

## **The linguistic, cognitive and emotional advantages of minority language bilingualism**

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## **SECTION B:**

### **THE BENEFITS OF BEING BILINGUAL IN MINORITY LANGUAGE AREAS**

# CHAPTER SEVEN

## THE LINGUISTIC, COGNITIVE AND EMOTIONAL ADVANTAGES OF MINORITY LANGUAGE BILINGUALISM

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### **Abstract**

*This chapter explores the possible linguistic, cognitive, and emotional advantages of speaking a minority language (in this case Welsh or Irish) alongside a more dominant community language - English. Various groups of Welsh-English and Irish-English bilingual children (compared to control groups of English monolinguals) were given a series of tasks, comprising (i) receptive vocabulary and reading tests in English, as measures of linguistic abilities; (ii) a cognitive test battery (including measures of Executive Functioning) as a measure of non-linguistic cognitive abilities; and (iii) standardised measures of self-esteem and coping strategies, as extra-linguistic measures of the emotional evaluation of one's worth. Results revealed the following patterns of differential performance in favour of bilingualism: First, no child from an English-speaking home attending minority language education was at a disadvantage in their English vocabulary or reading, regardless of the language of instruction at school; second, the additional knowledge of a second language led to some advanced performance on certain types of cognitive tasks, but not exclusively so; and third, secondary school-aged children attending Welsh-medium schools in Wales seemed to have higher self-esteem than age-matched children attending English-medium schools. These findings are discussed within the context of bilingual education and bilingualism in minority language situations.*

## **Introduction**

Research in bilingualism has long explored the potential advantages afforded by the acquisition of two languages. In countries such as Wales and Ireland, children are faced with a variety of language experiences due to the varying levels of exposure they have to the dominant language (English) alongside a minority, often domain-specific, language (Welsh or Irish). In these countries, children are raised in homes where only one, or both, of these languages are used, and attend schools that either promote a strong bilingual approach to teaching and learning, or those that advocate a more monolingual (Welsh, Irish, or English) ideal. Regardless of the linguistic make-up of the home and/or school, children who come into contact with two languages are developing bilinguals of differing types, but the linguistic, cognitive and emotional consequences of dual language exposure varies from one type of bilingual to the next.

This chapter draws together the results of three recent, independent studies that explored linguistic, cognitive, and emotional consequences of bilingualism among children who were differentially exposed to English alongside Irish or Welsh. In particular, the studies asked the following questions:

- How does home and school language impact upon bilinguals' acquisition of vocabulary and literacy in English?
- Are there differences in the development of cognitive abilities (e.g., executive functions) across various types of bilinguals, and do bilinguals show an advantage over monolinguals in this regard?
- Are children's self-esteem and subsequent coping strategies affected when learning two languages, and to what extent is this related to their language abilities?

Together, these studies provide a unique insight into the developmental trajectories of minority language bilinguals across a wide range of skills.

## **Background**

### **Linguistic consequences of bilingualism**

A number of studies have demonstrated a clear relationship between the frequency of exposure a child has to a language and their ultimate success in that language. For monolinguals, this has been attributed largely to the quality and/or quantity of the interactions between children and their

caregivers (see e.g., Hart & Risely, 1995, and Huttenlocher, Haight, Bryk, Seltzer & Lyons, 1991). For bilinguals, this relationship has also been attributed to the sharing of linguistic time and space across two languages. This sharing of time and space means that bilinguals very rarely get the opportunity to devote 100% of their time to focusing on the development of a single language (Paradis, 2010). This, in turn, limits their ability to reach a ‘critical mass of exposure’ (Gathercole, 2007) that may be required in order to abstract out the structures of the languages they are learning and to develop an extensive vocabulary at the same rate as monolinguals. Consequently, the bilingualism literature has demonstrated lags in bilinguals’ knowledge of vocabulary (Gathercole, Thomas, & Hughes, 2008) that may lead to extensive borrowing of items between languages (Genesee, Nicoladis, & Paradis, 1995; Lanvers, 2001), and delays in their knowledge of morphosyntactic structures (Gathercole, 1986; Gathercole, Sebastian, & Soto, 1999). However, whilst bilinguals take longer to achieve certain levels of linguistic attainment, the interplay between the two languages of a bilingual child has also been found to facilitate learning across languages, particularly where structures are simpler in one language than the other (Paradis & Genesee, 1996; Kupisch, 2006; Ucelli & Pérez, 2007; Fabiano-Smith & Barlow, 2010; Barac & Bialystok, 2012).

