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The literacy and self-esteem of children attending Welsh-Medium and English-Medium schools in Wales

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**The Literacy and Self-Esteem of Children Attending
Welsh-Medium and English-Medium Schools in Wales**

Nia E. Young

School of Education

2013

**This dissertation is submitted in fulfilment of the requirement for the
degree of PhD of Bangor University**

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Abstract

Children with dyslexia have lower self-esteem than children without dyslexia and this has been ascribed to their lower literacy abilities relative to their peers (Alexander-Passe, 2006; Glazzard, 2010; Humphrey, 2002). However, these studies have looked at monolingual, English-speaking children in the main. In Wales, the majority of schools are English-medium providing Welsh as a second-language subject but there are 517 Welsh-medium schools (Hughes, 2012) where children learn to read and write in Welsh and English. Research has found that literacy skills are more easily achieved in transparent orthographies (such as Welsh) than in opaque orthographies (such as English) (Seymour, Aro, & Erskine, 2003). This study examined the impact of bilingual education on literacy ability in children in Wales. It also investigated the impact of literacy instruction on the self-esteem of children in Welsh-medium and English-medium schools.

117 children in primary and secondary schools in North Wales participated. Standardised measures of self-esteem, coping strategies and literacy were used alongside a language use and background questionnaire to elicit details of self-perceptions of ability.

It was found that children in Welsh-medium schools achieve expected standards of literacy in Welsh and in English by the first year of secondary school. This was mediated by the language used in the child's home. Children with more balanced bilingual exposure across home and school performed best in measures of English literacy. Children in Welsh-medium schools had significantly lower self-esteem than those in English-medium schools at primary school age but had significantly higher self-esteem than children in English-medium schools at secondary school age. Self-esteem was found to be more closely related to literacy abilities in English for children in Welsh-medium schools.

The results indicate there are significant benefits to bilingual education for children in Wales, including helping the development of literacy abilities. However, earlier introduction of English literacy instruction in Welsh-medium schools is advisable both to help improve English literacy abilities for all children and to protect self-esteem.

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Introduction

“Literacy is an essential life skill. To make sense of the world around them, young people need an understanding of written and spoken language, the ability to interpret what has been written or said and to draw inferences from the evidence that surrounds them. It is also about being able to communicate – accurately, fluently and persuasively.”

(Welsh Government, 2012a, p. 2)

In recent years, the Welsh Government has emphasised the need to raise literacy standards in Wales. Literacy is perceived to be an essential part of a child’s development. As a result, the Minister for Education and Skills introduced recently a National Literacy and Numeracy Framework (Welsh Government, 2013) which aims to help schools improve literacy standards for children in Wales. Children will be assessed formatively by their teachers but formal, national literacy and numeracy tests will also be included. The Framework exists for both Welsh and English literacy. The Welsh Government emphasises that literacy is about more than reading and writing, it is about the understanding and expression of ideas, and this includes oral skills.

The Framework refers briefly to differences between the orthography and grammar of English and Welsh and to differences in the home languages of children in schools in Wales. However, these differences represent a large amount of variety in the educational experiences of children in Wales, and go far beyond literacy skill. According to the aims of the Welsh Government’s (2012a) National Literacy Programme, children in Welsh medium schools will be able to speak, read and write both English and Welsh to an equal degree by the end of Key Stage 2. This is in spite of Welsh literacy being frequently introduced a few years before English literacy.

Furthermore, while the Welsh Government acknowledges that literacy is an important factor in communication and exploration for children, it does not refer to its implications for the development of confidence and self-esteem. In Wales, language is an emotive subject that is linked to national identity (Bourhis, Giles, & Tajfel, 1973; Honeycutt & Cunliffe, 2010). Whilst a lack of ability in reading and writing has been linked to lower self-esteem in monolingual children in England (Alexander-Passe, 2006; Glazzard, 2010; Humphrey, 2002), a less well investigated subject is whether these same difficulties affect bilingual children to the same extent and in the same way. In particular, research has not considered these issues for children who are dealing with one language employing a highly complex literacy system (opaque or deep orthography) and one language employing a relatively simple literacy system (transparent or shallow orthography).

