after + him'. The correct form here is *ina diaidh* (in her wake 'after her') but the distinction here may have been too subtle for participants to perceive. An alternative explanation is that *luch* 'mouse' was assumed to be a masculine noun and treated accordingly.

An analysis of pronoun use was included as choice of pronoun is indicative of the representation of the gender of the noun by participants. All masculine nouns were represented by masculine pronouns, but in fact, feminine pronouns were never used in these picture descriptions to refer to feminine noun *luch* (mouse). The inaccurate use of masculine pronouns to reference this noun accounts for the vast majority of participants' inaccurate pronouns. Given the limited use of feminine nouns, these results must be interpreted cautiously, but could support a claim of convergence with English. English does not mark grammatical gender of inanimate nouns, which are correctly referenced with the pronoun 'its'. Irish marks grammatical gender on inanimate nouns, and therefore requires the appropriate pronoun *sé/sí* to mark this distinction, even in reference to inanimate nouns. It is possible that convergence with English has diminished the salience of this distinction and that participants now see the pronoun *sé* as being equivalent to the English pronoun 'its' used for all inanimate nouns. This is somewht similar to the lack of distinction noted by Gathercole, Thomas, Roberts, Hughes and Hughes (2013; pp.45) between 'one' and 'a' in Spanish, whereby both are represented by the pronoun *un*, which can lead to errors by L1 Spanish-English bilinguals in marking non-specific reference. However, this explanation is speculative and further spontaneous data, in which feminine nouns are used more extensively, are required to explore the possibility further.

Overall, the IDH participants' Irish picture descriptions were highly accurate in their use of grammatical gender following the definite article on mainly masculine nouns, though this finding is difficult to untangle from the possibility of a 'mark nothing' default given the low frequency of feminine nouns. Looking next at noun-adjective combinations, those who did use adjectives never lenited the adjective for feminine nouns. Of all contexts examined, lenition was used to signal possession by masculine nouns most consistently by participants. Finally, instances of use of feminine pronouns to refer to (non-human or inanimate) feminine nouns were absent, with the results showing that the masculine pronoun was always used, regardless of noun gender, which is possibly indicative of convergence with English.

DISCUSSION

This study aimed to complement the formal tests reported in previous chapters by analysing more natural spoken Irish. This short segment of natural speech was elicited using a standardised format in order to allow comparison between participants along the dimensions of length of picture description in words, fluency, lexical diversity and codemixing. The second aim of the study was to examine the spontaneous use of the features scrutinised in the previous chapter, i.e. grammatical gender marking following the definite article, in noun-adjective combinations and in marking third person possession, were used in natural speech.

The LITMUS MAIN task was used to elicit spoken picture descriptions. The first analysis was a macro-level measure of length of narrative. No statistically significant differences were found between participants according to language background or age. It was likely that length of picture description was too broad a measure to use, therefore the measure of lexical diversity D was employed. The results showed an increase in lexical diversity in line with amount of Irish in the home across the three language backgrounds. The older participants were found to have greater lexical diversity than the younger. The same pattern according to language background was found for the measure of fluency, though here the younger participants were more fluent than the older.

It is possible that this was a test effect as they may have been less self-conscious of their accuracy than the older participants. This was supported by an analysis of the frequency of codeswitching according to language background and age, which pointed to

older participants exerting more control over their output, which affected their fluency, while the younger speakers spoke more fluent codeswitched Irish.

The results of the analysis of grammatical gender in the spoken picture descriptions are very closely aligned with those presented in Chapter 7. Overall, participants were highly accurate in their use of grammatical gender following the definite article, given that the appropriate response to a masculine noun was not to apply lenition. Therefore it is not clear if this was a deliberate recognition of the gender of the nouns, or if it was based on a 'mark nothing' default. Thomas (2000) also found a high rate of accuracy in the use of grammatical gender non-marking of masculine nouns, with lower accuracy on feminine nouns in productive naturalistic use.

Looking next at noun-adjective combinations, participants used adjectives quite infrequently in their narratives. Those who did use adjectives never lenited the adjective. It is evident that the lenition is not applied to adjectives following feminine nouns in current usage by participants in middle childhood. Thomas (2000) found a similar pattern in that participants were more accurate at producing the non-gender marked form in combination with masculine nouns than marking adjectives following feminine nouns.

More variability was found for grammatical gender use in marking third person possession, in line with the formal tests detailed in the previous chapter. Lenition was used to signal possession by masculine nouns relatively successfully and consistently by participants. An additional consideration of pronoun use showed that masculine pronouns were always used, regardless of noun gender, which is possibly indicative of convergence with English. The accuracy of grammatical gender marking by L1 speaker children in natural speech (in the same age group as the participants in this study) was briefly considered by Péterváry et al (2014) and Lenoach (2014). They found inconsistency in the marking of grammatical gender, whereby grammatical gender was not marked accurately in any obligatory context by some participants and inconsistently by others (these results are discussed in more detail in Chapter 7).

In conclusion, this measure was very effective as a short measure of natural speech and the analyses of the data elicited complement those of the Measure of Irish Morphosyntax in Chapter 7.

Chapter 10 Discussion

OVERVIEW OF CHAPTER

The results and implications of the five studies are discussed in the first part of this chapter. This is followed by an appraisal of the research, recommendations for future research and applications of the findings. Some final conclusions are then offered.

SUMMARY AND DISCUSSION OF RESULTS

Adult Studies 1 and 2

The results of the adult studies reveal significant differences across language backgrounds and age groups in marking gender accurately In Irish. Looking first at age differences among the adults, there was a statistically significant difference according to age in all three contexts of grammatical gender marking. Participants aged 56 and over were the most accurate across each of the three contexts of grammatical gender marking and their accuracy was indicative of productive control of this feature. The participants aged 25-55 were less accurate in productive use, and young adult participants aged under 25 were the least accurate, with performance showing very inconsistent marking of grammatical gender.

Looking next to differences across language backgrounds, it was the Highly Proficient L2 speakers who emerged as the most accurate across all three subtests, and their mean accuracy was very high (usually approximately 90%). The native speaker adults tended to be the least accurate but their accuracy was equivalent to, or slightly ahead of, the Moderately Proficient L2 speakers in some cases.

The more accurate performance by the Highly Proficient L2 speaker participants may be partly explained by the nature of the measures employed, which tested grammatical accuracy according to the Standard language, not fluency. The formal teaching of Standard Irish in mainstream and immersion schools is likely to have contributed to the accuracy of the Highly Proficient L2 speaker participants and may have given them an advantage over native speakers on these measures. The fluency of native speakers is one of their greatest strengths, which was not measured in the adult participants in the present study, but their fluency is in the *Gaeltacht* variety where there now appears to be great variability in the consistency of marking grammatical gender, depending on age group of speaker. The results point to a low level of accuracy among younger native speaker speakers in particular, who

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had the lowest accuracy of all groups tested. It appears that dependence on 'how it sounds' or instinct (guessing) cannot be relied on when there is great variability occurring in the input across the speakers in a community. These data indicate that grammatical gender marking has not been fully acquired by the young adult native speakers tested here, either through intergenerational transmission in the home or in their formal schooling through Irish.

Overall, the adult results point to relatively greater difficulty with marking gender assignment following the definite article and agreement between feminine nouns and adjectives than in gender agreement in third person possession in Irish, as illustrated by the significant difference between performance by adults when required to assign gender and achieve agreement (Subtest 3 of the MIM) and when only agreement was required (Subtest 4 of the MIM). Crosslinguistic differences have been noted in ease of acquisition of both gender agreement and gender assignment; for instance Bianchi (2013) also found a difference in performance for grammatical gender assignment and agreement, where the less proficient Italian adult heritage speakers and the adult bilingual L2 learners performed more like the balanced bilinguals on measures of gender agreement while their ability to correctly assign masculine or feminine gender was more vulnerable to error. These are most likely mediated by complexity and functionality (Labov, 1994). Bianchi (2013) found a higher frequency of errors for feminine nouns than masculine nouns, particularly feminine nouns ending in a consonant (usually loanwords in Italian) and that the most difficult features for heritage speakers and L2 learners were the same as those acquired last in L1 acquisition of Italian, which points to the pervasive influence of complexity of specific functions on the rate of acquisition by all types of speakers, a finding closely in line with the results of the present research. Gender agreement in noun-adjective combinations in Irish may be particularly vulnerable to erosion (compared to other features of Irish) due to a combination of low functionality or communicative load, and high formal complexity.

It was notable that among the adults, gender agreement in third person possession marking improved significantly when the gender of the noun was provided. As noted above, this indicates that errors made in Subtest 3 were most likely due to errors of gender assignment since fewer errors were made when the gender of the noun was provided. However, whereas the performance of the other groups improved when they were provided with examples of accurate usage and the grammatical gender of the possessor noun, the under 25 year old native speakers continued to perform at very low levels of accuracy, and

had the worst performance of all groups. This indicated that the young speakers of Irish were unable to respond accurately to cues for gender agreement, even when given information necessary for gender assignment.

The possibility that participants would use a 'mark nothing' default (not marking lenition on any noun in any context, regardless of grammatical or semantic gender) was investigated. In fact, contrary to expectations, some participants in Subtest 3 appeared to be using a 'mark everything' default, in overextending the mutation for marking possession by masculine nouns (animate and inanimate) to all nouns. This suggests that participants were aware of lenition as a feature of third person possession marking and that they had either overextended this to cover all third person possession marking, or else, when unsure of the gender of the noun their strategy was to assume masculine gender. However, no participant reported using any rule that approximated to an explicit 'mark everything' strategy to mark both masculine and feminine third person possession in Subtest 3, and this needs further investigation.

When the results of the grammatical gender marking test are considered in light of the attitudes voiced by young adult native and new speakers in Adult Study 2, the significantly lower accuracy of those under 25 compared to the older speakers corresponds with the apparent prioritisation of fluency, accent and positive attitude to Irish over grammatical accuracy among the under 25 year olds speakers interviewed. The qualitative results demonstrated that young native speakers had low confidence in their own accuracy and authority in Irish, and a perception that many new speakers have an advantage over them in grammar, and this was borne out in the performance data from the under 25 year olds in the results of Adult Study 1. Conversely, the new speakers presented a perception of feeling judged by native speakers for speaking less authentic 'book Irish,' with the result that they do not aspire to sounding like the native speaker group and instead value their commitment to the language and efforts to speak it.

These findings would indicate the likelihood that children acquiring Irish as their L1 are receiving input from adults speakers that may be very variable in terms of grammatical accuracy, given the lack of consistency and accuracy among all participants other than those aged over 56 (and in some contexts the HP L2 speakers), and given young adults' low prioritisation of and confidence in their grammatical accuracy.

Study 3 Part 1: Results of Child Study: Acquisition of grammatical gender

The results for each of the five research questions posed in the Child Study Part 1 are summarised here. The first question was:

Are there differences between children from different language backgrounds and at different ages in their accuracy in understanding and marking gender?

Language background did have an influence on children's performance on the measure of receptive knowledge of gender marking, with more accurate performance among those with the most Irish exposure in their homes, but with evidence that acquisition of gender marking was secure only for semantic gender and otherwise far from complete. The results of the measure of productive use of grammatical gender are comparable as they also point to relatively more advanced, but ongoing, acquisition of productive marking of grammatical gender among the participants from Irish Dominant Homes (IDH), but only in marking third person possession. In Det + N and N Adj contexts the IDH children's performance was as low as the other groups.

What was notable was that the results point to differences according to language exposure but the age effect was not significant, with minimal differences between the younger participants and the older participants. It appears from the data in this and Child Studies 2 and 3 that, while Irish exposure in the home gives primary school-age children an advantage in terms of vocabulary and fluency, their exposure to Irish is now not sufficient - or sufficiently consistent - for them to acquire the complexity of grammatical gender marking, and that even those with most exposure to Irish are left at the stage of marking semantic gender, possibly overextending the mutation marking masculine third person possession to all third person possession, and learning to mark a small number of feminine nouns as exceptions.

Previous research on languages with opaque grammatical gender systems has found evidence of protracted acquisition trajectories, such as Unsworth (2013a; 2014) and Thomas and Gathercole (2007). As noted in Chapter 2, the participants in both the Welsh and Dutch contexts showed difficulty in acquisition, but by the age of 9 they were showing some awareness of gender categories of nouns and awareness of how to mark them appropriately in output. One of the key findings reported in Gathercole, Thomas, Roberts, Hughes & Hughes (2013) was that differences according to language background, evident in the child participants, diminished as they aged so that by adulthood participants of differing

backgrounds were indistinguishable in relation to their English vocabulary and Welsh vocabulary. Something of a reverse trend is evident from the comparison of child and adult data here. The child participants of different backgrounds were indistinguisable on the gender tests apart from marking gender in third person possession, whereas the Highly Proficient L2 speaker adult participants performed more accurately than the other two backgrounds.

This points to the combined impact of an opaque grammatical gender system and a current sociolinguistic context posing greater threat to Irish than is the case for Welsh, Dutch or Spanish. It was hypothesised in Chapter 2 that the combination of the instability of the language community, its status as a minority language and the opacity of the grammatical gender would make the acquisition of grammatical gender in Irish very vulnerable, and the results of the present study support this hypothesis.

Gender marking in Irish bears more resemblance to Welsh than to Dutch, French or Spanish, as both Welsh and Irish are Celtic languages. What is even more relevant is that both languages are minority languages experiencing declining numbers of native speakers and rising numbers of L2 speakers whose first language does not have grammatical gender. A crucial difference identified by Gathercole (2007) is that the language community in Wales is stable, which she argued was one of the reasons for the children's successful acquisition of grammatical gender, while Ó Giollagáin (2014a; 2014b) has argued that the instability of the Irish community contributed to what he identified as incomplete acquisition in children in the Gaeltacht (Péterváry, Ó Giollagáin, Ó Curnáin and Sheahan, 2014), an issue which will be returned to later.

Grammatical gender marking has been examined in Welsh by Thomas (2000; Gathercole and Thomas, 2009; Thomas and Gathercole, 2007) and Sharp (2012). Sharp (2012) recruited Welsh-English bilingual children aged four to nine years of varying language backgrounds: Only Welsh Home (OWH), Welsh English Home (WEH) and Only English Home (OEH), as well as adults from OWH. As in Subtest 2 of the Measure of Irish Morphosyntax, noun-adjective combinations were elicited. Sharp found much higher levels of accuracy in this context (approximately 60% for 5-7 year olds and increasing to approximately 70% for 9 year olds) than in the present study (as the author included masculine and feminine nouns in this score, it is not evident what percentage of nouns requiring soft mutation on the adjective were marked). The adults had a mean accuracy score of approx. 85%, which indicates relatively high levels of accuracy in the use of this complex aspect of the Welsh

mutation system in the current usage of Welsh-dominant adults. In the Irish data, the 7-9 year olds and the 10-13 year olds in the present study had overall accuracy scores of only 50%, accounted for by accuracy on all of the masculine nouns and none of the feminine nouns. Neither the accuracy nor the rate of acquisition found by Sharp was evident in the children acquiring Irish. The Irish adult accuracy was a closer approximation of the adult Welsh speakers, but as discussed already, this was not consistent across the age groups or the language background groups.