With increased frequency of exposure over time, bilinguals have been shown to develop translation equivalents for the vocabulary items they lack, across various domains of use (Bahrack et al., 1994), but particularly in the dominant societal language (Gathercole & Thomas, 2009). Likewise, early lags in bilinguals’ knowledge of morphosyntactic structures seem to level out as they become more experienced with the language(s) they are learning (Gathercole, 2002a,b,c). However, this ‘catch-up’ is not guaranteed, not even for a dominant language such as English (Bialystok, Luk, Peets & Yang, 2010), rather requiring a certain level of engagement with and exposure to both languages.

In minority language contexts, such as those observed in Wales and Ireland, exposure to English can be limited within the education sector and children who are educated through a minority language (with reduced exposure to English at school) may present patterns of English language development that show elements of delay. This is an important area of study since it has clear implications for the success of bilingual education. This chapter presents data from studies that compare the performance of bilinguals learning one minority language (Irish or Welsh) and one dominant language (English) on measures of English vocabulary and reading.

## Cognitive consequences of bilingualism

Early studies of bilingualism highlighted a range of disadvantages experienced by bilingual speakers (Hakuta & Diaz, 1985; Kroll, 2009). More recently, using advances in neuro- and psycholinguistic research methods, studies have highlighted potential advantages to mastering two languages that stem from our growing knowledge of how both languages are structured in the brain. For example, bilinguals are constantly faced with having to choose which of their co-active languages to suppress in conversation (Bialystok, 1999; 2007; 2009; Lazaruk, 2007; Bialystok & Viswanathan, 2009; Kroll, 2009). This provides the bilingual with many opportunities to practise controlling attention, for example ignoring incongruent surrounding stimuli when asked to respond to only one (Yang & Lust, 2005; Carlson & Meltzoff, 2008; Hernández, Costa & Sebastián-Gallés, 2008). Research has also suggested that bilinguals, due to the constant switching between their two languages, are less hampered by a change to a rule when performing card sort tasks (Zelazo, Müller, Frye, & Marcovitch, 2003). That is, bilinguals are more capable of switching their attention from a first rule they are given in favour of a new one. Suppressing attention to one language over another and switching attention between the two occurs from the earliest stages of bilingual language development (Bialystok & Martin, 2004; Carlson & Meltzoff, 2008; Goetz, 2007) and persists throughout the life span (Bialystok & Shapero, 2005; Bialystok, Craik & Freedman, 2007). This leads to advanced higher cognitive skills—or *Executive Functions*—particularly those requiring attention control (Hakuta & Diaz, 1985; Bialystok, 2007; Costa, Hernández & Sebastián-Gallés, 2008; Adesope, Lavin, Thompson & Ingerleider, 2010).

Given the complex nature of the bilingual experience and the heterogeneity of bilingual speakers, studies have started looking in more depth at the exact conditions under which a bilingual advantage is observed and the findings are mixed. For example, a study comparing the performance of Welsh-English bilinguals and English monolinguals from preschool to older adults in card sorting, Simon and metalinguistic tasks found no bilingual advantage (Gathercole, et al., 2014). Indeed, of the few significant differences that were found in performance, monolinguals and bilinguals dominant in the tested language tended to perform the best. It may well be that more fluent bilinguals (2L1 bilinguals) may not need to suppress either language while speaking but are able to communicate fluently in one language while both are active simultaneously in the mind (Lam & Dijkstra, 2010). 2L1 bilinguals would, therefore, perform similarly to monolinguals as they employ the same attention skills in conversation. However, bilinguals who were introduced to a second language later than

their first may find they have more need to focus attention on suppressing activation of their first language in order to use the second language, which could result in some advantage in these tasks (Gathercole, et al., 2014). More studies comparing performance of various types of bilinguals learning the same two languages in the same geographical locations are therefore vital to this debate, and are presented in this chapter.

### **Emotional consequences of bilingualism**

In contrast with the linguistic and cognitive consequences of bilingualism, the emotional well-being of speakers has received less attention in research. Links have been found between bilingualism and self-esteem, although some show a positive link (e.g., Fathi, 2013) whereas others show a negative one (e.g., Garcia, 2001). Within minority language learning, a relationship between bilingualism and higher self-esteem (Wright & Taylor, 1995) has been attributed to the positive emphasis placed by the community on belonging to a minority group in minority-language educational settings (see also Kramsch & Whiteside, 2007). This has been supported by research that identified a decrease in self-esteem among pupils when they moved from a school using a minority language for instruction (Inuktitut) to one using a dominant language (English) (Bougie, Wright & Taylor, 2003). These results indicate that language use plays a role in the development of self-esteem in bilinguals, being inherently linked with cultural identity and perceptions of self-worth.