This research aimed to examine the literacy skills and self-esteem of bilingual children in Wales who are learning literacy in Welsh (transparent orthography) and English (opaque orthography) and compare them against monolingual children. It specifically addressed the following:

- Is the Welsh Government's National Literacy Programme aim to make all bilingual children equally able to read and write in Welsh and in English by the end of Key Stage 2 achievable?
- Do children in Welsh-medium schools show any differences in self-esteem and/or their opinions of their ability when compared with children in English-medium schools?
- What impact does the language of the home have on the development of literacy skills in children in Welsh-medium schools?

In order to do this, four studies were conducted after a thorough review of the relevant literature. This thesis is, broadly speaking, divided into chapters according to the two major themes of literacy and self-esteem. These chapters are briefly introduced below.

Chapter 1 begins by briefly describing the history of the Welsh and English languages in Wales. It will go on to explain the bilingual educational system as it exists across the various regions of the country and to describe the current legislation and guidance for teaching literacy in schools in Wales. This chapter will set the context in which the research is taking place, providing details of the prevalence of the use of Welsh in certain areas of Wales, the differing levels of language use in bilingual schools and the emphasis placed on literacy at all levels. This chapter also examines bilingualism. It looks at differences between the development of language skills in bilingual and monolingual children. With particular reference to Wales and the Welsh language, the factors influencing the development of each of a bilingual child's two languages will be examined along with current guidance on how best to introduce a child to two or more languages to ensure their understanding.

Chapter 2 describes literacy in detail. It will explain how children become literate and outline the main theories that have attempted to explain this development. The stages of literacy acquisition are defined from infancy to fluent reader and writer. Specific attention is paid to Dual Route (Coltheart, 2005) theories of literacy which suggest that the brain uses more than one strategy to access meaning from print. This chapter goes on to discuss differences between the Welsh and English language that might impact literacy, such as orthography, prevalence of use and the likely amount of exposure to each that children in Wales receive. In particular, it examines how language development is related to the languages used in the home of a bilingual child and what this means for the development of literacy skills. It examines research that has been conducted into the literacy abilities of

children in bilingual and monolingual schools and what can affect its development and ultimate outcomes. Questions are raised regarding the initial immersion in Welsh of children in Welsh medium schools and whether this has any long term effects on the acquisition of bilingual literacy. It goes on to discuss children who experience difficulties with literacy. The most common causes of literacy difficulties are explained, focussing primarily on dyslexia as it is one of the most widely known. Chapter 2 describes how dyslexia affects the literacy skills of children along with other skills that are typically impaired in children with dyslexia. It provides a brief account of the history of the discovery of the condition and explains how a diagnosis is made (or not) for bilingual children in Wales. This chapter goes on to discuss differences in the appearance of dyslexia across languages, using examples of research with bilingual children to draw comparisons. Evidence that the Welsh language offers a degree of protection against literacy difficulties due to the nature of its orthography is presented. This raises questions about the methods of assessment for literacy difficulties that are used in Wales and the appropriateness of relying on monolingual tests.

Chapter 3 discusses self-esteem. It presents a description, based on the relevant literature, of how self-esteem develops in children. An explanation is given of the important roles played by peer comparisons and self-image in developing the self-esteem of children. It explains that self-esteem is important to children's overall mental well-being by detailing the effects of abnormal self-esteem. This chapter also returns to the issue of dyslexia and self-esteem in order to suggest that literacy skill and self-esteem are, according to previous research, related. As the majority of previous research is conducted with a monolingual English population, a case is made that these results are not necessarily accurate for bilingual children in Wales. A sound reasoning is presented suggesting the protection against literacy difficulties afforded by the Welsh orthography might have a further implication for the self-

esteem of bilingual children in Wales. Questions are raised regarding the effect of initial immersion in Welsh and the later introduction of English in Welsh medium schools.

Chapter 4 provides details of a pilot study conducted with adult Welsh-English bilinguals. It describes the tests and semi-structured interview questions used to elicit the experiences, language backgrounds, opinions and self-esteem of the students who took part. No assessment of reading ability is undertaken; instead, the group is separated according to whether or not they have received a diagnosis of dyslexia. The results examine whether or not similar differences in self-esteem are found between bilingual participants with and without dyslexia as have been found in previous research for monolingual participants. Furthermore, the results of the semi-structured interviews and participants' self-ratings of their ability provide details of how self-perceptions of ability can vary between a bilingual individual's two languages. These also describe the experiences of children with dyslexia in Welsh medium schools. When discussed, these results are compared to the research detailed in chapters 1, 2 and 3 and issues are raised for further investigation with children currently attending Welsh medium schools.