Sharp (2012) also considered differences across language background groups and found no difference for masculine nouns, which appeared to be due to high accuracy across all three groups. For the feminine nouns, accuracy was much lower for all participants, but the participants from OEH were significantly less accurate than the other two language background groups. Overall, there are many similarities with the results of the present study, particularly with regard to the accuracy on masculine nouns across all groups. However, in the present study the split in terms of performance was between the children from IDH and the rest, with only the former showing any accurate marking of gender, which was only in third person possession marking. As expected, language exposure significantly affected acquisition in both the Welsh and Irish children. However, it was noteworthy that the children acquiring Welsh in OWH and WEH appeared more alike than the equivalent groups on the Irish gender tests. In these data, the performance of the children from bilingual homes (BH) was more like the children from EDH than IDH. This appears to fit with a view that the acquisition of Irish currently shows signs of being under more pressure than acquisition of Welsh.

Gathercole and Thomas (2009) showed that, by the age of 5 years, the children from OWH showed 76.2% accuracy on receptive measures of accuracy in marking possession by humans, greater than participants from homes in which English and Welsh were spoken and participants from homes in which only English was spoken. However, the OWH performance for possession by animals was lower, even by the age of 9, at only 62.2% accuracy. Performance on possession marking for inanimate objects was poor across background and ages. The same pattern of variability was found in the present study in terms of participants' accuracy in receptive understading of gender. All participants were highly accurate in assigning semantic gender to human nouns (*M* = 98.15%), with little variability, but less accurate in marking possession by humans: here, the IDH participants were more accurate than both other groups (*M* = 60.52%), and while there was a significant

difference between the performance of the younger IDH children (M = 52.34%) and the older IDH (M = 74.08%), they were more accurate than both other language background groups within both age groups. This advantage for participants from IDH did not emerge for assigning gender to animals (M = 56.12%), nor did it in assigning gender to inanimate nouns (M = 48.54%) or marking possession by inanimate nouns (M = 53.76%). This is a clear indication that, within a given system like grammatical gender marking, some features are acquired more easily than others and acquisition is dependent on both language features and input features.

Variability was also found in the present study in terms of participants' accuracy for the specific functions of grammatical gender and for different types of nouns. Accuracy in the marking of grammatical gender in specific contexts is considered first, followed by the relative accuracy for animate and inanimate nouns, and thirdly for accuracy on in marking masculine nouns compared to feminine nouns.

Does accuracy differ for specific functions of grammatical gender?
The participants in the present research did not typically mark grammatical gender on consonant-initial or /s/ initial feminine nouns or vowel-initial masculine nouns following the definite article, and practically never marked adjectives in combination with feminine nouns. Mac Eoin (1993) argued that grammatical gender marking in noun-adjective combinations is a feature of Irish which is being eroded from the spoken language, and the results of this study support that claim. Accuracy in gender agreement has been found to be problematic for children acquiring opaque gender systems in other languages, such as Norwegian (Rodina and Westergaard, 2013) and German (Montanari, 2014). This is further corroborated in Irish by Péterváry et al (2014), who found overall accuracy rates for gender of approximately 30% in their sample of Irish speaking children in middle childhood, and Lenoach (2014), who also sought to examine use of noun-adjective combinations but was limited by the infrequent use of this combination in the free speech elicited from his participants.

The child participants in this study showed relatively higher levels of accuracy on the measure of productive grammatical gender use in marking third person possession than in gender assignment. When gender marking is considered from a functional perspective, grammatical gender assignment following the definite article and in noun-adjective combinations have more limited function for speakers in current usage, as communicative clarity is not impeded if they are absent or faulty. However, grammatical gender could be

argued to be more important for communicative clarity in marking third person possession as the non-gender specific pronoun *a* requires specificity in the use of lenition to clearly signal the gender of the possessor noun. This, and the fact that possessor nouns are often at least animate (and often human) may help to increase the salience of this feature for children and may help to explain why the native speaker children at least have better performance on this task rather than the other tasks.

However, accuracy in productive use of possession marking was still too inconsistent to be functional as a marker of the gender of the owner of a possessed noun, as even the participants from IDH had an accuracy level of only 32.3%. It would appear that children are receiving other information which compensates for their low dependence on the presence/ absence of lenition as a marker of third person possession. Yow and Markman (2015) offered an explanation that may go some way to account for this difference. Bilingual children who regularly experience communicative challenges that demand greater attention and flexibility, may be more adept at integrating multiple cues to a speaker's communicative intent. That is to say that bilingual children (and adults) may be more attuned to eye gaze, body language, gestures and context, and may use these to ascertain the referent when hearing an ambiguous third person possession construction.

Are there differences in children's accuracy in marking animate and inanimate nouns?
The answer to this research question is yes. Looking first at receptive knowledge, even the youngest participants in this study were at ceiling in understanding semantic gender reference from pronouns (*M* = 97.6%), and thus were very accurate in assigning gender to human nouns. Animal nouns did not provide them with a comparably strong cue and their accuracy was lower (*M* = 54.26% for the younger participants and 54.97% for the older). Nevertheless, accuracy in assigning gender to animals was more accurate than for inanimate nouns, which ranged from 46.56% for EDH participants to 48.54% for IDH participants. These results point to a strong understanding of semantic gender of human nouns, a weaker representation of grammatical gender for animal nouns and the weakest representation of grammatical gender for inanimate nouns.

Looking next at productive use, an unexpected finding emerged from the context of grammatical gender following the definite article, as participants were relatively more accurate on inanimate nouns than animate nouns in this test. However, this finding must be interpreted with caution, as the absolute accuracy was very low, and may have been skewed

by slightly higher accuracy on some common feminine inanimate nouns such as *fiacail* 'tooth', *fuinneog* 'window' and *bróg* 'shoe' (see Appendix 9 for the full list of nouns and frequency of errors). Interestingly, Sharp (2012) found that the 9 year olds in her study were more accurate on feminine inanimate nouns than they were for feminine animate nouns, and further analysis attributed this to a significantly higher rate of accuracy on two individual feminine nouns.

It was demonstrated in the previous section that accuracy was greater for marking third person possession, and accuracy is further aided by noun animacy in this context. Thus, function interacted with structure complexity. A similar result was found by Sharp (2012), whereby animacy interacted with accuracy for the more complex feminine nouns but did not make a difference for the less complex masculine nouns. In contexts where the function of lenition in marking grammatical gender is more salient to children, their accuracy is nevertheless mediated by the complexity of gender assignment, which is more opaque for inanimate nouns. Lieven and Brandt (2011) observed that if a particular grammatical function can be enacted using multiple forms, or a specific language form can signal multiple functions, depending on fine-grained decisions made by the speaker, acquisition will be prolonged as the learner will need an extended period of acquisition to abstract the rules for every form-function mapping possibility, potentially on an item-by-item basis. This observation is supported by the results of the present research, as even the oldest children in the sample were highly inaccurate in the form-function mapping of third person possession marking on inanimate nouns, and indeed all child participants were at floor in the contexts of Det + N and N + Adj.

Are there differences in children's accuracy in marking masculine and feminine nouns?
Boloh and Ibernon (2013) proposed the masculine default hypothesis as an explanation for how children cope with the complexity of their grammatical gender system, and a similar argument was put forward by Montrul, Perpinán and Foote (2008) in relation to Spanish grammatical gender. An unmarked default could signify that speakers do have a representation of grammatical gender in their lexicon, but that the language they use in on-line production does not accurately represent their receptive knowledge, as proposed by the Missing Surface Inflection Hypothesis (MSIH; Haznedar, 2003; Prévost and White, 2000). Tsimpli (2014) distinguished between micro and macro elements of gender, and argued that the macro elements, such as the knowledge that the language being acquired by the child

has grammatical gender, are acquired with ease and need very little input. The alternative, that speakers do not have a representation of grammatical gender in their lexicon, is not usually considered by researchers in languages with clear grammatical gender systems such as French and Spanish, and is not compatible with Tsimpli's theory.

Here, it was hypothesised that what appeared to be a 'masculine default' in languages in which grammatical gender is always marked on the feminine noun, regardless of the context, is in fact a 'mark nothing' default. Irish facilitates the examination of this issue as gender marking is required on the feminine noun in some contexts, but on the masculine in others. As participants did have a strong representation of semantic gender for human nouns but a very weak representation of grammatical gender for inanimate nouns and animal nouns, the results do not support the MSIH as the poor accuracy shown by most participants on the measure of productive gender assignment cannot be attributed to accurate representation betrayed by online production pressure. Therefore, the first conclusion is that the performance of participants in this study suggests that they may not have an accurate representation of grammatical gender in Irish.

Looking next to the possibility of a 'mark nothing' default, the results of the productive measure of grammatical gender support this hypothesis. All child participants appeared to be using a 'mark nothing' default in their performance on nouns following the definite article and in noun-adjective combinations, resulting in about 50% accuracy across Subtests 1 and 2. What was especially noteworthy was that the participants from BH and EDH extended this 'mark nothing' default to the context of third person possession (i.e. even when 'mark nothing' signalled feminine possession). Their performance did not point to any distinction being made between masculine and feminine nouns in any context, but to an overriding 'mark nothing' default.

The exception was the participants from IDH in marking third person possession, since these participants did use lenition to mark some nouns in this context. Participants from IDH frequently overextended lenition to feminine nouns as antecedents of third person possession, which is an inaccurate response, and likely to be a result of children's attempt to construct a coherent system from the input they are receiving in a piecemeal way. They appeared to have acquired some items which they were using accurately, e.g. some animate nouns, but had overextended their nascent rule based on masculine third person possession to possession by feminine nouns, possibly showing interference between their experience that some nouns lenite in Det + N phrases and their rule for third person possession.

In sum, it was found that the children were much more inaccurate on *feminine* nouns following the definite article and in noun-adjective combinations and were more inaccurate on *masculine* nouns in marking third person possession, which is most likely due to the need for active marking of grammatical gender, which participants were not doing. Participants from IDH did use lenition more often in marking third person possession, but did not distinguish between masculine and feminine nouns accurately. These results indicate that grammatical gender is only being marked by the participants with significant Irish exposure in the home, and even then, only appears productive in marking third person possession. Grammatical gender is not marked by speakers from other backgrounds in any context, nor did they appear to have a representation of grammatical gender (although they did seem to have semantic gender for human referents). Overall, in current Irish acquisition at least, gender does not seem to be a salient element of inanimate nouns encoded in children's representation of that noun, which does not fit with the results of studies such as Martinez and Shatz (1996), Lévy, Gygax and Gabriel (2014) and Belacchi and Cubelli (2012), in which grammatical gender was found to be a significant component of children's representation of the characteristics of the noun in Spanish, French and Italian (respectively) from a very young age, and Tsimpli's theory that gender is a macro component of the noun which is acquired with ease and very little input.

Do children use a strategy in assigning grammatical gender?

In discussing their metalinguistic awareness and strategies in assigning grammatical gender (usually in marking third person possession), some child participants demonstrated a sophisticated level of awareness, though this was lacking or inaccurate among others. When compared to actual performance on the measure of productive use of grammatical gender, while no significant difference was found between those who cited accurate strategies, and those who did not, there did appear to be a trend towards greater accuracy among those with accurate metalinguistic awareness, in line with findings by Ó Duibhir (2009) in second language learning in older children.

Summary of Child Study Part 2: Acquisition of vocabulary

The results of Child Study Part 1 are somewhat specific to gender marking due to the intersection of complexity and function. There were differences in the participants' profiles regarding language background, but also depending on the function of grammatical gender and the complexity of the form-function mapping. Marking grammatical gender in productive use, particularly on feminine nouns following the definite article, and in noun-adjective combinations, is arguably one of the most complex features of Irish and it should be noted that the participants' low accuracy on this measure cannot be taken as representative of their overall Irish proficiency. In contrast, it could be argued that the results of Child Study Part 2, which examined a less complex aspect of Irish, i.e. age-appropriate vocabulary, demonstrated a relative strength of the participants' Irish proficiency, and these findings are considered below.

Are there differences among children on measures of Irish and English reading vocabulary?
The impact of differences in levels of exposure found for acquisition of grammatical gender (a feature of morphosyntax) were also found for vocabulary development. Participants from different language backgrounds remained distinguishable with regard to Irish vocabulary, even at the age of 12. The participants from IDH had the highest scores on the measure of Irish reading vocabulary, followed by the participants from BH, and the participants from EDH had the lowest scores on Irish reading vocabulary. Turning to English reading vocabulary, among the younger participants, it was the participants from bilingual homes (BH) who had the highest scores, followed by the participants from EDH, and the children from IDH had the lowest English reading vocabulary scores. In the older group it was the participants from EDH who had the highest English reading vocabulary scores. Thus, language exposure in the home was seen to have a significant influence on the measures of Irish and English reading vocabulary even as participants entered their teens.

Further analyses offered information on the variables which contributed to vocabulary scores. The regression analysis found that 62.3% of the variance in scores on the measure of Irish reading vocabulary was accounted for by child language background, parent language background, school model, English reading vocabulary and teacher rating of Irish reading. Child language background, parent language background and school model are all aspects of language exposure and demonstrate that language exposure has a significant effect on later vocabulary development. The importance of literacy in Irish in expanding

vocabulary is discussed by Stenson and Hickey (forthcoming, 2016), and it is likely to be this effect that explains the significant contribution of teacher rating of Irish reading in predicting Irish vocabulary scores. Furthermore, the contribution of English reading vocabulary scores to explaining the variance in Irish reading vocabulary scores supports the observation by Gathercole et al (2013) of a general vocabulary learning ability as children grow, when language exposure variables are not the only drivers explaining vocabulary acquisition.

Age did not emerge as a significant predictor variable for vocabulary, although, as discussed in Chapter 8, this may have been a test effect. Participants received tests of varying difficulty level according to their class, which was closely correlated with age. Therefore, children were scored relative to other children their age, not across age groups, and this may have masked the progression between age groups.

It was notable that many of the same variables predicting Irish reading vocabulary accounted for 43.6% of the explained variance in English reading vocabulary. The variables which made a unique contribution to this model were child language background, school model and Irish reading vocabulary, while teacher rating of English reading approached significance. In this case, however, parent language background was not a predictor of English vocabulary, pointing to parents' role in developing this sample of *Gaeltacht* children's English vocabulary being smaller than to their Irish vocabulary. Overall, English reading vocabulary development was significantly affected by language background, a possible general vocabulary learning ability and literacy development.