However, other studies suggest that it is not only being bilingual and the associated sense of belonging that contributes to self-esteem but also the individual's ability to use each language. Spanish-speaking, Mexican adolescents (aged 13-15) in the USA who performed better in using the dominant language (i.e. English) were found to have higher self-esteem than those who performed less well (Portes & Zady, 2002). This tendency is not limited to verbal abilities. Children in the US who believed themselves to be very good at reading and writing both Spanish and English were found to have higher self-confidence than children who considered themselves to be proficient in reading and writing only one of these languages, despite speaking both (Huang, 1995). There is also a tendency for children to associate literacy abilities with personal intelligence, even though the two are not necessarily related (Humphrey & Mullins, 2002). This association between literacy and personal intelligence affects their self-esteem as they compare their literacy abilities with those of their peers (Burden & Burdett, 2005, Alexander-Passe, 2006; Glazzard, 2010) and make more use of avoidant or emotional coping strategies, e.g. withdrawal, advice seeking,

self-blame or social diversion, rather than task-focussed coping strategies (Humphrey, 2002; Alexander-Passe, 2006). As yet, however, little investigation has been conducted into the relationship between bilingualism, literacy ability and these emotional behaviours.

The Welsh context is a particularly interesting situation for investigation in this regard, particularly in comparison to Irish and English. In Wales, the minority language (Welsh) has a more transparent orthography than English (the dominant language), whilst Irish orthography is somewhere in-between the Welsh and English extremes. Children learning to read and write in transparent orthographies achieve literacy more quickly than those learning opaque orthographies (Thorstad, 1991; Ellis & Hooper, 2001; Paulesu, et al., 2001; Seymour, Aro & Erskine, 2003) and the transparency of a language's orthography may also mask some of the hurdles faced by children with literacy difficulties (Wydell & Butterworth, 1999; Paulesu, et al., 2001). Bilingual children may therefore find that their literacy skills are affected by the transparency of the languages they are learning, which may then affect their self-esteem.

Together these studies suggest that bilingualism is associated with differences in performance across a range of tasks and measures. The next section presents findings from three recent, and independent studies conducted by the authors of this chapter in Ireland and Wales that measured bilinguals' linguistic, cognitive and emotional behaviours.

## **Recent studies of the impact of minority language bilingualism**

In what follows, we discuss the results of three separate studies that looked at (i) patterns of linguistic performance, (ii) patterns of cognitive performance, and (iii) patterns of emotional behaviours across varying types of speakers.

Study 1 involved linguistic and cognitive measures of children learning Irish and English in the Republic of Ireland. Children were drawn from three types of schooling systems: (i) the Irish-medium system in the Republic of Ireland; (ii) the English-medium system in the Republic of Ireland, where children are required to learn Irish as a subject; and (iii) the English-medium system in Northern Ireland, where there is no requirement to teach Irish, and where children are predominantly monolingual in English. For this reason, data were analysed using school language as the main independent variable. All children who took part in this study were from English-speaking households. For ease of differentiation across groups, those attending schools in the Republic of Ireland are referred to as L2 bilingual (Irish-



medium school) or L2 bilingual (English-medium school) to contrast with the monolingual sample in Northern Ireland.<sup>1</sup>

Study 2<sup>2</sup> involved the same linguistic and cognitive measures used in Study 1 but with children learning Welsh and English in Wales. Unlike Study 1, where children received different school language experiences, all bilinguals in Study 2 attended Welsh-medium schools. However, the bilinguals in Study 2 fell into one of three categories: L1 Welsh bilinguals, whose parents spoke Welsh to them in the home; L1 English bilinguals, whose parents spoke English to them in the home (please note that this group is also referred to below as L2 Welsh bilinguals as their second language was Welsh); and 2L1 bilinguals, brought up in homes where one parent spoke Welsh and the other spoke English. An additional group of monolingual English-speaking children attending English-medium schools was also recruited as control. In this case, data were analysed using home language as the main independent variable.

Study 3 involved measures of self-esteem in relation to bilingual Welsh-English vs. monolingual English children's (measured and self-reported) linguistic abilities. As with Study 2, all bilinguals attended Welsh-medium schools, but the bilingual sample included a heterogeneous sample of bilinguals. That is, some bilinguals were raised in homes where Welsh was spoken as the predominant language whilst others were raised in homes where English was the predominant language used. However, all participants in the bilingual group were bilingual in Welsh and English, but with varying levels of proficiency in each. Results for this study report on analyses comparing the heterogeneous bilingual sample to the monolingual sample as the main independent variable.

Participant information for each study is presented in Tables 7-1, 7-2 and 7-3.