Chapter 5 presents the results of Study 1, consisting of investigations into the literacy ability of 7 year old and 12 year old children in Welsh medium and English medium schools. Comparisons between the English reading, writing and rapid naming abilities of children in Welsh medium schools and children in English medium schools were made. Study 1 addresses to what extent factors such as socio-economic status (SES), home language, gender, number of siblings and non-verbal IQ should be considered when assessing children's literacy abilities in English.

In Chapter 6, Study 2 addresses the literacy skills of children in Welsh medium schools. The data is analysed to address whether or not the Welsh Government's target for all children to be equally literate in Welsh and English by the time children enter secondary

school is already being met. More specifically, the reading and writing skills of children in Welsh and English are compared and the impact of the language used at home on the development of literacy skills in each language is analysed. Furthermore, Study 2 addresses the extent to which testing literacy ability in one language is a reliable way to assess literacy ability in another of a bilingual child's languages and whether earlier introduction of literacy instruction in either language is beneficial to the development of literacy skills.

Study 3 is detailed in Chapter 7. Study 3 analyses differences in the self-esteem of children in Welsh-medium and English-medium schools. In particular, this study looks at whether literacy abilities in Welsh and English are related to self-esteem or not in children in English-medium and Welsh-medium schools. It considers self-esteem at both the general and the area specific levels. In addition to this, Study 3 analyses the differences in the coping strategies used by children in English-medium and Welsh-medium schools and considers the impact of literacy ability in Welsh and English on the coping strategies children use. The extent to which differences in self-esteem are mediated by factors such as SES, home language use and gender is also considered.

In Chapter 8, Study 4 looks at the way children in Welsh-medium and English-medium schools rate their literacy abilities in English and Welsh. It also considers the way children in Welsh-medium and English-medium schools compare their literacy abilities with their peers' literacy abilities. It analyses the relationship between these ratings of ability and self-esteem and coping strategies. Furthermore, it compares children's self-ratings of ability with their measured literacy abilities in order to assess how accurately children in English-medium and Welsh-medium schools assess their own abilities.

Chapter 9 provides a thorough discussion of the results of all the findings presented in this study. It discusses the findings of the four studies according to three themes that emerge from the data.

1. The impact of Welsh-medium (bilingual) education on the self-esteem of children in Wales.
2. The effects of lower literacy abilities on self-esteem and the mediating effects of language experience and other SES factors.
3. Fair assessment of the literacy abilities of children in Wales.

The results are compared with the findings of previous research to describe whether children in Welsh-medium schools display the same patterns of literacy ability and self-esteem as children who participated in other studies. Following this, Chapter 9 details the conclusions drawn from these findings. Here, suggestions are made regarding how these findings should influence the policies regulating the instruction of literacy in bilingual schools to best ensure a good outcome both in terms of literacy ability and self-esteem. Attention is drawn to how policies should be adapted to ensure that the needs of children from a variety of home language backgrounds are met and a case is made for the earlier introduction of English literacy instruction in Welsh-medium schools.

Chapter 1

Language and Education in Wales

The aim of this thesis is to compare the literacy skills and self-esteem of children in schools in Wales. Children in schools in Wales learn both in English and in Welsh, to various degrees, but these languages are different and it is the aim of this and following chapters to explain some of those differences. In order to address the issue of literacy development, children must first develop language. Therefore, it is important to understand a little of how the ability to use languages like Welsh and English develop in children as a foundation for literacy. This chapter will go on to describe the two official languages in Wales and detail the policies which inform practice within schools, particularly in relation to the development of literacy. Since one of the key goals of this thesis is to compare the literacy abilities and experiences of children based on their levels of engagement with their two languages, this chapter will also provide details of the development of language skills in bilingual children. However, before we can understand bilingual language development, it is necessary to examine the current research concerning the development of language abilities in general.