Lenoach (2014) examined vocabulary in Irish and English production among a *Gaeltacht* sample of children aged from 4 to 16 (n=33) and found that English vocabulary was significantly greater than Irish vocabulary in his sample, with the greatest difference at age 8, though the difference was still significant at age 12. In a regression analysis on his data, age accounted for 45% of the variance in Irish vocabulary and for 54% in English. Lenoach's sample was smaller, and included both younger and older children than the current study, and a greater difference in the vocabulary of 4 year olds compared to 16 year olds would be expected than when comparing 7 and 11 years olds. He found that language socialisation in Irish contributed to larger vocabulary in Irish and language socialisation in English contributed to larger vocabulary in English, but only explained 18% of the variance in Irish vocabulary. His language socialisation variable was based on analysis of language diaries kept by the parents, which Lenoach acknowledged were quite simple, and he gave no details on how the categories of High, Medium and Low socialisation were allocated. The

participants in Lenoach's study were all L1 speakers of Irish and all were being raised in Irish Dominant Homes in two areas in the Connemara *Gaeltacht*. Given that the present study recruited a more representative sample of *Gaeltacht* children in having a spread of home language backgrounds, used standardised tests of both Irish and English vocabulary, and found that the explanatory power of the regression model is greater, at over 60%, it is argued here that this highlights the centrality of home language variables in developing minority language vocabulary up to the end of primary school at least.

Are parent and teacher ratings of Irish and English proficiency in line with actual performance on a measure of Irish vocabulary and a measure of English vocabulary? Teacher ratings of children's Irish and English and their Irish reading vocabulary scores and English reading vocabulary scores were consistently more strongly correlated than parent ratings. When parent and teacher ratings for Irish were re-analysed according to language background, teachers and parents' ratings had higher correlations with Irish reading vocabulary scores of participants from non-IDH than of participants IDH. When parent and teacher ratings for English were re-analysed, parent rating of English Reading correlated with actual performance but for participants from non-IDH only, and teacher ratings for understanding and reading were more highly correlated for the participants from non-Irish Dominant Homes than participants from IDH.

Bedore, Pena, Joyner and Macken (2011) demonstrated that parent rating of Spanish proficiency was more highly correlated with their children's grammaticality in Spanish stories, while teachers' ratings were more highly correlated with English grammaticality, a finding supported by Gutierrez-Clellan and Kreiter (2003). Thus, while other research would lead to the expectation that parents would be more accurate in rating children's proficiency in the home language, some interesting divergences are noted here in how accurate parents and teachers were in rating the Irish proficiency of children from different backgrounds. It was noted that both parents and teachers seemed to over-estimate the Irish proficiency of IDH children, but were more accurate in estimating the Irish of the BH and EDH children. This is likely to be a framing effect in that the IDH children, when compared to the BH and EDH children in their peer group, sound more fluent and advanced but their accent and fluency may be obscuring the areas of their Irish grammar and vocabulary that are in urgent need of support and enrichment, leading parents and teachers to believe that their Irish proficiency is more advanced than it is.

Summary of Study 3 Part 3: Results of Child Study: Picture description task

Are there differences among children from different language backgrounds and at different ages in their picture descriptions?

Participants from IDH were expected to stand out in their use of natural spoken Irish, given their exposure to natural spoken language in the home. While no significant difference was found in overall length of picture description across language backgrounds or age groups, the participants from IDH were judged to be significantly more fluent than participants from the other two language backgrounds. The younger participants also emerged as being more fluent than the older participants, but this may have been due to the younger children being less self-conscious or less test-aware about their accuracy than the older participants.

The results also showed differences in the lexical diversity in children's picture descriptions that was in line with the amount of Irish in the home across the three language backgrounds. There was also an age effect, in that the older participants were found to have greater lexical diversity in Irish than the younger participants. Finally, differences were found in the frequency of codemixing across language backgrounds and age groups. It was noteworthy that the participants from IDH had relatively few codemixing types (approximately one codemix type per picture description) and older participants had an even lower number of codemixing types than the younger participants. Some caution must be exercised in interpreting this finding, since the children's level of codemixing in this task may not have been representative of their typical use, but may have been depressed by the formal school context in conversation with a stranger, compared to their normal levels of codemixing when talking to other members of their *Gaeltacht* community, which would necessitate further investigation. Nevertheless, if that is the case, it demonstrates that the IDH children, and particularly the older ones, could monitor and control their codemixing on this simple task at least. Only the participants from EDH appeared to use codesmixing in this task as a substitution strategy for Irish words.

Can children from IDH mark grammatical gender accurately in elicited speech?

It initially appeared that IDH participants were highly accurate in their use of grammatical gender following the definite article in spoken language picture descriptions, but this was possibly due to a 'mark nothing' default, given that many of the nouns elicited by the picture description task were masculine. In their picture descriptions, participants very rarely used adjectives and never lenited the adjective, regardless of the gender of the noun. The only

context in which lenition was used relatively accurately was to signal possession by masculine nouns, but here accuracy was very variable across participants.

Overall, the results on grammatical gender acquisition in Irish appear to be in line with the results of studies in Welsh by Thomas (2000) and Sharp (2014). Gathercole and Thomas (2007) noted that the order of development of grammatical marking in Welsh is influenced by the opacity and complexity of the structures, which explains why young Welsh speakers are able at an early age to use the masculine forms of nouns and adjectives correctly, because these are the basic forms, and this was found in the Irish data also. The parallel with the Irish results continues with the observation that, in both Irish and Welsh, the next most likely form to emerge is third person possession by human masculine possessors, but with low accuracy on possession by feminine nouns in Irish even among the IDH children aged 12, pointing to lower productive accuracy among the Irish L1 children than the Welsh L1 children. Finally, the most challenging structures in both Irish and Welsh appear to be the marking of feminine nouns after the article, and the marking of adjectives following feminine nouns. Again, the mutation involved is very opaque in both Welsh and Irish, given what MacWhinney (1987) described as the 'unreliability' of its marking, in that it lacks a dependable one-to-one relationship between form and function, with the mutation involved marking feminine gender in Det N Adj phrases, but marking masculine possessors in third person possession after *a.* In comparing the evidence regarding both Welsh and Irish acquisition of gender, it would appear that the conclusion by Gathercole and Thomas (2007) is appropriate to explain the acquisition trajectories for gender in both Welsh and Irish: simpler more transparent forms can be acquired earlier, but complex and opaque forms require a longer period to reach a critical mass of input before the generalisations about them can be drawn out and they can be productive.

Achieving a critical mass of input becomes more problematic for bilinguals. Gathercole (2007b) raised the issue of timing with regard to the length of the period needed to reach critical mass for these opaque structures, and noted that as bilingual children's access to accurate input for these structures diminishes, it may be that the acquisition of such structures is 'timed off the map' (p. 242), that is, that children's acquisition of these structures is incomplete, with implications over time for simplification in a minority language. Frenda (2011a) pointed to convergence with English as the reason for the changes in Irish grammatical gender in current usage. He argued that convergence with English in Irish has reinforced the linguistic structures shared by both languages, but not those which

they do not share, i.e. grammatical gender marking on inanimate nouns. Consequently, the combination in Irish of a highly complex and opaque gender marking system that requires a very lengthy period of exposure before critical mass is achieved, with the increase in inconsistent marking of gender by adults, and universal bilingualism among Irish speakers in a language which does not mark grammatical gender, has resulted in accelerated decline of gender marking in Irish among children and young adults. This is supported by Pétervàry et al's (2014) and Lenoach's (2014) results showing low accuracy among Irish dominant children's marking of grammatical gender in Irish, ranging from the zero accurate marking of grammatical gender in any obligatory context by some participants, to inconsistent marking (that is likely to be item-based rather than systematic) by others.

The analysis of spoken Irish supported the conclusions drawn from the analysis of grammatical gender marking in formal tests. Marking of feminine gender on nouns was very low, even among older IDH children, and non-existent on adjectives in combination with feminine nouns. However, as was found on the formal tests, the pattern changes for third person possession as children show awareness of the need to use lenition to mark ownership in this context (particularly by animate nouns), although when inanimate nouns are included they use it inconsistently. Based on the metalinguistic strategies reported by the child participants from BH and EDH, this may be because grammatical gender is not encoded in their representation of inanimate nouns. For the participants from IDH, it may be because they are aware of the need to mark ownership by masculine animate nouns but are not accurate in their gender assignment for inanimate nouns, inaccurately assigning masculine gender to feminine inanimate nouns; or it may be due to them overextending the more salient rule for third person possession by masculine antecedents, without full control of the complex construction which requires mutation to consonant-initial nouns possessed by masculine nouns and vowel-initial nouns possessed by feminine nouns.

Comparing the MIM results from the adults and children

The use of the same measure of productive use of grammatical gender marking by adults and children facilitated further consideration of the trends in current language use among adult speakers of Irish, and how they may interact with, and influence, children's acquisition, and in seeking to understand what the 'end point' of child acquisition is.

The first comparison was of accuracy in marking grammatical gender following the definite article, according to language background. Accuracy on feminine nouns was not

consistent among either highly proficient or moderately proficient adult speakers, but the children's accuracy was far lower, even among the older age-group. What appeared more striking was that the children from IDH showed no advantage on this test, and in fact the child participants were broadly similar in accuracy on this subtest regardless of language background. This comparison points to the possibility that even the participants from IDH do not reach the critical mass needed to acquire this structure, despite receiving the most input in Irish of any group. This may reflect not just a difficulty in reaching a threshold of input with exemplars of this complex and opaque structure, but a more critical difficulty in reaching a critical mass of input that is consistently accurate in use of these structures. The introduction of massive variability among adult speakers of Irish may add so much additional 'noise' to an already noisy system that it becomes impossible for children to identify and extract the generalisations they need to make in order to acquire the system. As a result, it appears that young adults and children speaking current *Gaeltacht* Irish are no longer acquiring a variety of the language that consistently and productively marks grammatical gender.

There are some signs from these data that the pace of change in this regard has accelerated. When compared across age groups, a positive relationship between age and accuracy emerged, and is evidence of a generational change in the accurate marking of grammatical gender on feminine nouns following the definite article. However, the relationship is not linear. The 10-13 year olds do not show the steady increase in accuracy expected if grammatical gender were being successfully acquired by ear at a delayed point in normal development. What now appears to be the case is that grammatical gender marking is an aspect of Irish that from now on will only be acquired through formal language learning exercises and literacy activities in secondary school and is essentially a marker of Standard language rather than the current use in spoken dialects in the *Gaeltacht*.

Accuracy in marking grammatical gender in third person possession did show a differential effect of variation in input, in that IDH children were more accurate than the others in this context, and this was mirrored by higher accuracy among adult speakers overall. The more accurate performance of child participants from IDH on this construction is likely to be an interaction of several critical factors: their greater exposure to Irish input, the greater salience initially of human masculine possession marking, and a higher level of adult accuracy on this construction in input. What is most interesting is that the pattern among the child participant points to an early advantage in accuracy in line with greater input in

Irish in the home, with those who learned Irish in school catching up by the time they are adults, and indeed surpassing the native speaker adults in their accuracy. Again this is likely to be due to this construction being more amenable to formal learning by L2 learners of Irish and to the rules for this construction being taught explicitly in school. The child and adult participants of all age groups showed relatively higher levels of accuracy on the measure of productive grammatical gender use in marking third person possession than in other contexts, though again there appeared to be greater accuracy for animate than for inanimate nouns. The profile of results across the child and adult participants points to children with higher levels of Irish exposure showing greater accuracy on a construction where adult input to them shows more consistency.

In sum, in these data there were strong similarities between child and adult accuracy in the marking of grammatical gender in Irish. In the context of grammatical gender in third person possession, which appears to be more transparent (for semantic noun antecedents) and rule governed, the child and adult participants both showed greater accuracy than in the other contexts. The IDH children's advantage on this construction is attributed to its salience and the fact that they are likely to arrive at a critical mass earlier when adult input contains more consistently accurate use of this feature, allowing them to construct their own understanding of this feature of Irish. However, it is evident from the significant gap between even the youngest adults and the oldest children that the acquisition trajectory between these two points is not steady. It may be that the current generation of children are less likely to acquire even this type of gender marking given their current acquisition trajectory, which points to the importance of pedagogical intervention in formal contexts to support their Irish acquisition, as it is such formal learning experiences that are likely to be the source of the advantage for the highly proficient L2 speaker adults.

Appraising the Present Research

The strengths of the present research are considered first. The research proposal for each study was put through an exhaustive ethical review process before any participants were recruited. This ensured that the research met the highest research standards and that the rights and safety of the participants, both adults and children, were respected and protected. A large sample was recruited for the present research, with over 450 Irish speakers participating. This is a significant strength of the study as more diverse and detailed analyses could be conducted on the data. Participants were also recruited from as many

schools in the *Gaeltacht* in Connemara as possible in order to generate the largest and most representative sample possible.

The consideration of different types of bilinguals, particularly along the dimension of differential amounts of input, represents one of the key strengths of the study, given Gathercole's (2014) observation that there has not been sufficient examination of different types of bilinguals to allow for a fine-grained understanding of the impact of input on bilingual acquisition given the heterogeneity of bilingual development.

Multiple measures of formal and natural language use, measures of vocabulary in both of the bilingual participants' languages and of non-verbal IQ were used. In the adult study both quantitative data and qualitative data were collected. Not only were multiple measures used, but the measures included both standardised measures used in previous studies, and tests developed specifically for this study. A related methodological strength was the inclusion of multiple raters, including adult proficient speakers, children, their parents, their teachers and the Principals of the schools they attended. No previous study of Irish acquisition or use has included as many perspectives or consideration of as many aspects of that use and acquisition. The inferences drawn from this examination have value for several major areas of psycholinguistic investigation: examination of the later stages of bilingual acquisition in the context of an endangered minority language, consideration of theories of the impact of adult input on child acquisition and the relationship between the proficiency of adults and children, of relevance to investigation of language change.

The research is not without its limitations. While every effort was made to make participation as attractive as possible, it is acknowledged that in all cases participation was voluntary, which may have introduced a self-selection bias. In terms of research ethics, the critical importance of voluntary informed participation is acknowledged, but the adult participants who gave their time to participate in tests and interviews about Irish may have done so partly because they had pre-existing positive attitudes towards the language. In the child study, it may be that caregivers with positive attitudes towards the value of Irish were more willing to complete the Child Language Background Questionnaire (C-LBQ) and agreed for their child(ren) to lose in-class learning time to take part in research. Furthermore, despite the emphasis on collecting as much data as possible about the holistic language acquisition context of the participants, this was limited by the time and attention caregivers applied to completing the C-LBQ. In some cases information was incomplete about participants due to questions being unanswered, half answered or answered inconsistently.

The final weakness identified was under-representation of SES as a variable, which has previously been shown to influence the rate of language learning (Thordardottir, 2011; Gathercole, 2002a; Oller & Pearson, 2002). This limitation was mitigated by evidence by Thordardottir (2011) that SES exerts its influence in part by systematically affecting the amount of language input that children receive.

Future research

Some recommendations for future research are now considered. These mainly relate to the consideration of language background, further investigation of the input provided by teachers, the possibility of attrition and the need for more research on new users of Irish.