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<sup>1</sup> We are using 'L2 bilingual' and 'monolingual' here purely to differentiate between groups. The authors are fully aware of the complexities involved in assigning levels of bilingual/L2 knowledge to speakers in this region and of the difficulties in obtaining pure examples of monolinguals.

<sup>2</sup> Results of this study have also been presented in Rhys & Thomas (2013).

	8-year-olds	12-year-olds
L2 Irish bilingual (Irish-medium school) in the Republic of Ireland	41	49
L2 Irish bilingual (English-medium school) in the Republic of Ireland	42	36
English monolinguals (Northern Ireland)	12	45

**Table 7-1:** Study 1 – number of participants per age group and school language background

	7/8 year olds	10/11 year olds
L1 Welsh bilingual	36	46
2L1 Welsh-English bilingual	19	19
L2 Welsh bilingual	28	27
English monolingual	17	15

**Table 7-2:** Study 2 – number of participants per age group and home language background

	7/8 year olds	11/12 year olds
Welsh-English bilingual	38	37
English monolingual	24	18

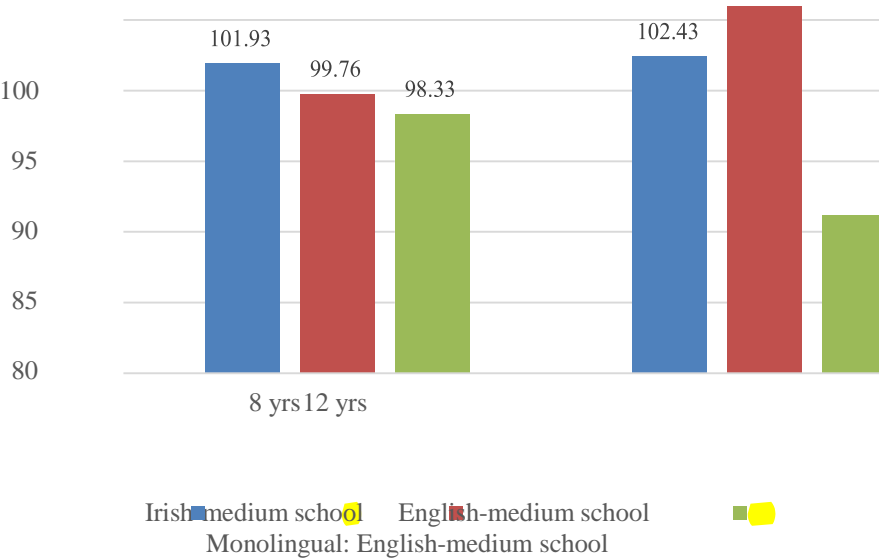
**Table 7-3:** Study 3 – number of participants per home language background

### Patterns of linguistic performance

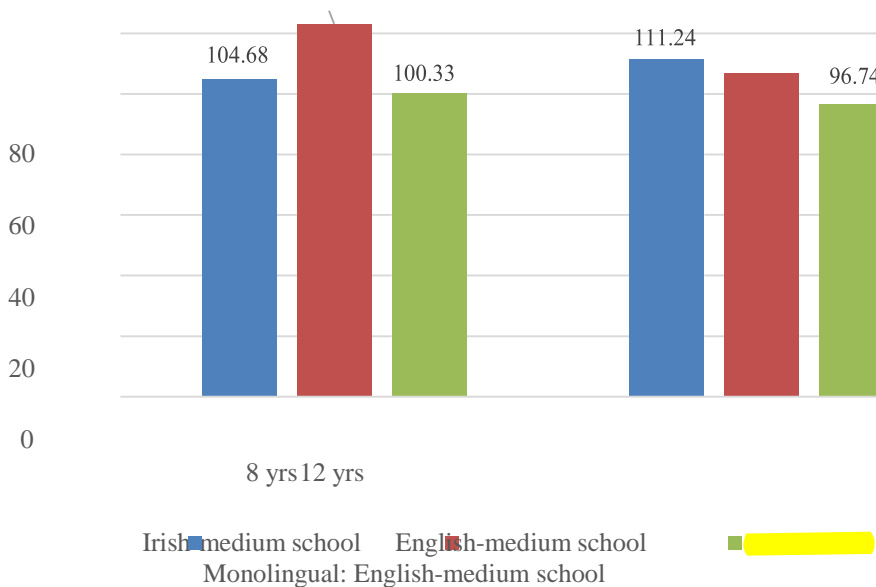
Study 1 and Study 2 measured children's English language abilities using the Neale Analysis of Reading Accuracy (NARA-II Revised; Neale, 1997) and the British Picture Vocabulary Scale (BPVS; Dunn & Whetton, 1982).