Language Development

One of the most joyful sounds in the human experience is the new-born's cry. This initial yell of life is one of a number of noises (such as burping, sucking or sneezing) that infants can make from birth without the need for planning (Hoff, 2001). The ability to make such noises, though basic and unintentional, is the beginning of learning to speak. While animals also make similar noises in their infancy, humans are unique in their ability to turn these noises into complex language skills. Chomsky (1965) suggested in his theory of

Universal Grammar that all human language adhered to a set of general, grammatical principles and ascribed this to a natural predisposition in the human brain to acquire language (Pinker, 1995). This Universal Grammar allows children to learn any of the world's languages. However, children learn the language or languages they hear around them. The language that a child is raised in has an impact on the sounds they make from very early in their lives. Research has shown that children have acquired their native 'accent' between 6 and 12 months of age, which is before they have learned to use purposeful words (Crystal, 1986; de Boysson-Bardies, Halle, Sagart, & Durand, 1984, 1989; de Boysson-Bardies, et al., 1992; Engstrand, Williams, & Lacerda, 2003). One study has even noted native language effects in the melody of new-borns' cries (Mampe, Friederici, Christophe, & Wermke, 2009). These 'accents' are subtle and, despite these findings, infants' babbling is also similar in many ways across languages, possibly reflecting the underlying Universal Grammar (Blake & de Boysson-Bardies, 1992; Oller & Eilers, 1982; Thevenin, Eilers, Oller, & Lavoie, 1985). Furthermore, children begin to limit their skills in language perception and production to those needed for the language they are raised in from an early age. For example, children as young as 10 months old struggle to make discriminations between similar sounds that do not occur in their native language (Narayan & Werker, 2010; Werker & Lalonde, 1988; Werker & Tees, 1984). It is argued that this specialisation in one language develops alongside increases in cognitive control which allows infants to focus their attention only on what is useful for their native language development and ignore information that is not (Werker & Pegg, 1992). It is also argued that this loss of discriminative ability is limited to sounds from other languages that are produced in similar ways to sounds that exist in the native language, while very different sounds (e.g. the clicks of some African languages to native English monolingual speakers) are still distinguishable throughout childhood (Best & McRoberts, 2003).

Language develops in a series of milestones. Roughly eight weeks after birth, babies are able to express happiness with laughter and this laughter, along with similar sounds, is deemed to be the result of interaction with another human and helps to establish a bond of attachment between the two (Brooks & Kempe, 2012; Hoff, 2001; Locke, 2001; Sroufe & Wunsch, 1972). At two months, infants begin to produce ‘cooing’ sounds which are predominantly vowel based and are more intentional in nature than the sounds discussed so far, suggesting infants have some understanding that they can make sounds when they choose (Oller, 2000; Stark, 1978). Between four and seven months of age, infants experiment with these sounds, learning control and broadening their range and learning which noises receive positive feedback from their parents and other caregivers during vocal play (Goldstein, King, & West, 2003; Goldstein & Schwade, 2008; Goldstein, Schwade, & Bornstein, 2009; Hoff, 2001; Locke, 2006; Papaeliou & Trevarthen, 2006; Snow, 1977). These sounds become identifiable syllables when the child is 6 to 9 months of age, which allows them to engage in what is termed ‘canonical babbling’ (Oller & Lynch, 1992). This kind of babbling (in which infants repeat syllables such as *dadada*) is not necessarily intended as communication by the infant who will make these noises with or without the presence of another to hear it (Stark, 1986). Canonical babbling develops from this age to include more consonants and fewer repetitions of the same sounds (Hoff, 2001) until children are a year old and begin to purposefully produce words (Barrett, 1982; Brooks & Kempe, 2012; Ninio, 1992). The usefulness of knowing and using words in order to achieve a ‘social’ goal motivates children to learn more of them and, thereby, develop their vocabulary (Bloom, 2000; Bloom & Tinker, 2001).

Originally, researchers held that the development of language in typically developing children was so uniform (Crain, 1992; Pinker & Bloom, 1990) that it could, according to Chomsky (1975), be compared to the development of an internal, physical organ. This

suggested that a child's linguistic development could be predicted as reliably as the development of their digestive tract, for example. Researchers have estimated that children begin to understand words around the age of 9 months (Balaban & Waxman, 1997; Benedict, 1979) though some studies have placed this milestone as early as 6 months when children begin to recognise their own name (Hoff, 2001; Mandel, Jusczyk, & Pisoni, 1995; Tincoff & Jusczyk, 1999). At the end of their first year, children are heard to make their first, purposeful production of words (Bates, Bretherton, & Snyder, 1991; Brooks & Kempe, 2012; de Boysson-Bardies & Vihman, 1991; Hoff, 2001; Whitney, 1998). At 18 months of age children move from thinking of each word as an individual sound and begin to recognise that some of the sounds of a word are repeated in many other words and this can facilitate word production (Brooks & Kempe, 2012; Hoff, 2001) and, from here until 20 months, children begin to produce word combinations or short sentences (Bloom, 1970; Hoff, 2001). The words children learn at these stages typically come from interaction with others (Bloom, 1993; Tomasello, 2003) and concern the objects and events that are most important to them (Brooks & Kempe, 2012; Tardif, et al., 2008). From 2 years of age, children develop their grammatical understanding (Brown, 1973; Hoff, 2001) until, by 3 years of age; the basic skills for conversation have been mastered (Fenson, et al., 1994; Hoff, 2001).