The consideration of language background requires balancing of the thorough consideration of all contexts, and the realistic burden which can be placed on those completing the measure. Future research which considers language background must balance the need for detail with test burden. It is hoped that the present research will facilitate the consideration of language background in future research though its development of the Child Language Background Questionnaire and the Brief-Language Background Questionnaire for adults, allowing greater comparability between studies.

A consideration of the language input provided by teachers to children was not included in the present research but could be a subject for future research. Serratrice, Hesketh and Ashworth (2015) investigated the long-term effects of priming of particular constructions in the context of shared-reading tasks in pre-school. They designed an experimental study which primed the participants with narratives using direct and indirect clauses and found a positive relationship between the use of direct and indirect clauses in input and their post-test use by children in the primed condition. In the post-test follow up, they found greater overall use of indirect clauses by all children, regardless of condition group. With these mixed results the authors demonstrated the need for carefully controlled and ecological studies of the relationship between input and output, but also the need to examine the input used in the classroom as well as in the home, particularly in the age group included in the present study given the amount of time they spend in school.

An investigation of the transition from language input in the home only to language input in the home and in school is absent from the body of research examining acquisition of Irish, but future research could address questions such as 'do children from IDH start a normal trajectory of acquisition which is altered by formal education?' and 'is sufficient input

being provided in the first of the formative years in the home to facilitate normal acquisition of the language?'. Longitudinal data on children's language acquisition before commencing school and in the subsequent years would be required to test these hypotheses. Furthermore, there is an urgent need to consider how the linguistic needs of children raised in Irish dominant homes can best be addressed in the school system, so that they can be enabled to emerge as confident native speakers of Irish, with a unique contribution to make to the maintenance of the language, rather than feeling as unsure as the young adult native speakers in the adult qualitative study here.

The situation in which new speakers are raising their children with Irish as their L1, which for the parents is their L2, may increase in frequency and constitute significant change in the demographics of different types of speakers of Irish in the future. Consequently, these parents will be raising children with an L1 which is the parents' own L2. Research in the future should consider the implications of this context in relation to the quantity and qualities of the input to these children. This also ties in with the growth in multiculturality in Ireland due to a significant period of inmigration (Harris, 2007) and the need to consider the language enrichment needs of these new speakers of Irish. Kavanagh and Hickey (2012) have previously argued for targetted provision to address the needs of non-Irish speaking parents of children enrolled in Irish immersion schools. A similar case can be made for parents who do not have links to the ethnicity, culture and tradition usually associated with being an Irish speaker. The enrichment and support needs of new speakers of all types requires further research as the enthnolinguistic landscape of Ireland continues to evolve.

Practical Implications and recommendations

There has been a tendency in recent commentary on Irish in the *Gaeltacht* to comment only on deficits in children's Irish, and this runs the risk of attributing 'semilingualism' to them. It is argued here that the findings of this study point to the need to widen the discussion to recognise the changes that have emerged between *Gaeltacht* Irish and the Standard in features formerly acquired 'by ear' from rich and consistent input which is no longer available to children, and recommendations will be made to address this. The findings of this study showed different levels of Irish capacity among the children from different language backgrounds. The first recommendations below consider the issue of supporting *Gaeltacht* parents in planning the family's language policy, and then addresses the needs of children in each of these backgrounds in turn.

Family language planning

Ó hIfearnáin (2008) argued that there is a lack of public knowledge and understanding of the social and educational benefits of speaking Irish at home. He voiced concerns that the decisions made by parents in the *Gaeltacht* in relation to their home language use patterns were not always made in a "fully informed climate" (p. 527). Ó hIfearnáin's own data showed that some parents in the *Gaeltacht* chose to speak English with their children due to a belief that they would not get sufficient English in school to become fluent, and a desire to ensure that their children be bilingual in English as well as Irish. This finding, in conjunction with the findings of this study, points to the need to inform parents more fully about the research on minority language bilingualism, so that they are aware that the majority language is unlikely to be threatened, but that the minority language is likely not to be acquired to a high level of proficiency in the current *Gaeltacht* context unless it is offered more supports. Indeed, Mac Fhlannchadha (2012) argued that a parent raising a child with a minority language must become a *de facto* language activist as they attempt to protect the language rights, input and usage contexts of their child, and he sought to raise awareness of this issue not only among policy makers but also among parents.

The Multilingual Early Language Transmission (MELT) project served a number of language communities, specifically Frisian in Fryslân, Swedish in Finland, Welsh in Wales, and Breton in Brittany (Bangma and Riemersma, 2011). One of the outputs of the project was an awareness-raising and guidance pamphlet, "Multilingualism in Everyday Life", for parents of children who speak a minority language in pre-school settings. The pamphlet aimed to increase awareness of the needs of children acquiring a minority language drawing on the good practices of multilingual early language learning and transmission to children aged 0- 4 years in the four regions. The project identified challenges such as the need to raise awareness of the benefits of bi- and multilingualism for children, the need to provide extensive input in the minority language and a language rich environment, and the fostering of a positive language approach and positive language attitudes, all of which are eminently applicable to the case of Irish.

Similarly, the *Twf* (Growth) scheme in Wales has shown positive effects on family language planning in Wales, as it works strategically with midwives and health visitors to promote the benefits of bilingualism to every parent of pre-school children in Wales, focuses on all types of families (not only those already raising their children with Welsh in the home) and adopts a policy of social inclusion such as in the connections created with organisations

such as SureStart, which target low-income families (Edwards & Newcombe, 2005). The scheme challenged assumptions about the feasibility of integrating Welsh into the home, and its approach has been implemented in the Irish context in some small-scale pilot studies. Further recommendations are made by Gathercole (2007a) with respect to language transmission in bilingual families in Wales which could be implemented in Ireland.

Some recommendations are made here regarding the provision of *Gaeltacht* support services to help parents in planning family language use. Firstly, as noted by Hickey (2006), parents of all language backgrounds in the *Gaeltacht* need to be more fully and more effectively informed of the likely outcomes of different family language patterns. Contact with families needs to be established from birth (or before), but also needs to be continued with active ongoing supports, rather than only information provision. In terms of the latter, the feasibility of the implementation of a scheme such as the *Twf* scheme in Ireland should be investigated, and TUSLA, the recently established Child and Family Agency, should also be involved in these discussions as links should be created in the same way links were created between *Twf* and SureStart. Given the recent decision by the Irish Government to make GP care free for children under the age of 6, there is the potential to integrate a scheme like *Twf* into the information being provided by GPs to the parents of these children. More opportunities should be offered to parents to participate in a varied and extended range of activities and experiences through the medium of Irish, thereby creating opportunities for caregivers and infants to create bonds while establishing Irish usage norms.

Addressing the needs of L1 speakers

Children growing up in Irish Dominant Homes with Irish as their L1 have language needs that require tailored provision and which are currently not served by parents and teachers who over-estimate their Irish proficiency, possibly because of comparing them to children from homes with lower levels of Irish. A necessary step would be to deepen and enlarge *Gaeltacht* parents' understanding of bilingualism in a minority language context. Therefore the first recommendation is for more systematic and specific family language supports to be offered to Irish-speaking families in the *Gaeltacht* throughout the primary school years, in order to address these children's particular and ongoing language needs and to inform parents better with respect to the full normal trajectory of L1 acquisition of Irish in a bilingual context.

As discussed in the last section, there is a need for state-funded supports to help families to choose to make Irish the dominant language of their home. Such family supports

as are now available in the *Gaeltacht* tend to be intermittent rather than continuous, and the current policy review of the grant scheme needs to consider establishing a family language support service that can advise parents and offer practical help over the course of the child's school years. Currently one of the most significant points of contact is at the beginning of preschool, and the *naíonraí* in the *Gaeltacht* have provided vital language support on limited funding (see Hickey, 2007, 2001; 1999b). Current proposals (DES, 2015) to move all of these *naíonraí* into *Gaeltacht* schools are of some concern, given that this may lead to larger groups of preschoolers, with more mixing of native speakers and beginners, and more formal and 'school-like' preschool provision, both of which led to lower Irish scores in Hickey's (1999b) study of *Gaeltacht naíonraí*. Some consideration needs to be given to at least partial or flexible targetted provision for L1 Irish speakers in the *naíonraí* so that their Irish use can be protected and their ongoing development supported before they are exposed to English among their peers, and so that they can be offered input that challenges and advances their Irish development, rather than only served in mixed groups with beginner L2 learners. Hickey and de Mejía (2014) emphasised the central necessity of 'language-rich, discourse-rich' form-focused instruction in immersion pedagogy at the pre-primary level (p. 133). This involves the identification of areas where enrichment is needed and its provision as early as possible at the pre-school level. Neglecting L1 children's language needs in the early years will likely compound their difficulties later. Hickey and de Mejía recommend more collaboration between minority language pre-schools and caregivers to promote language-supportive activities at home, for example loaning books to caregivers to read with their child and offering parents storybook reading modelling sessions to help them to embed and expand the vocabulary used in the pre-school, or providing caregivers with a toolkit similar to the one developed in the MELT project. This would also increase the caregivers' confidence in their own ability to provide enriched input in the home.

For older children in particular, efforts at increasing domains of meaningful use should focus on promoting Irish use with peers. There are currently in existence programmes which focus on establishing friendships and interactions among L1 speakers and L2 learners to encourage them to speak Irish with one another, such as at *Gaeltacht* summer colleges and *Ógras* youth clubs. These types of programmes should be expanded to give these children more varied domains of use of Irish into the school years. Some activities of this type are currently being organised by organisations in the *Gaeltacht* such as *Tuismitheoirí na*

Gaeltachta, which attempt to establish networks between parents who are raising their children with Irish as their L1. They organise events in addition to providing advocacy for these parents and children at official meetings and protests for language rights. *Tús Maith* ('A Good Start') is a community-designed and implemented initiative launched in 2005 by *Oidhreacht Chorca Dhuibhne*, a cultural organisation belonging to the *Corca Dhuibhne Gaeltacht* development cooperative. They organise play groups, home language visits and regular fun days to assist parents in their efforts in raising children with Irish as their L1. Supporting the work of these organisations and extending them throughout the *Gaeltacht* would be of particular benefit to children in Irish-dominant homes.

Children in Bilingual Homes

The participants in the present study who were being raised in homes in which both Irish and English were spoken lagged behind the participants from IDH across all measures of lexical and morphosyntactic acquisition, even in the older age group. As discussed in Chapter 1, de Houwer (2009; 2007) found that the one-parent one-language pattern resulted in successful productive acquisition of both languages by the child in approximately 75% of families, while Bangma and Riemersma (2011) pointed to the "one-language- first" strategy as being more successful in a minority language context, in allowing the threatened language to 'take root' before having to compete with the majority language. The results of the BH children in this study support the concerns raised by Paradis (2011a) and Grosjean (2010) about children's sensitivity to input factors for minority languages acquisition. The reduced input in Irish in the home for children in BH does not appear to be entirely compensated for by Irish-medium schools in the *Gaeltacht*, given their inconsistent performance across measures, whereby sometimes their performance was similar to that participants from IDH and in other cases their performance was much closer to the participants from EDH. These BH children appeared to have the same early advantage as children from IDH in Irish vocabulary acquisition but did not continue on the same trajectory, possibly due to a slower rate of acquisition of the more complex vocabulary expected for older children.

Efforts should be made to recognise the enrichment needs of bilingual families in the *Gaeltacht*, particularly where parents are new speakers of Irish. For instance, parents who were not themselves raised with Irish may have little experience of Child Directed Speech in Irish and therefore are likely to encounter difficulties when they attempt to modify their language input to meet the requirements of their young child(ren), as noted by Gathercole,

Thomas, Williams & Deuchar (2007). Regular interaction between parents whose L1 is Irish and new speaker parents could be facilitated by the establishment of networks between families, offering information sharing, opportunities for relationships in which Irish is the language of interaction, and general support. This could be done using innovative methods such as chat room forums and private Facebook groups, methods used by many other 'special interest' groups who must overcome geographical dispersion by relying on networks. It it noted that these objectives are currently being addressed by *Comhluadar*, which provides opportunities for the establishment and maintenance of adult and child Irish networks, and the maintenance and extension of these services is recommended.

Children in EDH: Addressing the needs of children acquiring Irish in Gaeltacht schools

Gaeltacht schools constitute a vital arena of language learning for all children, but especially for children from EDH. Not only is the classroom another domain of use in which children can be provided with oral and literacy skills in Irish (and English) and enrichment and support for their acquisition of Irish morphosyntax and vocabulary, but it is also important to recognise that the classroom offers exposure to influential social, political and linguistic values which have a formative impact on students' attitudes and opinions (Jaffe, 2007). The language proficiency of teachers is extremely influential, as emphasised by Jaffe (2007) and Coady and Ó Laoire (2002), given the significant role teachers play in embodying expectations of appropriate linguistic attitudes and practices.

The importance of pre-primary school education through minority languages in offering early L2 learning has been demonstrated in contexts as varied as the Basque *Haur hezkuntza*, the Maori *Kohanga Reo* (King, 2001) and the Welsh *cylchoedd meithrin*, as well as in Irish (Hickey, 2011; 1999b; 1997). *Aistear*, the early childhood curriculum framework for all children from birth to six years in Ireland, was designed to be used in the range of early childhood settings, including early Irish-medium education, with the aim of providing high quality early years' education to all. The critical role of play, relationships and language for young children's learning is prioritised. The immersion model has shown excellent results internationally for majority language children acquiring additive bilingualism, but further discussion is beyond the purview of this study. Here, some recommendations drawn from the results of this study that are relevant to *Gaeltacht* schools are briefly outlined.

Literacy development

Strickland (2012) noted that children from Irish speaking homes in the *Gaeltacht* in the *Growing Up in Ireland* database were less likely to participate in home literacy activities, which is a valuable source of linguistic input and could provide some of the enrichment needed by the Irish dominant children in their acquisition of Irish. It is noteworthy that nevertheless the children from Irish speaking homes in *Gaeltacht* schools included in Gilleece, Shiel, Clerkin and Millar (2012) did not show evidence of a vocabulary lag in their English vocabulary and had the highest mean score for the measure of mathematics.

Literacy in a language is recognised as a driver of continued progress in vocabulary and general proficiency in that language. Hickey and Stenson (2016; 2011) assert that Irish reading has been relegated to a secondary skill, and needs better materials and teacher training in order to help children reach higher levels of Irish reading skills, and to increase the frequency of leisure reading in Irish. Hickey and Stenson argue that the early stages of teaching Irish reading could be made more effective, but identified a reluctance among teachers to teach Irish grapheme-phoneme correspondences rather than relying mainly on the 'look-and-say' approach and transfer from phonics materials in English. In terms of the literature children are being exposed to, Harris, Forde, Archer, Nic Fhearaile and O' Gorman (2006) found that children had too little exposure to Irish books beyond school textbooks and that even children in Irish-medium schools rarely engage in Irish leisure reading. Literacy in Irish offers a vital channel of rich and accurate input for children acquiring the language, and needs to be promoted through activities such as children's book clubs and writing circles, and through engaging and informing parents in how to make their homes more supportive of Irish literacy.