The results of Study 1 revealed that whilst younger children (8-year-olds) from all types of school backgrounds performed similarly on both the vocabulary and reading tasks, significant differences were found across the various groups of speakers in the older age bracket (12-year-olds) (see Figures 7-1 and 7-2). In both measures, the L2 Irish bilinguals (Irish-medium school) and/or L2 Irish bilinguals (English-medium school) outperformed the monolingual children ( $F(1, 127) = 4.72, p < .05$  for vocabulary and all  $Fs(1, 103) > 5.36$ , all  $ps < .05$  for the various sub-measures of reading). This suggests that developing two languages either through an immersion approach at school or as a standard school subject does not hamper the development of linguistic skills in the dominant

language; in fact, it seems to support it. This is in line with previous research that argues for the beneficial effect of the interplay between a bilingual child’s two languages (Ucelli & Páez, 2007; Barac & Bialystok, 2012). However, this effect seems more apparent later in children’s development as they gain in cognitive maturity and once a certain level of competence in, or experience with, both languages has been achieved.



**Figure 7-1:** Study 1 - English vocabulary standard scores  
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**Figure 7.2:** Study 1 - standardised NARA accuracy scores

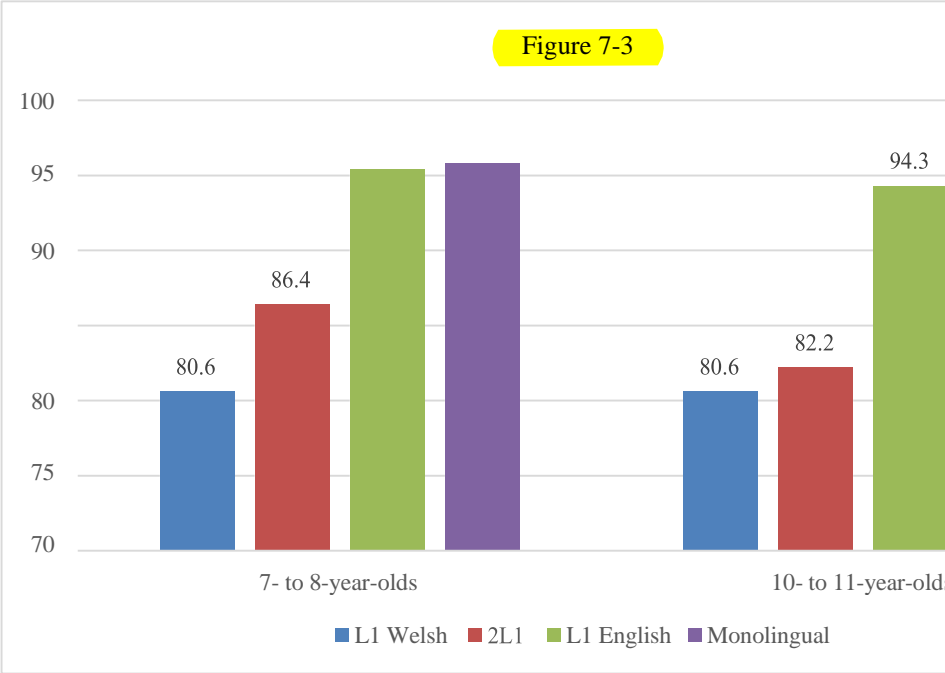
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The results of Study 2 revealed the following differences across the two tasks. First, on measures of vocabulary, monolingual English speakers and L2 Welsh bilinguals (i.e., children exposed to only English in the home, therefore L1 English bilinguals) outperformed the 2L1 and L1 Welsh bilinguals on standard scores of English vocabulary ( $F(3, 196)=17.827$ ,  $p<.001$ ) (see Figure 7-3). On measures of English reading, monolingual English speakers and L2 Welsh bilinguals outperformed the 2L1 bilinguals, and the monolingual English speakers outperformed the L1 Welsh bilinguals ( $F(3, 193)=7.4$ ,  $p<.001$ ) (see Figure 7-4). Contrary to previous findings (Gathercole & Thomas, 2009) this suggests that the early bilingual ‘lag’ can persist through the primary school years in the dominant language.