The research detailed in the previous paragraph suggests all children develop language skills according to a common pattern of milestones and at the same rate. However, some researchers have demonstrated that children learn and acquire the skills necessary for fluent language use, such as vocabulary or grammatical rules, at different times and with varying speeds throughout infancy (Bates, Dale, & Thal, 1995; Fenson, et al., 1994; Miller & Chapman, 1981). However, researchers tend to agree that the majority of children appear to follow the same patterns as they learn to speak: i.e. First learning to make sounds, then learning to co-ordinate those sounds into purposeful words then developing syntactical skills

in order to create sentences and fluent speech (Chomsky, 1972; De Houwer, 2009; Hoff, 2001; Hoff, et al., 2012; McCarthy, 1933; O'Grady, 2005; Paradis, Genesee, & Crago, 2011; Tabors & Snow, 2003). However, there are a number of factors that can influence both how a child learns to produce and use language and the speed at which they achieve this goal. These factors must be considered when performing research concerning language as they can confound results or influence the extent to which the data are interpretable. The factors that are most commonly found to be associated with language development are discussed below.

Factors Affecting the Development of Language

Variation in the speed with which children develop language skills has been found to be associated with several factors which are listed and discussed here

i) Audition:

Hearing children tend to develop vocal skills such as cooing and babbling more quickly than deaf children (Oller & Eilers, 1988; Oller, Eilers, Bull, & Carney, 1985; Shriberg, Friel-Patti, Flipsen, & Brown, 2000). Other conditions have also been associated with language delay, including Down syndrome (Chapman, 1997; Fowler, 1990) and autism (Charman, Drew, Baird, & Baird, 2003). Neurological and chromosomal abnormalities thus impact on language development.

ii) Culture

Cultural practices may also play a role in how children develop vocabulary skills (Childers, Vaughan, & Burquest, 2007; Choi, 2000; Choi & Gopnik, 1995). This is due to cultural differences in the amount of time adults spend speaking to infants and children and the way in which they do so, e.g. some cultures may use less simplified speech or engage in more child-focused speech with infants than others.

iii) Socioeconomic Status (SES)

Children from lower SES families tend to have smaller vocabulary sizes (Hart & Risley, 1995; Hoff-Ginsberg, 1998; Nelson, Welsh, Vance Trup, & Greenberg, 2011) and less complicated grammatical understanding (Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002; Nelson, Welsh, Vance Trup, & Greenberg, 2011) than their peers in higher SES families. Researchers have found that higher SES mothers (i.e. those who have higher paid work or who have achieved higher levels of education) tend to talk to their children more often than lower SES mothers (Hart & Risley, 1995). Furthermore, higher SES mothers tend to use more complicated language when speaking with the children than lower SES mothers (Hart & Risley, 1995; Hoff, 2003).

iv) Gender

Gender has been found to affect the way in which children acquire vocabulary with girls outperforming boys (Bauer, Goldfield, & Reznick, 2002; Bornstein & Haynes, 1998; Bornstein, Leach, & Haynes, 2004; Fenson, et al., 1994; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). This has been ascribed by some to differences in the way boys and girls are spoken to by their parents. For example, research has shown that fathers tend to use more directive speech than mothers when talking to the child and mothers tend to use more supportive language with their daughters than with their sons (Leaper, Anderson, & Sanders, 1998). It is argued that these set different linguistic examples for boys and girls to follow but other research has shown that these gender differences persist regardless of the way in which parents interact with children (Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). However, it is not only the speed with which language develops that varies according to gender but also the ways in which preschool children use language. For example, girls are more likely to use language to ask for help than boys (Benenson & Koulkazarian, 2008;