Focus on form and increasing the salience of complex features

The classroom is a non-typical language acquisition context for children in that the language input provided in this context is not entirely natural and 'accidental', but may (for some lessons at least) be planned with specific language objectives and outcomes in mind. Therefore the classroom is the ideal place in which to increase the salience of the more complex features such as grammatical gender in a context in which children expect to be challenged and to engage in formal learning. The results of the present research in relation to the impact of metalinguistic awareness are in line with those found by Ó Duibhir (2011). A trend of more accuracy among those those who had explicit knowledge of the rule and

accuracy in marking third person possession in the Measure of Irish Morphosyntax emerged, though the difference was not statistically significant. In Ó Duibhir's (2011) study, he singled out a particular school in his sample because the class teacher engaged in 'focus on form' lessons with a particular emphasis on the irregular verbs in Irish. Students in this school displayed a heightened awareness of the importance of grammatical accuracy, as compared to students from the other schools in the study. This greater sense of awareness did not appear to translate immediately into enhanced performance, but it may be that this was an important first step in helping them notice the discrepancies between their constructions and the grammatically correct. Ó Duibhir (2011) suggested that pupils receiving focus on form classes may have access to declarative knowledge about some forms that has not yet been proceduralised, and that without such efforts to highlight certain forms in input, these may not be sufficiently salient for pupils either to notice the correct form or to realise that the forms they are using need to be corrected.

Increasing understanding of bilingualism and minority language acquisition
Policy proposals made by the Department of Education and Science (DES, 2015) included proposals which recognised the need for tailored initial teacher education for teachers in *Gaeltacht* schools and in Irish-medium post-primary education and the need for the extension of networks between teachers in these types of schools. These proposals are supported by the results of the current research which found teacher ratings of children from Irish Dominant Homes to be less strongly correlated with actual performance on the measure of Irish vocabulary. The challenge faced by *Gaeltacht* and some immersion teachers to stimulate and support the L1 acquisition of a minority language such as Irish, diverges from the challenges faced by teachers teaching Irish as L2 in English-medium schools. The value of the specialism of *Gaeltacht* and *Gaelscoileanna* teachers needs to be recognised, in either the initial teaching qualification or in post-graduate qualifications. In a report for Bòrd na Gàidhlig, McPake, McLeod, O'Hanlon, Wilson and Fassetta (2013) also called for a new professional development course for teachers of Gaelic which would equip teachers with the necessary pedagogical and language skills to teach in Gaelic.

Reducing the emphasis on the deficit model
As noted earlier, there has been a tendency in recent commentary on Irish in the *Gaeltacht* to focus on deficits in children's Irish, and this runs the risk of undermining parents'

commitment and fostering public assumptions about 'semilingualism' among them. The results of the present research demonstrate language change and resultant linguistic needs as well as areas of relative strength among Irish L1 children in the *Gaeltacht* in terms of vocabulary and fluency, while also expanding the frame of reference to reveal inconsistency and inaccuracy among the full range of Irish speakers, from L2 learners to proficient adults speakers. By widening the lens from a focus on deficiencies in the performance of *Gaeltacht* children, it is argued that features formerly acquired 'by ear' from rich and more consistent input are no longer being acquired in this way, and thereby necessitate more active approaches to supporting and enriching children's Irish through home and school-based intervention.

As discussed in Chapter 1, Pires and Rothman (2009) found that heritage speakers of European Portuguese and Brazilian Portuguese whose input does not contain a specific feature are not triggered to acquire that feature, showing again the centrality of the input and learners' language experience and how dynamic the language outcomes are, rather than essentialist expectations of what accuracy should be. The attitudes expressed by the new speakers in the adult study here revealed some dissatisfaction with the legitimacy of the post-traditional variety of Irish they speak. This post-traditional variety of Irish is a product of typical usage outside of the *Gaeltacht* which does not stake its legitimacy on being a descendant of the traditional varieties. Many of the new speakers interviewed did not express the desire or the need to 'pass themselves off' as native speakers when they can claim legitimacy among their peers who use the same accent and variety as they do, despite being aware of the differences between their variety and the dialects of Irish spoken in the *Gaeltacht*.

It is likely to be the case that promoting more discussion about what it means to be a bilingual in a minority threatened language would prove more effective than a deficit model that may further undermine confidence among Irish speakers. Smith Christmas (2014) discussed the risk of 'talking language shift into being' (Gafaranga, 2011), which she found could happen if parents capitulate to children's preference for the majority language. Another possible way in which shift can be talked into being is in the discourse used by those regarded as authorities, where the essential demise of the language is announced and bemoaned. Edwards and Newcombe (2005) made the following comment about Welsh, though it could also be applied to Irish:

"In order to compete with high status languages of wider communication, minority languages must be perceived as vibrant rather than moribund, as useful and relevant rather than relics of the past." (p. 147).

Ó Giollagáin and colleagues have documented the failures of Irish government policies in what they argue has resulted in the marginalisation and minorisation of the Gaeltacht (see Ó Giollagáin, 2014a, 2014b) but they have also been highly critical of the variety of Irish used by young speakers, particularly those outside the Gaeltacht. Ó Curnáin (2012) proposed a typology of varieties of Irish: speakers born before 1960 who speak traditional Irish, speakers born before 1990 who are non-traditional speakers and speakers born after 1990 who are 'reduced speakers' who speak 'broken Irish' (Ó Curnáin, 2009). Such a deficit model does not appear to recognise the Irish and English bilingual proficiency of these children, particularly the IDH children, the changing nature of the input to them, and their resulting educational and linguistic needs.

Overall Conclusions

The results here demonstrate that language exposure in the home undoubtedly matters. Children from Irish Dominant Homes showed more accurate performance on Irish vocabulary and on some aspects of gender marking, and the difference between them and children from Bilingual Homes and English Dominant Homes was even greater in the older age group. Language exposure in school also matters. The performance of the adult participants suggests that some L2 learners access increased accuracy through formal instruction in Standard Irish in secondary school, since the young adult L2 speakers tested surpassed the native speakers in terms of their accuracy in marking grammatical gender. This reveals the significant impact that a focus on form in Irish teaching in school can have, and a history of according greater attention to form in non-*Gaeltacht* schools. It also points to significant divergence between grammatical gender marking in the Standard language and in current usage in the *Gaeltacht*. The children's lack of grammatical gender marking following the definite article and in noun-adjective combinations, in line with the significant decrease in accuracy from the oldest adults to the youngest, indicates that grammatical gender is no longer being reliably marked in these contexts in current Gaeltacht spoken Irish.

There are two exceptions. Children were very accurate in their receptive knowledge of semantic gender marking and some were able to mark the distinction between semantic

masculine and feminine gender in production. This points to semantic gender marking being retained in spoken language. Secondly, a difference was found in the frequency of gender marking for third person possession in adults and children, whereby both were more accurate in this context than the other two contexts, or at least showed more awareness of the need to mark third person possession, even if they were not doing it consistently. This points to third person possession marking being retained in the acquisition of *Gaeltacht* Irish speaking children also.

The final point to note is that children can progress in their acquisition of Irish as their L1 or their L2 and also acquire English to a high level of proficiency. Examination of performance by the child participants from IDH on the measure of Irish vocabulary revealed they had the highest scores. However, they also were in the process of acquiring English vocabulary at a normal rate. The participants from BH were the most balanced in their Irish and English vocabulary, but were not at par for Irish vocabulary with the children from IDH. The children in the Irish-immersion school had high and equal scores on the measures of Irish and English vocabulary. In spoken Irish the participants from IDH and those in the Irish-immersion school had high fluency ratings and did not use codemixing extensively.

Children acquiring Irish as their L1 or one of their languages in the home, as well as those acquiring it as an L2 in school, do so in a context in which the more complex aspects of the language they are being expected to acquire by ear are no longer marked consistently in current spoken Irish in the Gaeltacht. Despite the efforts of parents choosing to raise their children in Irish dominant homes, the unique needs of these children are largely unrecognised by national entities (e.g. the Child and Family Agency). As Irish is a minority language, it is vulnerable to pressure from the dominant language, English, and from reduced domains of use for adults and children, and the language as it is now spoken is changing. These results demonstrate that exposure does matter, and that acquisition by children can be better supported by providing them with more targetted exposure to rich and accurate Irish with more focus on form, as well as more promotion of both inter-generational and same-generational use. Children acquiring Irish in Irish dominant homes at present need enriched input and support if they are to develop linguistically, cognitively and to develop their sense of identity and belonging.

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Appendices

Appendix 1: The B-LBQ

1. What was spoken with you in your home growing up? (Put *one* √ on *each* line)

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4

2. Were you raised in the Gaeltacht? Yes □ No □

Scoring	1	0

3. What kinds of schools did you attend? (*Circle* an answer on every line)

Primary: All-Irish   All-English
Secondary: All-Irish   All-English

4. List your languages in the **order** & at the **age** you acquired them:

		Scoring
Your first language:	Age:	Irish = 4
Your second language:	Age:	English/ Other = 0
Your third language:	Age:	

Total Score Past Irish Use: 9

5. What do you speak in the home in which you are now? (*one* √on *every* line)

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4

6. List all of your languages, according to **strength/ fluency**:

	Scoring
1:	Irish = 4
2:	English/ Other = 0
3:	

7. What is your level of ability in relation to each of these aspects of Irish in your opinion? (Put *one* √ on the appropriate point in *each* section)

	A few words				High proficiency
Scoring	0	1	2	3	4
Understanding					
Speaking					
Writing					
Reading					
Grammar					

8. If you have/ were to have a family, would you like to raise them with: (circle)

Only Irish	Irish = 2
Irish and English	Irish & English = 1
Only English/ Another language	English/ Other = 0

Total Score Current and Future Irish Use: 30

9. Are you male □ or female □, or would you prefer not to choose a category? □
10. Your age: Under 25 □ 26 – 35 □ 36 – 45 □ 46 – 55 □ 55+ □
11. Which county were you raised in?
12. What is your highest educational qualification?
13. What is your present occupation?

Appendix 2: Child Language Background Questionnaire

1. Are you the: *(Circle)* Mother Father Other (please specify):
2. Child's date of birth:
3. Child's country of birth:
4. Birth order: *(Circle)* First Child Second Child Third Child Other (please specify):
5. At what age **in months** did your child first start hearing Irish? (if birth write 0)

Scoring	5 = 0-11	4 = 12-23	3 = 24-35	2 = 36-47	1 = 48-59	0 = 60+

6. At what age **in months** did your child first start hearing English? (if birth write 0)
7. Before going to school, how much time did (s)he spend listening to: (✓*on each line*)

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4
English					
Scoring	4	3	2	1	0

8. With whom? (**please specify** if with childminder, relative, creche etc)
   a) Child heard Irish from
   b) Child heard English from
9. Indicate who spends the most time with your child (mother/father/other person – specify): _____ *(this person will be referred to as the Primary Caregiver)*
10. Which language(s) does the Primary Caregiver speak with your child? (✓*one on each line)*

Primary Caregiver ←→ Child

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4
English					
Scoring	4	3	2	1	0

11. Which language(s) does the Other Caregiver (mother/father/other person – specify: _ _____) speak with your child? (✓*one on each line)*

Other Caregiver ←→ Child

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4
English					
Scoring	4	3	2	1	0

12. Please specify how many siblings your child has: _____ siblings
13. Indicate how much Irish, English (and Other language if applicable) is used *between your child and his/ her siblings:* (✓*one on each line)*

Siblings ←→ Child

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4
English					
Scoring	4	3	2	1	0

14. Before you answer Question 16, please estimate how many children are in your <u>child's friends group</u> and how they know each other (e.g. school/relative). If your child has more than 1 group, please give details for each separately:

Group 1: Estimated Number of friends -   How they know each other -
Group 2: Estimated Number of friends -   How they know each other -

15. Indicate which language(s) your child speaks with his/ her friends. If your child has more than 1 group of friends, please give details for each separately: (✓ *one on each line*)

Friends Group 1 ←→ Child

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4
English					
Scoring	4	3	2	1	0

Friends Group 2 (if applicable) ←→ Child

%	0 - 20	21 - 40	41 - 60	61 - 80	81 - 100
Irish					
Scoring	0	1	2	3	4
English					
Scoring	4	3	2	1	0

16. Which of these literary or other activities does your child do in Irish every week? (✓)

	Irish Only	*Some Irish*		*Irish Only*	*Some Irish*
Reading/ Story-telling	2	1	Dancing	2	1
Music/ Singing	2	1	Art	2	1
Music - instrument	2	1	Games (informal)	2	1
Computer skills	2	1	Sports	2	1

17. Using the scale below, please estimate your child's overall ability to do read, write, speak and understand in *Irish and English* compared to other children his/ her age.

1	2	3	4	5
Very low ability	**Below average**	**Average ability**	**Above average**	**Very high ability**
1	2	3	4	5

For each aspect of language listed below, write in the number from the scale above that best represents your child's ability. **In your opinion, how well is your child able to:**

	Insert number from scale		*Insert number from scale*
Read in Irish		Read in English	
Write in Irish		Write in English	
Speak in Irish		Speak in English	
Understand spoken Irish		Understand spoken English	

Appendix 3: Child Use of Irish Questionnaire and Receptive Measure of Irish Morphosyntax (RMIM)

Child Assent Form

_____ is ainm dom.

Ba mhaith liom é sin a dhéanamh

Níor mhaith liom sin a dhéanamh

Child Use of Irish Questionnaire Part 1

Cúpla Ceist!

D' Ainm: _____

D'Aois: _____

Do Rang: Rang a _____

Sa bhaile le do mháthair, an úsáideann tú...

Níos mó Gaeilge ná Béarla	Leath agus leath den dá theanga	Níos mó Béarla ná Gaeilge
GAEILGE BEARLA	GAEILGE BÉARLA	GAEILGE BÉARLA

Sa bhaile le d'athair, an úsáideann tú...

Níos mó Gaeilge ná Béarla	Leath agus leath den dá theanga	Níos mó Béarla ná Gaeilge
GAEILGE BEARLA	GAEILGE BÉARLA	GAEILGE BÉARLA

Child Use of Irish Questionnaire Part 2

Le do dheirfiúracha agus dheartháireacha, an úsáideann tú...

Níos mó Gaeilge ná Béarla	Leath agus leath den dá theanga	Níos mó Béarla ná Gaeilge
GAEILGE BEARLA	GAEILGE BÉARLA	GAEILGE BÉARLA

Le do chairde, an úsáideann tú...

Níos mó Gaeilge ná Béarla	Leath agus leath den dá theanga	Níos mó Béarla ná Gaeilge
GAEILGE BEARLA	GAEILGE BÉARLA	GAEILGE BÉARLA

An maith leat Gaeilge? Cur ✔ sa bosca cuí.