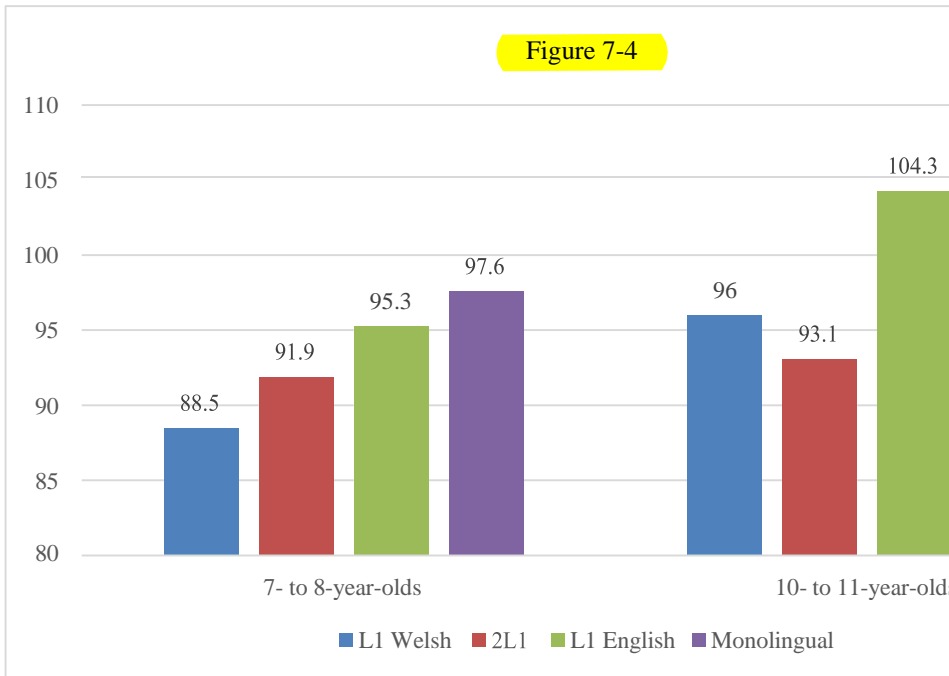
Second, both monolinguals and L1 English bilinguals performed at the same level in the two tasks. Being in receipt of Welsh-medium education seemed to have no adverse effect on L1 English bilinguals’ performance in English relative to English monolingual peers.

Third, whilst *all* groups of children performed relative to expected norms for their age for reading (i.e., performed within one Standard Deviation of the mean), bilinguals receiving at least some Welsh in the

home (L1 Welsh and 2L1 bilinguals) performed below the standard norm for their age for English vocabulary. These results underline the importance of continual exposure to *both* languages—minority and dominant alike—in the continual development of vocabulary for bilingual children.



**Figure 7-3:** Study 2 - English vocabulary standard scores  
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**Figure 7-4:** Study 2 - English reading standard scores

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### Patterns of cognitive performance

As noted above, studies of the bilingual advantage in relation to various types of Executive Function abilities have begun to yield differential results as the sample population of bilinguals involved in such studies has grown. Whilst varying results can complicate the picture, such patterns can allow for a greater understanding of the conditions under which a bilingual advantage is best achieved.

Whilst bilingual children have shown an advantage in the Flanker Task—a task measuring children’s attention and inhibitory control (see e.g., Yang & Lust, 2005; Carlson & Meltzoff, 2008; Hernández, Costa & Sebastián-Gallés, 2008)—Study 1 found no such advantage among 8-year-old L2 bilinguals (Irish-medium school or English-medium school) in the Irish context on this task. Contrary to expectation, monolingual 8-year-olds outperformed L2 bilinguals (Irish-medium school and English medium

school) of the same age, but only on mean reaction time of congruent trials ( $F(1, 93) = 4.84, p < .01$ ). Similar results were found on the Sustained Attention to Response Task (SART; adapted from Robertson, Manly, Andrade, Baddeley & Yiend, 1997), where children were required to press a key each time they saw a digit on the screen, but not when they saw the digit '3' ( $F(1, 93) = 3.09, p < .05$ ). On the Stroop Task, where children are required to select the colour in which a colour adjective is presented (e.g., the colour adjective *red* presented in blue ink, whereby the target response is *blue*), no effect was found.

However, older L2 bilinguals (English-medium school, 12-year-olds) responded faster than the monolingual children on the Flanker task when the task presented incongruous distractors ( $F(1, 128) = 3.35, p < .05$ ). Similarly, L2 Irish speakers (in Irish-medium and English-medium schools) were better able to inhibit their response in the SART task than the monolingual children in this age group ( $F(1, 128) = 3.6, p < .05$ ). More interestingly, perhaps, the 12-year-old L2 Irish bilinguals in both groups (Irish-medium school and English-medium school) performed better in the English Stroop task than the monolingual children ( $F(1, 128) = 5.56, p < .01$ ), while no differences were found between children attending the various schools on the Irish Stroop task.