Kyratzis, Ross, & Koymen, 2010; Thompson, 1999; Thompson & Moore, 2000;). Boys tend to interrupt the speaker in a conversation more than girls (Esposito, 1979) and are more commanding and less inclusive than girls in their talk during play (Kyratzis, Ross, & Koymen, 2010; Sachs, 1987;). Furthermore, the language used to resolve conflicts among preschool boys has been found to be more threatening and commanding than girls, who tended to negotiate more (Killen & Naigles, 1995; Sheldon, 1990). These differences may well depend on the way adults around the child use language.

v) Birth order

A child's position among their siblings in terms of order of birth may also be significant. First born children often receive more one-to-one attention from their mothers while subsequent children spend more time interacting with their siblings and watching them interact with their parents (Brooks & Kempe, 2012; Hoff, 2006; Oshima-Takane, Goodz, & Deverensky, 1996). This has been found to result in older children having better developed vocabularies while younger children's conversational skills are stronger (Hoff, 2006; Hoff-Ginsberg, 1998).

vi) Language exposure

One of the more important factors associated with children's language development is the quality and amount of input provided by those around them. For example, hearing more speech from their parents has been found to be related to larger preschool vocabulary in children (Bornstein, Haynes, & Painter, 1998; Goodman, Dale, & Li, 2008; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). Furthermore, children whose parents use more complicated, multi-clausal sentences when speaking to them also tend to be more competent when dealing with multi-clause sentences (Huttenlocher, Vasilyeva, Cymerman, & Levine,

2002). And it is not only parental input which is important. Young children in the early years of education whose teachers used more syntactically complicated speech with them also tended to develop syntactic skills more quickly (Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002).

How input affects children's language development is debated by researchers. Some claim that targeted input from adults can directly affect the syntactic skill of young children (Nelson, 1977) while others claim that this effect is modified by the child's level of language ability (Sokolov, 1993). Furthermore, the finding of an effect of parental input could be nothing more than an inherited, genetic predisposition to a certain level of language ability (Plomin, Fulker, Corley, & DeFries, 1997). I return to the issue of input under Bilingual Language Development below.

Whilst language is clearly a complicated but important mechanism to acquire, the importance of developing competent language skills goes beyond the need to communicate fluently.

The Importance of Language

Language skills are very important in the development of a healthy, socially competent child. Associations have been found between poor language skills, disruptive behaviours and poorly developed friendships in preschool children (Fujiki, Brinton, & Todd, 1996; Stowe, Arnold, & Ortiz, 1999; Willinger, et al., 2003). Coplan and Armer (2005) found that better language skills helped protect shy children from the possible negative outcomes of their shyness (such as social difficulties). While higher language ability does not stop a child being shy, it appears to help children cope with social situations and mediates between their shyness and the difficulties with social behaviour shyness can cause (Coplan & Armer, 2005; Coplan & Weeks, 2009).

Language skills are also important to the development of memories. Simcock and Hayne (2002) asked children aged between 27 and 39 months to play a game called the ‘Magic Shrinking Machine’ which was designed to be an unusual event in the children’s early experiences. This game included a variety of objects, actions and sounds, some of which were known to the children and some of which were novel. Children were asked to recall this game with the researcher 6 months and a year after it was played. Even though the children had since learned many of the words for the objects, sounds and actions they had not known when playing the game, the children did not make use of any of these newly learned words when describing the game. Their vocabulary for describing the event appeared to be limited to words they had known at the time of the event. This meant that only those aspects of the game for which the children had words at the time of playing it were reported to the researcher when they were asked to describe what they remembered. Children appeared to be unable to use newly learned labels when referring to events from the past. This suggests that it is more difficult to store an event in memory without the correct words to describe the event at the time (Brooks & Kempe, 2012; Hayne, 2004; Simcock & Hayne, 2002). Our memories form the basis for our ideas about the world, including our ideas about ourselves (Dowling, 2006; Durkin, 2000). Constructing our self-perceptions is likely to rely in part on language, meaning that a good, verbal understanding is crucial in creating accurate ideas about our abilities such as literacy. This relationship and its relationship to how we feel about ourselves and our abilities to read and write will be described in more detail in Chapter 3.

The research discussed so far has focussed on the development of language in monolingual children. However, a large proportion of the world’s children learn more than one language, making them bilingual or multilingual (Brooks & Kempe, 2012; Grosjean, 2010). In Wales, many children are raised to speak both Welsh and English. The next section

will describe how children across the world develop bilingually and will go on to focus more specifically on the issues facing bilingual children in Wales today.