Is fuath liom í	Tá sí ceart go leor	Is breá liom í

An maith leat Béarla? Cur ✔ sa bosca cuí.

Is fuath liom é	Tá sé ceart go leor	Is breá liom é

Sample items for RMIM Subtest 1

Sé   Sí

Níl a fhios agam

Sé   Sí

Níl a fhios agam

Sé   Sí

Níl a fhios agam

Sample items for RMIM Subtest 2

Chonaic Marcas é
Nil a fhios agam

Chonaic Marcas í
Nil a fhios agam

Chonaic Marcas é
Nil a fhios agam

Chonaic Marcas í
Nil a fhios agam

Sample items for RMIM Subtest 3

Dathaigh a thaobh
Níl a fhios agam

Dathaigh a taobh
Níl a fhios agam

Sample items for RMIM Subtest 4

Dathaigh a thaobh
Níl a fhios agam
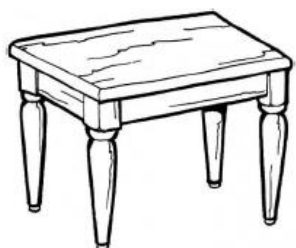
Dathaigh a taobh
Níl a fhios agam

Sample items for RMIM Subtest 5

Sé   Sí

Nil a fhios agam
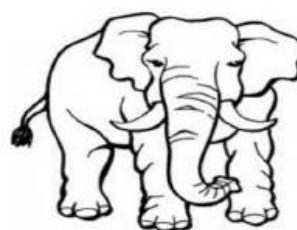
Sé   Sí

Nil a fhios agam

Appendix 4: Child Rating Form (Teacher)

Class: _____

Date_____

Instructions

You are asked to indicate your estimate of each child taking part in the research, in relation to their ability to do understand, speak, read and write in Irish and English, using the following scale, where a 1 means the child is not able to do this task at all, and a 5 means that the child shows exceptional ability at that task. For each aspect of language use in the box below, please put one number in the box that best represents each child's ability for that aspect. This information is very valuable and I am very grateful to you for your time and for sharing your expertise with me.

1	2	3	4	5
Very low ability compared to other children in the class	Below average ability	Average ability compared to other children in the class	Above average ability	Exceptionally high ability compared to other children in the class
1	2	3	4	5

In your opinion, what is the child's ability in:

	Irish				English			
Child's Name	compreh	speaking	reading	writing	compreh	speaking	reading	writing

Thank you very much!
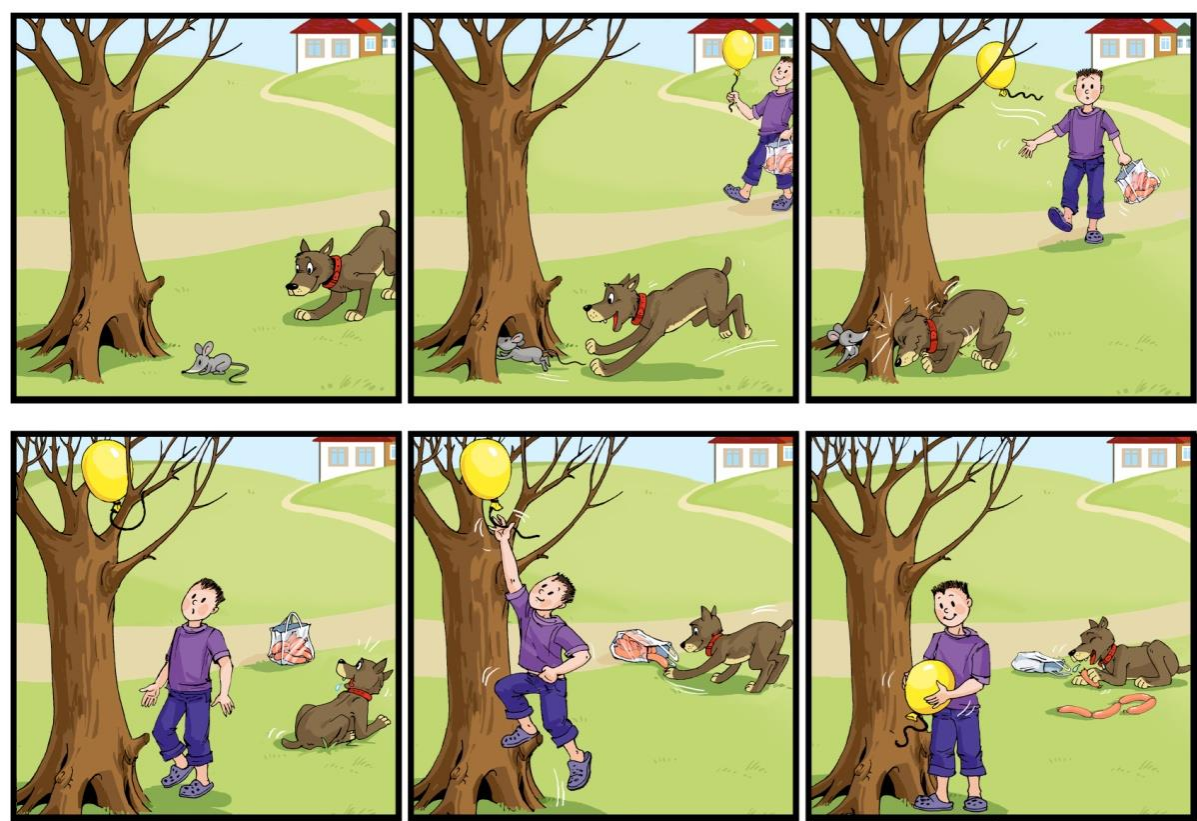
Appendix 6: The interview schedule for Adult Study 2
Irish Use
1. Who do you speak Irish to in your family?
2. Is there anyone you wouldn't speak English to?
3. Do you converse in Irish outside of the family? With who?
4. If you met someone in the same age group as you in the Gaeltacht, which language would you speak?

Identity/Motivation
1. Do you feel that being a fluent speaker of Irish is something that you value about yourself?
2. Do you feel that being a fluent speaker of Irish is something that is valued by other people?
3. Do people think you have an advantage because you can speak the language?
4. Do you think there are any disadvantages in being able to speak Irish?
5. Do you have a role in the development of the language?

Other speakers
1. How often do you speak Irish to people currently in the *Gaeltacht*?
2. Have you ever struggled to understand non-*Gaeltacht* Irish or have others struggled to understand your Irish?
3. Do you ever switch to English when someone tries to speak Irish to you?
4. Are there any obstacles to you speaking Irish? In which contexts?
5. Do you encourage people who you know to have Irish to speak the language with you?
6. Who do you think best fits the image of a good Irish speaker now?
7. Do you think the image of the Irish speaker has changed in the last ten years?
8. Who do you think gets the most profit out of speaking Irish now?
9. What do you think are other people's motivation for learning Irish?

Accuracy
1. Do you worry about your accuracy when you are speaking? What about when writing?
2. How often do you mix English words into you Irish?
3. How do you feel about code-switching, using some English in your Irish?
4. Who do you think decides what is accurate and what is not accurate in Irish?
5. Do you think Irish has become Anglicised? Is so why? Does that bother you?
6. What do you think of the Irish of the *Gaelscoileanna*?

Media/ Reading
1. How often do you watch TG4?
2. Do you think the Irish they use represents the type of Irish you speak?
3. Would you use twitter/Facebook/text in Irish?

The Future: Personal and Society
1. How important is it to you that your future life partner would some level of Irish?
2. If you choose to have children, would it be important to you for them to be raised with Irish?
3. What do you think the future holds for the Irish language?

Inaccurate gender assignment

Inaccurate gender assignment was possible in two contexts in the present study. The first was inaccurate gender assignment following the definite article and the second was in inaccurate gender assignment in marking third person possession.

Inaccurate gender assignment following the definite article

Errors of assignment were seen in a number of ways in Subtest 1. They included using a 'mark nothing' default, overextending lenition to masculine consonant initial nouns, overextending eclipsis to feminine vowel initial nouns and overextending eclipsis to masculine /s/ initial nouns. A mark-nothing default allowed the participant to be correct on 50% of the items in this subtest. On the other hand, overextension of lenition to masculine consonant initial nouns, of eclipsis to feminine vowel initial nouns and to masculine /s/ initial nouns indicates active but inaccurate use of mutation to mark grammatical gender following the definite article. The number of errors made on each noun in presented in Table 11.1.

Table 11.1 Errors on Subtest 1 in order of frequency, split by gender

	Noun	Accurate	Inaccurate	Nothing	Overlenition	Overeclipsis
Masc Nouns	Oigheann	68	67	67	0	
	Bláth	94	41		38	2
	Uisce	102	33	33	0	
	Sliabh	106	29		5	22
	Feirmeoir	108	27		26	1
	Sionnach	111	24		1	19
	Geansaí	113	22		20	0
	Capall	115	20		16	3
	Garda	117	18		15	3
	Féar	119	16		15	1
	Mála	119	16		14	1
	Buachaill	120	15		12	2
	Crann	122	13		12	1
	Madra	129	6		4	0
Total		**1543**	**347**	**100**	**178**	**55**
Fem Nouns	Srón	46	89	85	4	
	Muc	67	68	68		0
	Bróg	85	50	49		1
	Súil	88	47	45	2	
	Cearc	88	47	44		3
	Fiacail	97	38	37		1
	Ubh	98	37		2	32
	Cathaoir	98	37	36		1
	Máthair	103	32	32		0
	Bainríon	104	31	28		3
	Gruaig	106	29	28		1
	Gráinneog	108	27	25		2
	Fuinneog	117	18	15		3
	Eochair	123	12		0	10
Total		**1328**	**562**	**492**	**8**	**57**

Non-applicable errors are shaded

Difference according to gender of the noun

Examination of the relative number of accurate and inaccurate responses for the masculine and feminine nouns in Table 11.1 points to a trend of greater accuracy on the masculine nouns than the feminine nouns. Firstly, a two-tailed dependent t-test was used to examine the difference in mean accuracy for masculine and feminine nouns, and a statistically significant difference was found (t = -5.482, df = 134, p < .001). The 95% CI ranged from -2.167 to -1.018 which does approach 0 and which suggests that, upon replication, the difference between the participants on these two subtests could be 0.

Secondly, goodness of fit chi-square tests were conducted on each item to test whether the difference in frequency of correct or incorrect response differed significantly from what would be expected by chance alone. If the goodness of fit chi-square test is not significant, this indicates that there is no statistically significant difference between the number of participants who were accurate and the number of participants who were inaccurate for a particular item. This would indicate that participants were not using any consistent strategy and were guessing. Significant results indicate that the liklihood of participants being accurate is above chance. The test was significant for all nouns with the exception of *oigheann* (oven; masculine; $X^2(1)$ = .007, p = .931) and *muc* (pig; feminine; $X^2(1)$ = .007, p = .931). In the case of *srón* (nose; feminine), the goodness of fit chi-square test was significant but the distribution of scores was opposite to all other items. Nearly twice as many participants applied no marking to this item than those who applied it correctly.

Difference according to language background or age

Additional analyses were conducted on the use of overlenition in responses to Subtest 1 of the MIM to explore the possibility of a difference in this response according to language background and age and the scores for each group are presented in Table 11.2.

Table 11.2 Overlenition following the definite article by language background and age

Language Background	Age	n	*M*	*SD*
Native speaker	<25	9	2.89	*3.69*
	25-55	28	.64	*1.16*
	56+	7	1.00	*2.24*
	Total	**44**	**1.16**	***2.21***
Highly Proficient L2 speaker	<25	10	1.90	*1.37*
	25-55	21	1.14	*1.56*
	56+	10	.40	*.97*
	Total	**41**	**1.15**	***1.46***
Moderately Proficient L2 speaker	<25	21	1.81	*2.27*
	25-55	25	2.00	*2.45*
	56+	4	.00	*.00*
	Total	**50**	**1.76**	***2.31***
Total	<25	40	2.07	*2.46*
	25-55	74	1.24	*1.86*
	56+	21	.52	*1.44*
	Total	**135**	**1.38**	***2.06***

Table 11.2 points to the slightly higher overextension of lenition to masculine nouns by MP L2 participants as compared to the other two language background groups. A much

clearer trend emerged when errors of overlenition were examined across age groups. The youngest participants overextended lenition more than both other age groups, and the trend continued to the 25-55 year olds, who used overlenition more than the participants aged 56 and over. A two-way between-groups ANOVA was conducted to explore the statistical significance of these trends. The interaction between language background and age was not statistically significant $F(4, 125) = 1.964$, $p=.104$. There was a statistically significant main effect for age $F(2, 125) = 5.016$, $p < .01$ and the effect size was small ($\eta_p^2 = .074$). The main effect for language background was not statistically significant $F(2, 135) = .285$, $p=.753$. The means are presented in Fig. 11.1.
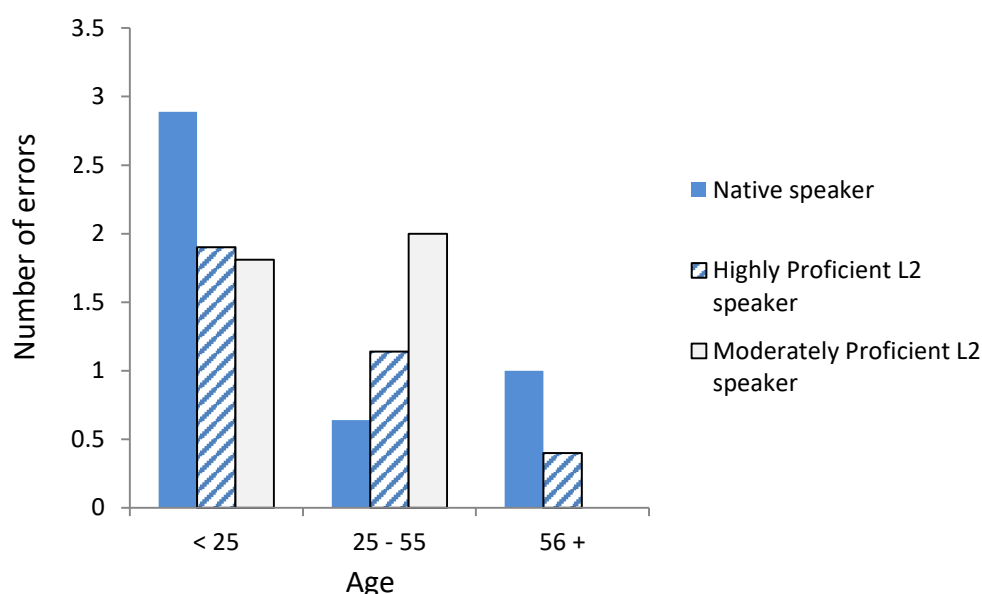
Figure 11.1 Overlenition following the definite article by language background and age

Fig. 11.1 shows that the frequency of overlenition decreases with age from the under 25 year olds to the 56+ year olds but that the age group 25-55 varies. In the age group 25-55, there is an uninterrupted downward trend for the HP L2 participants, the 25-55 year old native speaker participants used overlenition *less* than the 56+ year olds and the opposite trend was evident for the MP L2 participants in that the 25-55 year olds used overlenition *more* than the 56+. This indicates that lenition was overextended more by participants with lower proficiency than those with higher proficiency.