Study 2 investigated Welsh- and English-speaking bilinguals' performance on similar tasks in the Welsh context. No significant differences in reaction time were found for the Flanker Task, although monolingual and 2L1 bilingual children took significantly less time to complete the congruent trial than L1 Welsh bilinguals ( $F(3, 193) = 3.80, p < .05$ ). Similar to the Irish data, the Welsh data revealed differences in performance on the SART according to home language use ( $F(3, 191) = 3.44, p < .05$ ). In this case, it was the 2L1 speakers from homes where one parent spoke Welsh and the other spoke English who responded faster than the monolingual children. No significant differences were found between other groups (i.e. the L1 Welsh and L2 Welsh bilinguals and the monolinguals). This pattern persisted in a follow-up trial where the rule that children were using to respond to the stimuli (i.e., 'ignore the digit 3') was changed. While all children were slower post rule-change, the 2L1 bilinguals continued to respond significantly faster than the monolinguals. While no significant differences were noted for any other groups, it is worth noting that the bilingual children who received more input at home in one of their two languages consistently performed at a level that was in-between the monolingual and 2L1 bilingual children. Finally, results from a number-based Stroop task (adapted from Hernández, Costa, Fuentes, Vivas & Sebastián-Gallés, 2010) revealed no significant differences in reaction times across speakers. However, L1 Welsh bilinguals

and 2L1 bilinguals made many more errors in this task than monolingual children ( $F(1, 197)=11.69, p <.01$ ). Further investigation indicated that this difference was most apparent at the younger age (7/8 years). At the older age (10/11 years), 2L1 bilinguals appeared to be on par with their L2 Welsh peers (i.e. the L1 English group), while L1 Welsh children performed the most errors. This suggests that experience with both languages is an important factor in developing the kind of skills required for these types of tasks across time.

### **Patterns of emotional behaviours**

Few studies explore the impact of minority language bilingualism on young bilinguals' emotional behaviours, particularly in relation to their self-esteem and coping strategies. Fewer still are studies that combine such measures with measures of children's linguistic abilities. In an attempt to address this gap, Study 3 measured bilingual and monolingual children on the following standardised measures:

#### *Measures of emotional behaviours:*

- Culture Free Self-Esteem Inventory (CFSEI-3; Battle, 2002)
- Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1999)
- Self-ratings of ability and position in class for a range of language skills

#### *Measures of language ability:*

- Neale Analysis of Reading Accuracy (NARA-II Revised; Neale, 1997)
- Profion Glannau Menai (PGM) (Payne, 1998)
- English and Welsh 3 minute writing task

The results revealed the following patterns of behaviour. First, in the primary school sector, bilingual children were found to have marginally significantly lower CFSEI-3 scores of global self-esteem than same age monolinguals ( $F(1, 60) = 4.16, p < .05$ ), but at secondary school the opposite trend was found ( $F(1, 53) = 6.27, p < .05$ ).

Second, bilinguals and monolinguals used the same number of task-oriented (solution-focussed) and emotion-oriented (e.g. self-blame) coping strategies. However, bilinguals made use of fewer avoidance-oriented strategies ( $F(1, 49) = 5.17, p < .05$ ), particularly those based on social distraction. The use of solution-focussed strategies is considered more beneficial in the long term for children as these are strategies that address



the underlying stressor directly rather than attempt to avoid stress by avoiding the stressor in hope that it will cease.

The third set of findings concerns the relationship between self-esteem and literacy ability. Previous studies have shown that children with literacy difficulties such as dyslexia show lower levels of self-esteem (Alexander-Passe, 2006; Humphrey, 2002; Humphrey & Mullins, 2002; Riddick, et al., 1999; Glazzard, 2010). Children's self-esteem and coping strategies were therefore analysed according to their literacy abilities. For the monolinguals, there was no difference in their ratings of self-esteem, regardless of their performance on the reading and writing tasks. For bilinguals, on the other hand, ratings of self-esteem differed, but only in relation to their English literacy scores. Bilinguals who scored high on measures of English literacy had higher global self-esteem than children who scored lower on those measures ( $F(1, 60) = 36.04, p < .01$ ).

Bilinguals' global self-esteem was also found to be related to their perceptions of ability in English but not in Welsh. Global self-esteem scores were significantly, positively correlated with their own self-ratings of English reading ( $rs = .392, p < .01$  (two-tailed),  $n = 74$ ) and English writing abilities ( $rs = .256, p < .05$  (two-tailed),  $n = 74$ ). Ratings of their position in the class for their English writing skills was also found to be positively correlated with global self-esteem ( $rs = .349, p < .05$  (two-tailed),  $n = 38$ ). There were no significant patterns between monolingual children's ratings of literacy ability or peer comparisons and their global self-esteem as measured by the CFSEI-3. However, bilingual children's academic (related to perceptions of academic ability,  $rs = .359, p < .05$  (two-tailed),  $n = 35$ ) and general (related to overall feelings of worth,  $rs = .523, p < .01$  (two-tailed),  $n = 35$ ) self-esteem were positively correlated with self-ratings of ability to speak and read Welsh, not English. Therefore, whilst monolingual children's self-esteem is not related to either their actual or perceived ability to read and write English, bilingual children's global self-esteem is related to both actual and perceived English literacy abilities and peer comparisons of English writing abilities whilst their academic and general self-esteem was related to their own perceptions of their abilities in Welsh.

## Conclusions

Across the three studies presented in this chapter, children showed different patterns of linguistic, cognitive and emotional behaviours that are likely motivated—to varying degrees—by their experiences at home and at school.

In relation to the first research question, exploring the relationship between home and school language and bilinguals' acquisition of

vocabulary and literacy in English, these studies demonstrated clearly that all L1 English-speaking bilinguals (those exposed to only English in the home but who were bilingual—to various degrees of competence—with another language via school), in both Ireland and Wales, performed equally as well as their monolingual English peers on measures of English reading and vocabulary. However, children from homes where at least some Welsh was spoken (L1 Welsh bilinguals and 2L1 Welsh-English bilinguals) showed significant lags in their English language performance. These results can be used to support two important arguments in the field, namely (i) that minority-language education does not impede L1 English speakers' progress in English, and (ii) that not all bilinguals perform the same on measures of English language abilities, even in regions where English is the dominant societal language, and should not be expected to perform the same as their monolingual peers (cf., Bialystok & Luk, 2012). Further studies are needed to identify what can be done to support L1 Welsh and 2L1 bilinguals' development of English vocabulary and reading in English within a Welsh-medium school curriculum.

In relation to the second research question, exploring differences in cognitive abilities across types of bilinguals in comparison to monolingual controls, the results were mixed. There was no clear-cut advantage seen in favour of bilinguals, and no clear, consistent patterns of performance across the various bilingual types on these tasks. However, where a bilingual advantage was found, it was typically seen at the older ages (11-12 years), but mostly by L1 English bilinguals attending English-medium schools and learning Irish as a second language in Ireland, and by 2L1 bilinguals in Wales. Why these two very different groups of children tended to perform the best on Executive Function tasks is not clear from these studies, and warrants further investigation. Both groups differed on many counts, including school language (minority vs. majority medium), amount of exposure to the L2 in the community, amount of exposure to both their L1 and L2, and home language experiences. Together, these findings suggest that the impact of bilingualism on executive functions is complex, and may change over time as children mature cognitively and become more proficient in one or both of their languages. Longitudinal case studies would help identify the patterns of influence between various factors across sections of the bilingual lifespan.

Finally, in relation to the third research question, exploring the relationship between bilinguals' measured and self-ratings of language ability and their self-esteem and subsequent coping strategies, the results revealed different patterns across bilinguals and monolinguals. Whilst the younger bilinguals demonstrated lower self-esteem than same-aged

monolinguals, older monolinguals demonstrated lower self-esteem than their bilingual peers, and bilinguals, in general, used more solution-focused coping strategies than monolinguals when faced with certain difficulties. This suggests that issues relating to self-esteem and coping that seem to affect bilinguals at an early stage may 'level out' by the time they are older; in other words bilingualism may be associated with long-term benefits to self-esteem and coping strategies in a way that monolingualism is not. Further studies are now needed to explore this issue further. However, whilst there was no clear relationship between literacy ability and self-esteem among the monolingual children, bilinguals who scored high on measures of English literacy and those who rated themselves among the higher performers in class seemed to harbour higher global self-esteem than those scoring lower on the test or positioning themselves lower in comparison to their peers in class. At the same time, bilinguals' perceptions of their academic abilities and overall feelings of self-worth were related to their self-ratings of ability to speak Welsh. Since all bilingual children in this study attended Welsh-medium schools, it is perhaps less surprising that their academic self-esteem would be related to self-perceptions of Welsh reading and speaking but their relationship with general self-esteem may reflect previous findings of bilingualism providing a sense of belonging. These are issues for further research. However, what is clear from the study presented here is that the relationship between literacy, bilingualism and self-esteem is complicated by a range of factors including ability, social comparisons and the individual's own perception of their ability. These are manifested differently for bilinguals and monolinguals, and should therefore be addressed in different ways.

These findings contribute to the notion that bilingualism offers children many linguistic, cognitive and emotional benefits, but the varied and multi-faceted nature of a bilingual childhood will impact on the extent to which certain advantages are demonstrated.

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