Inaccurate gender assignment in marking third person possession
Errors of assignment were seen in a number of ways in Subtest 3. They included using a 'mark nothing' default, overextending lenition to consonant initial nouns possessed by feminine nouns and overextending eclipsis to vowel initial nouns possessed by masculine nouns. As was the case in Subtest 1, consonant initial nouns possessed by feminine nouns and overextending eclipsis to vowel initial nouns possessed by masculine nouns indicates active but inaccurate use of mutation to mark grammatical gender. The number of errors made on noun, in addition to the type of error made, is presented in Table 11.3.

Table 11.3 Errors on Subtest 3 in order of frequency, split by gender

	Noun	Accurate	Inaccurate	Nothing	Overlenition	Overeclipsis
Masc possessor	Bláth	68	57	53		2
	Gairdín	75	50	41		3
	Cat	81	44	43		0
	Froga	86	39	37		2
	Éan	90	35	29		4
	Feirmeoir	90	35	34		1
	Teach	92	33	28		1
	Mála (vowel)	93	32		16	8
	Tíogar	96	29	27		1
	Madra	98	27	24		2
	Carr	98	27	24		2
	Garda	102	23	23		0
	Asal (vowel)	104	21		16	4
	Seán	106	19	18		1
Total		**1279**	**471**	**381**	**32**	**31**
Fem possessor	Taibhse (vowel)	35	90	78		7
	Gé	59	66		64	0
	Coinneal	61	64		60	2
	Eilifint	62	63		61	1
	Abhainn (vowel)	73	52	36		11
	Muc	75	50		49	0
	Bó	77	48		40	4
	Trá	77	48		44	1
	Srón	78	47		42	2
	Cearc	83	42		38	1
	Fuinneog	85	40		37	3
	Scian	90	35		29	4
	Cailín*	91	34		34	0
	Feirm	91	34		30	2
	Gráinneog	91	34		32	2
	Máthair	100	25		22	0
	Bean	105	20		20	0
	Síle	109	16		14	0
Total		**1442**	**808**	**114**	**616**	**40**

*Cailín is being treated like a feminine noun as this is how it is marked for third person possession.

Difference according to gender of the noun

Examination of the relative number of accurate and inaccurate responses for the masculine and feminine nouns did not immediately suggest any trend of greater accuracy for either masculine or feminine nouns. Using a two-tailed dependent t-test, a statistically significant difference between mean accuracy with masculine and feminine nouns was found overall (t = -6.101, df = 124, p < .001). The 95% CI ranged from -3.571 to -1.821 which is still sufficiently far from 0 to interpret the results with some confidence.

As with the examination of errors in gender assignment in Subtest 1, goodness of fit chi-square tests were conducted on each item. The test was significant for all nouns with the exception of *gé* (goose; feminine; $X^2(1)$ = .508, p = .476), *abhainn* (river;

feminine; $X^2(1) = 3.841$, $p = .05$), *bláth* (flower; masculine; $X^2(1) = .794$, $p = .373$), *eilifint* (elephant; feminine; $X^2(1) = .008$, $p = .929$) and *coinneal* (candle; feminine; $X^2(1) = .072$, $p = .788$). *Muc* was only slightly significant (pig; feminine; $X^2(1) = 5.365$, $p = .021$) and was not significant in the analysis of Subtest 1. In the case of *taibhse* (ghost; feminine), the goodness of fit chi-square test was significant but the distribution of scores was opposite to all other items. Nearly three times as many participants applied no marking to this item as those who applied it correctly.

Difference according to language background or age
Additional analyses were conducted on the use of overlenition in Subtest 3 of the MIM to explore the possibility of a difference according to language background and age.

Table 11.4 Overlenition in marking third person possession by language background and age

Language Background	Age	n	*M*	*SD*
Native speaker	<25	8	5.63	*4.34*
	25-55	26	5.69	*5.21*
	56+	7	3.43	*1.81*
	Total	**41**	**5.29**	***4.63***
Highly Proficient L2 speaker	<25	8	7.50	*2.98*
	25-55	18	4.17	*2.96*
	56+	10	2.00	*1.94*
	Total	**36**	**4.31**	***3.29***
Moderately Proficient L2 speaker	<25	21	5.90	*4.12*
	25-55	23	6.26	*3.66*
	56+	4	3.25	*2.22*
	Total	**48**	**5.85**	***3.80***
Total	<25	37	6.19	*3.92*
	25-55	67	5.48	*4.20*
	56+	21	2.71	*1.98*
	Total	**125**	**5.22**	***3.98***

Table 11.4 shows that lenition was overextended to the nouns possessed by feminine possessors by native speaker participants nearly as frequently as MP L2 participants, despite aligning much more closely with the HP L2 participants in the use of overlenition following the definite article. The same trend emerged for age: the youngest participants overextended lenition the most, followed by the participants aged 25-55 and least by the participants aged 56 and over.

A two-way between-groups ANOVA was conducted to explore the impact of language dominance and age on the overextension of lenition in marking grammatical gender in third person possession. The interaction between language background and age was not statistically significant $F(4, 125) = .955$, $p = .435$, nor was the main effect for language dominance $F(2, 125) = .172$, $p = .842$. There was however a statistically significant main effect for age $F(2, 125) = 4.665$, $p < .05$.
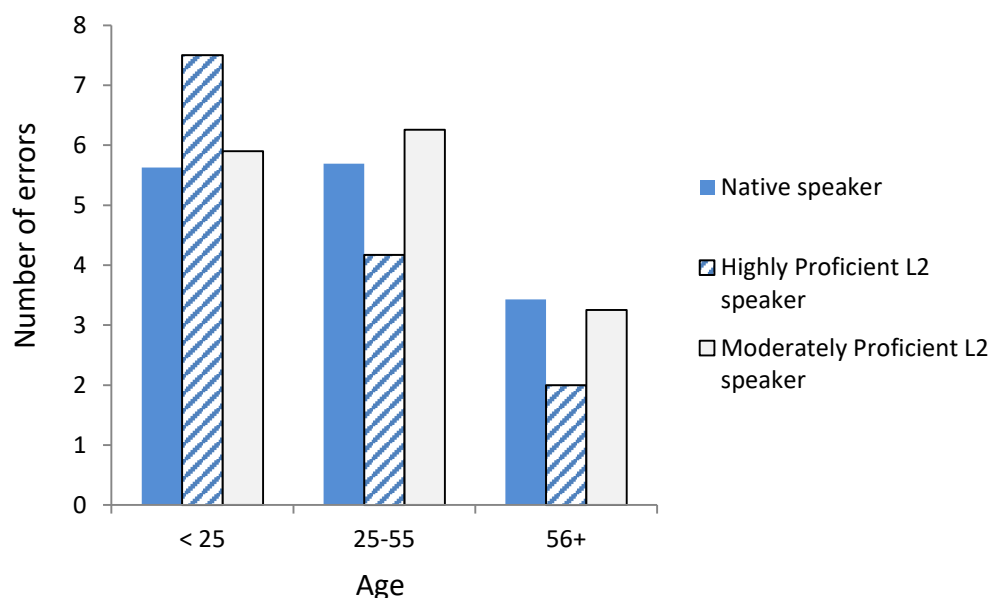
Figure 11.2 Overlenition in marking third person possession by language background and age

The youngest participants also used overlenition the most in marking third person possession, though much more frequently than they did following the definite article. There was a steady decrease in the frequency of overlenition in this context according to age among the HP L2 participants. As was the case following the definite article, the participants aged 25-55 overextended lenition more than the younger participants among the MP L2 speakers. However, in this context the native speaker participants aged 25-55 *also* overextended lenition more than the younger participants from the same language background. Finally, regardless of language background, the participants aged 56 or over remained the least likely to overextend lenition. Coupled with their relatively higher accuracy, these results point to the oldest group of participants using and not using lenition with the most accuracy of all of the three age groups, regardless of language background.

Summary
The results of the goodness of fit chi-square tests indicated that, with the exception of 6 nouns, the accuracy for all nouns was above chance. This indicates that participants were using some strategy and were not all guessing throughout. The number of errors made on feminine nouns (562) was statistically significantly greater than the number made on masculine nouns (347) in marking grammatical gender following the definite article. These errors on feminine nouns comprised of no marking of grammatical gender despite the need for lenition. The number of errors made on feminine nouns (808) was also statistically significantly greater than the number made on masculine nouns (471) in marking third person possession. This result indicates the opposite of the finding above; the greater number of errors on feminine nouns required overextension of lenition as opposed to no marking. This points to a bias towards the appropriate response to masculine nouns.

Two between-groups ANOVAs were conducted to explore the impact of language dominance and age on errors in the overextension of lenition, following the definite article and in marking third person possession. These analyses did not reveal a

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statistically significant difference in overlenition according to language background: the overuse of lenition was not statistically significantly influenced by language background.

A main effect was found for age in the case of grammatical gender following the definite article. Lenition was overextended more often by those under 25 years than any other age group when assigning grammatical gender following the definite article. Contrary to lenition being eroded, these data suggest that lenition, in particular, is overused to compensate for lack of accuracy in assigning grammatical gender.

Inaccurate gender agreement
Inaccurate gender agreement was possible in two contexts: inaccurate gender agreement in noun-adjective combinations and in marking third person possession.

Inaccurate gender agreement in noun-adjective combinations
Errors of agreement were seen in a number of ways in Subtest 2. First was a 'mark nothing' default (not employed frequently) and second was inaccurate assignment of grammatical gender with accurate agreement. Here, an error of assignment was made, but in looking at the gender agreement, the agreement was accurate for that assignment. Participants inaccurately attributed gender but were successful in achieving agreement according to that gender. Thirdly, participants achieved accurate assignment of grammatical gender but with inaccurate agreement. Fourthly, some participants inaccurately attributed gender and were also unsuccessful in achieving agreement according to that gender. The number of errors made on each noun, in addition to the type of error made, is presented in Table 11.5.

Table 11.5 Errors on Subtest 2 in order of frequency, split by gender

	Noun	Adjective	Accurate Assign & Agree	Inaccurate	Inaccurate Assign & Accurate Agree	Accurate Assign & Inaccurate Agree	Inaccurate Assign & Inaccurate Agree
Masc	Oigheann	Dearg	63	68	4	16	46
	Sliabh	Contúirteach	75	56	25	22	8
	Uisce	Gorm	77	54	15	10	28
	Bláth	Buí	91	40	6	23	10
	Sionnach	Bán	100	31	16	4	9
	Geansaí	Gorm	105	26	8	11	6
	Crann	Corcra	109	22	5	10	4
	Féileacán	Dearg	109	22	2	7	8
	Féar	Glas	110	21	7	12	2
	Capall	Gortaithe	112	19	8	5	4
	Buachaill	Glan	112	19	8	5	5
	Garda	Deas	112	19	4	2	10
	Mála	Bán	116	15	8	3	4
	Teach	Contúirteach	117	14	11	1	0
	Tarbh	Dubh	120	11	10	0	0
	Madra	Gortaithe	122	9	6	1	2
	Total		**1650**	**446**	**143**	**132**	**146**
Fem	Taibhse	Buí	37	94	90	0	2
	Ubh	Buí	45	86	47	28	9
	Scuab	Buí	58	73	72	0	0
	Muc	Buí	58	73	8	60	5
	Teanga	Dearg	61	70	0	65	5
	Súil	Gorm	63	68	11	33	22
	Bróg	Corcra	64	67	19	43	5
	Máthair	Deas	67	64	18	33	13
	Gruaig	Donn	67	64	32	26	4
	Cathaoir	Dearg	68	63	21	35	5
	Gráinneog	Gortaithe	72	59	29	22	7
	Cearc	Buí	76	55	11	40	2
	Bainríon	Gorm	77	54	12	33	9
	Eochair	Glas	77	54	38	5	6
	Fiacail	Bán	79	52	14	29	6
	Fuinneog	Corcra	86	45	25	15	3
	Total		**1055**	**1041**	**447**	**467**	**103**

Difference according to gender of the noun

The relative number of accurate and inaccurate responses for the masculine and feminine nouns presented in Table 11.5 points to a trend of greater accuracy on the masculine nouns than the feminine nouns. Goodness of fit chi-square tests were conducted on each item to test whether the difference in frequency of correct or incorrect response differed significantly from what would be expected by chance alone. The test was not significant for 13 feminine nouns and only three masculine nouns (p = .01). This suggests that accuracy in agreement between nouns and adjectives was at chance level for many more feminine nouns than masculine nouns.

   This is supported by the result of a two-tailed dependent t-test, in which a statistically significant difference between mean accuracy with masculine and feminine

nouns on the measure of grammatical gender marking in noun-adjective combinations was found (t = -9.911, df = 130, p < .001). The 95% CI ranged from -5.449 to -3.635 which does approach not 0 and suggests the results can be interpreted with some confidence.

Difference according to language background or age
Here, errors relating to grammatical gender agreement only are included, therefore errors of inaccurate assignment but accurate agreement will not be considered. The errors of inaccurate agreement, i.e. 'accurate assignment but inaccurate agreement' and 'inaccurate assignment with inaccurate agreement' will be combined and their average calculated for the following analyses.

Table 11.6 Overlenition in errors of agreement in noun-adjective combinations by language background and age

Language Background	Age	n	*M*	*SD*
Native speaker	<25	9	4.67	*2.29*
	25-55	27	3.02	*2.26*
	56+	7	2.50	*2.30*
	Total	**43**	**3.28**	***2.34***
Highly Proficient L2 speaker	<25	10	2.75	*.85*
	25-55	20	1.80	*1.63*
	56+	9	1.00	*1.92*
	Total	**39**	**1.86**	***1.63***
Moderately Proficient L2 speaker	<25	21	4.45	*1.87*
	25-55	24	3.12	*2.08*
	56+	4	2.38	*2.05*
	Total	**49**	**3.63**	***2.08***
Total	<25	40	4.08	*1.91*
	25-55	71	2.71	*2.09*
	56+	20	1.80	*2.11*
	Total	**131**	**2.99**	***2.17***

Errors of agreement through the use of overlenition appear to be more frequent among the native speaker participants and the MP L2 participants than among the HP L2 participants. The same trend as both previous analyses of rate of inaccuracy emerged for age: the youngest participants made the most errors of agreement, followed by the participants aged 25-55 and the participants aged 56 and over made the least.

A two-way between-groups ANOVA was conducted to explore the impact of language dominance and age on errors of agreement through the use of overlenition in noun-adjective combinations. The interaction between language background and age was not statistically significant (F=.108; df=4, 131; p =.979). There was a statistically significant main effect for age (F=7.547; df=2, 131; p < .01) and the effect size was small (η_p^2 = .110). The main effect for language background was also statistically significant (F=6.282; df=2, 131; p < .01) and the effect size was also small (η_p^2 = .093). Scheffé post-hoc analysis revealed that the mean rate of errors of agreement of the under 25 years participants (*M* = 4.08, *SD* = 1.91) was statistically significantly higher than the 25-55 years participants (*M* = 2.71, *SD* = 2.09) and the 56+ years participants (*M* = 1.80, *SD* = 2.11).

In relation to language background, the results showed that the mean rate of errors of agreement of the NAT participants (*M* = 3.28, *SD* = 2.34) and the MP L2

participants (*M* = 3.63, *SD* = 2.08) were both statistically significantly higher than the HP L2 participants (*M* = 1.86, *SD* = 1.63). The results are plotted in Fig. 11.3.
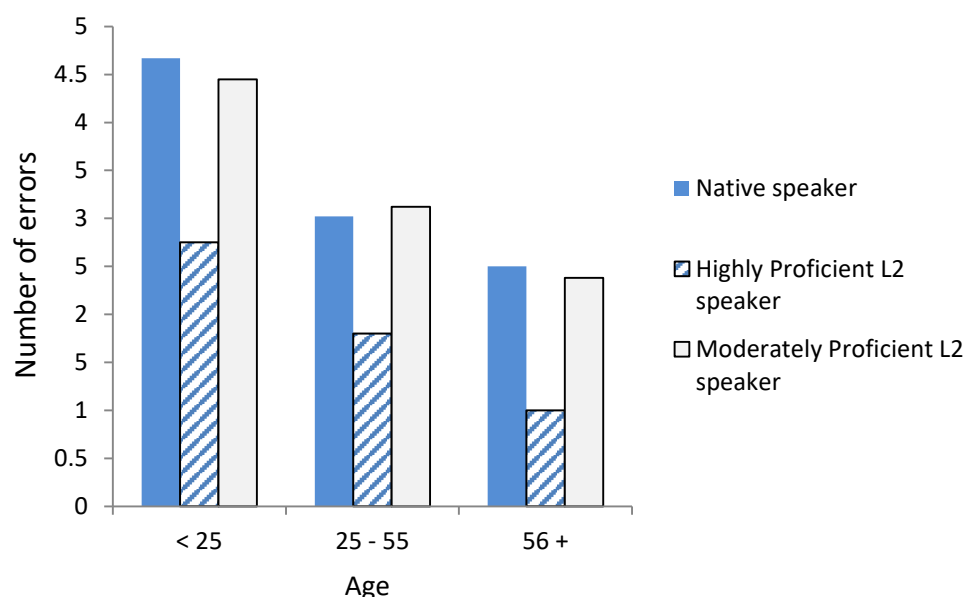
Figure 11.3 Errors of agreement in noun-adjective combinations by language background and age

A much clearer trend has emerged in this context than in either of the other two analyses of inaccuracies. Regardless of language background, the rate of errors of agreement through the use of overlenition decreased as age increased, meaning that the youngest participants remained the least accurate. Furthermore, the HP L2 participants had a much lower rate of errors of agreement than both other language backgrounds, whose rate of errors mirrored other. The native speaker participants were more closely aligned with the moderately proficient L2 speakers than the highly proficient L2 speakers in relation to their ability to achieve agreement between nouns and adjectives.

Inaccurate gender agreement in third person possession
Following analysis of Subtest 3 it became evident that errors in agreement could not be separated from errors of assignment. Consequently, a subset of the total sample (n = 58) was asked to complete an additional measure, Subtest 4. Participants were provided with the gender of the noun through the inclusion of the word 'feminine' or 'masculine' in parentheses. Furthermore, two examples were provided in which grammatical gender was correctly marked following masculine and following feminine possessor nouns. Despite being provided with examples of accurate usage and the gender of the nous, 36 participants still made errors. The number of errors made on each noun, in addition to the type of error made, is available in presented in Table 11.7.

Table 11.7 Errors on Subtest 4 in order of frequency, split by gender

	Possessor Noun	Possessed Noun	Agreement	No Agreement
Masc possessor	Taephota	Tae	35	23
	Sagart	Séipéal	40	18
	Ospidéal	Foirgneamh	43	15
	Bronntanas	Bosca	47	10
	Sioráf	Muinéal	50	8
	Balla	Geata	51	7
	Pádraig	Cluiche	52	6
Total			**318**	**87**
Fem possessor	Feadóg	Ceol	46	12
	Cáis	Siopa	47	11
	Cóisir	Maisiúchán	50	8
	Lacha	Gob	50	8
	Máire	Bád	52	6
	Banaltra	Fíon	55	3
	Deirfiúr	Teileafón	56	2
Total			**356**	**50**

Difference according to gender of the noun

A total of 87 errors were made on nouns following masculine possessors and 50 were made on nouns following feminine possessors. A two-tailed dependent t-test revealed that the difference in accuracy on masculine and feminine possessor nouns was statistically significant (t = 3.025, df = 57, p < .01). The CI 95% ranged from .221 to 1.089 which does approach 0 and which suggests that, upon replication, the difference between the participants on these two subtests could be 0.

Goodness of fit chi-square tests were conducted on each item to test whether the difference in frequency of correct or incorrect response differed significantly from what would be expected by chance alone. As expected given the design, the goodness of fit chi-square tests were significant for all nouns with the exception of *tae* (tea; masculine; $X^2(1)$ = 2.483, p = .115). Participants did not appear to be applying any rule to this noun. The possessor noun for this possessed noun was *taephota* (teapot; masculine), chosen as the most conceivable possessor for this noun. Nevertheless, it is possible participants were not accustomed to using the noun as a possessor. Coupled with the small sample for this subtest the results should be interpreted with caution. The overall results show that, despite being provided with examples of accurate usage and the grammatical gender of the possessor noun, the young adults were still very inaccurate in their marking third person possession despite this information, with less accuracy for feminine nouns than masculine.

Difference according to language background or age

Additional analyses were conducted on the errors of agreement on Subtest 4 of the MIM to explore the possibility of a difference according to language background and age and the results are presented in Chapter 5.

Summary

Given the design of Subtest 4, the goodness of fit chi-square tests were significant for all nouns with the exception of one. Conversely, the results of the goodness of fit chi-square tests in noun-adjective combinations indicated that the accuracy for the majority of

feminine nouns was at chance when examined for agreement. This indicates that participants may have been guessing for these feminine nouns. The results also show that, despite being provided with examples of accurate usage and the grammatical gender of the possessor noun, the young adult native speakers in particular were still very inaccurate in marking third person possession.

Two between-groups ANOVAs were conducted to explore the impact of language dominance and age in the overextension of lenition, in achieving grammatical gender agreement in noun-adjective combinations and in third person possession. These analyses did reveal a statistically significant difference in gender agreement in noun-adjective combinations according to language background and according to age. The under 25 year olds made more errors of agreement than the other age groups across language backgrounds. Furthermore, the HP L2 participants made fewer errors of agreement than the native speaker and the MP L2 participants, who looked very similar.

Finally, a significant improvement was found from Subtest 3 to Subtest 4, which indicates that errors made in Subtest 3 were errors of gender assignment and that, when the gender of the noun is provided, fewer errors of agreement are made.

Appendix 8: Management of Missing Data
Brief-Language Background Questionnaire
Unnebrink and Windeler (2001) argued that there was no hard and fast rule for dealing with missing data; no universal strategies could be applied in all contexts. Therefore the handling of missing data is briefly outlined for each measure.

The following are the precise steps taken to address missing data:
1. For the B-LBQ, the most common strategy for dealing with missing data was used, which is to use some predicted value to replace the missing value (Armijo-Olivo, Warren and Magee, 2009). For the Acquisition Context score, total score was calculated from amount of Irish in the home, first language acquired and whether participant was raised in the *Gaeltacht* or not. If 'whether participant was raised in the *Gaeltacht* or not' was answered and either 'amount of Irish in the home' or 'first language acquired' was scored 0 or 4 and 'amount of Irish in the home' or 'first language acquired' was missing, this was carried forward as 0 or 4 respectively, i.e. 'last observation carried forward' (LOCF; Armijo-Olivo et al, 2009). If more than one score was missing the data were not substituted.
2. For the rating of parents' own proficiency, if one score was missing this was deemed Missing At Random (MAR; Armijo-Olivo et al, 2009) and was replaced by the mean of the other four values. Where more than one value was missing the score was not replaced.
3. For the question about languages used in raising children and home language now, if this was missing the data were extrapolated from the C-LBQ.
4. Where either the parent identity (mother or father) or sex was missing, one was extrapolated from the other. Where both were missing no data were replaced.

The Test Battery
Individual instances of missing data were summed for each participant for each subtest. Where missing data accounted for less than 20% (Abraham and Russell, 2004) per subtest, missing data were replaced with 0. Descriptive statistics were calculated before and after substitution and both are included for measure in Table 11.10.

Table 11.8 Descriptive statistics for the RMIM, DPRT-R and TGD-G1 before and after substituting missing scores with 0

	Measure	n	Min	Max	M	SD
RMIM 1	Before	292	1	14	13.74	.923
	After	292	1	14	13.74	.923
RMIM 2	Before	288	0	8	3.78	1.274
	After	292	0	8	3.77	1.28
RMIM 3	Before	281	0	14	8.08	4.643
	After	294	0	14	7.98	4.62
RMIM 4	Before	285	0	7	4.08	1.391
	After	292	0	7	4.07	1.4
RMIM 5	Before	283	6	24	17.45	2.960
	After	292	6	24	17.44	2.93
TGD-G1 (Irish vocabulary)	Before	235	3	30	22.31	4.923
	After	258	3	30	22.11	5.00
DPRT-R (English vocabulary)	Before	279	16.67%	100%	68.93	18.23
	After	261	16.67%	100%	68.58	18.11

The differences in means and standard deviations were measued and were all sufficiently small to continue with analyses using these substituted values.

Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge (TGD-G1)
Twenty two participants were absent from class when these data were collected. Furthermore, an error was made in the case of 26 participants who completed Level 4. The participants were given the first part of the measure only.

The possibility of using the data for the 26 participants who completed only the first part of Level 4 was investigated. Accuracy on the 12 items they did complete was calculated and converted into a percentage. The total score for all participants who completed the 30 items was converted into a percentage. Table 11.11 shows the mean (in percentages) for the sample, first excluding the 26 participants who completed part of Level 4, then including them. The difference in means and standard deviation is sufficiently small to continue with analyses using these data.

Table 11.9 Descriptive statistics for TGD-G1 before and after inclusion of 26 participants who completed part one of Level 4

	Measure	n	Min	Max	M	SD
TGD-G1	Before	258	10%	100%	73.7	16.67
	After	284	10%	100%	72.38	17.21

TGD-G1 = Triail Ghaeilge Dhroim Conrach do Bhunscoileanna Gaeltachta agus Lán-Ghaeilge

Drumcondra Primary Reading Test-Revised
Seven participants were eliminated because they did not complete an entire page of their Answer Booklet. An error was made also in the case of 23 participants who completed Level 1. The participants were given the first part of the measure only.

The possibility of using the data for the 23 participants who completed only the first part of Level 1 was investigated. As was done with the TGD-G1, accuracy on the 18 items they did complete was calculated and converted into a percentage. The total score for all participants who completed the 40 items was converted into a percentage. Table 11.12 shows the mean (in percentages) for the sample, first excluding the 23 participants who completed part of Level 1, then including them. The difference in means and standard deviation is sufficiently small to continue with analyses using these data.

Table 11.10 Descriptive statistics for DPRT-R before and after inclusion of the 23 participants who completed part one of Level 1

	Measure	n	Min	Max	M	SD
DPRT-R	Before	261	16.67%	100%	68.58	18.11
	After	284	0%	100%	69.80	19.08

DPRT-R = Drumcondra Primary Reading Test-Revised

Appendix 9: Breakdown of errors on MIM Subtests 1 and 3 in the child sample

Table 11.11 Errors on MIM Subtest 1 for child sample in order of frequency, split by gender

	Noun	Accurate	Inaccurate	No marking	Over-lenition	Over-eclipsis
Masculine Nouns	Éan	18	213	212	1	
	Uisce	23	208	208	0	
	Mála	215	16		16	0
	Crann	215	16		7	9
	Capall	222	9		5	4
	Geansaí	223	8		7	1
	Madra	223	8		7	1
	Buachaill	223	8		6	2
	Garda	223	8		7	1
	Féar	225	6		2	4
	Féileacán	225	6		4	2
	Bláth	226	5		5	0
	Sliabh	230	1		0	1
	Sionnach	231	0		0	0
Total		**2722**	**512**	**420**	**67**	**25**
Feminine Nouns	Muc	3	228	228		0
	Cearc	5	226	226		0
	Cathaoir	8	223	213		10
	Gráinneog	9	222	222		0
	Banríon	11	220	220		0
	Sráid	14	217	216	1	
	Súil	9	222	215	7	
	Gruaig	21	210	209		1
	Máthair	25	206	206		0
	Bróg	26	205	202		3
	Fiacail	35	196	194		2
	Fuinneog	50	181	178		3
	Eilifint	227	4		3	1
	Ubh	227	4		3	1
Total		**670**	**2564**	**2529**	**14**	**21**

Non-applicable errors are shaded

Table 11.12 Errors on MIM Subtest 3 in the child sample in order of frequency, split by gender

Possessor Noun	Possessed Noun	Accurate	Inaccurate	No marking	Over-lenition	Over-eclipsis
Loch	Froga	5	225	225		0
Mapa	Sliabh	10	220	220		0
Gairdín	Gráinneog	34	196	196		0
Féileacán	Bláth	39	191	191		0
Cáca	Coinneal	43	187	185		2
Feirmeoir	Bó	61	169	167		2
Teach	Fuinneog	61	169	158		11
Marcaí	Capall	65	165	162		3
*Cailín	Seanmháthair	71	159	159		0
Sioráf	Muinéal	86	144	144		0
Seán	Máthair	152	78	78		0
Caisleán	Garda	202	28	26		2
Crogall	Éan	210	20		7	6
Zú	Eilifint	227	3		1	2
Total		**1266**	**1954**	**1911**	**8**	**28**
Gloine	Uisce	1	229	224		5
Cearc	Ubh	4	226	225		1
Muc	Srón	130	100		97	1
Lámh	Méar	132	98		98	0
Srón	Gruaig	163	67		66	1
Bó	Fiacail	177	53		53	0
Bainríon	Madra	185	45		45	0
Bábóg	Gúna	187	43		43	0
Bean	Cearc	188	42		42	0
Spéir	Báisteach	189	41		39	2
Cearc	Cleite	195	35		35	0
Abhainn	Bruscar	196	34		33	1
Páirc	Féar	215	15		15	0
Trá	Sliogán	218	12		12	0
Total		**2180**	**1040**	**449**	**578**	**11**

Non-applicable errors are shaded

*Treated as feminine as the possessed noun agrees with the semantic gender of the noun in third person possession