Definition of Bilingualism

For researchers, defining the term 'bilingual' can be difficult (Grosjean, 2010). While it might appear to be a commonly understood word that describes people who speak two languages, it does not clarify how fluent a person must be in each language, how frequently they use each language or how they have learned or acquired these languages (Hoff, 2001). People may be described as bilingual because they know two languages even though they seldom use one of them. They may also be described as bilingual if they switch between their languages midsentence in every conversation. People may even be described as bilingual despite their knowledge of one language being markedly more advanced than their knowledge of the other (Brooks & Kempe, 2012). But are these three kinds of 'bilingual' really comparable? And how able are we to compare the abilities of bilinguals who speak different languages from each other? In order to answer these questions, we must first understand more about the differences between monolingual and bilingual language development.

Bilingual Development

Bilingualism and understanding its effect on child development has become more and more important as emigration and immigration have increased, creating more multilingual cultures. Indeed, bilingualism and multilingualism are considered the norm in many of the world's countries at present. Estimates have claimed that at least half of the people alive on the earth today are bilingual (Grosjean, 2010). It is clear, therefore, that many millions of children learn to speak, understand, read and write in more than one language. The way in

which children acquire these languages can vary greatly from one individual to the next due to variations in the conditions under which they become bilingual.

‘Bilingual First Language Acquisition’ (Meisel, 1989) is the term given to exposure to two languages from birth which usually occurs due to parental bilingualism. Children who learn two languages in this way are known as ‘Simultaneous Bilinguals’ (Paradis, Genesee, & Crago, 2011). It is also different from that of children who become bilingual through ‘Early Second Language Acquisition’ as these children have clearly begun learning one language before the other even though the second language is introduced during the child’s infancy often through a pre-school or community group setting. Children acquiring bilingualism in this way are referred to as ‘Sequential Bilinguals’ (Paradis, Genesee, & Crago, 2011). It is not always easy to identify which language is the first language of a simultaneous bilingual child (De Houwer, 2009a). While the age at which sequential bilinguals begin to learn their second language and the definitions of ‘early’ and ‘late’ sequential bilinguals vary, researchers have generally agreed that people introduced to a second language in the earlier years of childhood tend to become more proficient than those who are introduced during adolescence or later (Flege, Yeni-Komshian, & Liu, 1999; Krashen, Long, & Scarcella, 1979; Singleton, 2001). This idea is crystallised in the Critical Period Hypothesis which states that, in order to become a native speaker of any language, an individual must begin learning the language before they reach an age where the ability to learn new languages begins to decline (Birdsong, 1999). The notion of a biologically defined ‘critical period’ is not limited to ideas concerning language. Critical periods have been hypothesised for behaviours as varied as imprinting in chicks (Hess, 1964) to the development of binocular vision in humans (Morishita & Hensch, 2008). The notion of a biologically predetermined age after which acquiring native-like language skills is difficult was first posited by Penfield and Roberts (1959) and Lenneberg (1967) hypothesised that this period stretched from infancy to puberty.

Over the years, this hypothesis has been reinforced with evidence from cases of so-called ‘wild children’ (Hoff, 2001). These children, such as Victor of Aveyron (Lane, 1993) and Genie (Curtiss, Fromkin, Krashen, Rigler, & Rigler, 1974) have been separated from human social interactions either by accident or by deliberate neglect and have, therefore, grown from infancy without exposure to any language. The difficulties experienced by these children in developing language skills after their discovery has been documented and ascribed to the failure of the necessary brain systems to develop in the absence of appropriate stimulation (Curtiss, Fromkin, Krashen, Rigler, & Rigler, 1974; Hoff, 2001). These instances describe a Critical Period for the acquisition of a first language. Researchers have argued for the existence of a Critical Period (more recently referred to as a ‘Sensitive Period’ for language learning) for the acquisition of second and subsequent languages also (Johnson & Newport, 1989; Oyama, 1976; Patkowski, 1980). However, other research has questioned the validity of this hypothesis and argued against the idea of a Critical Period for second language acquisition (Birdsong & Molis, 2001; Flege, Yeni-Komshian, & Liu, 1999; Snow & Hoefnagel-Hohle, 1978). For example, while Hakuta, Bialystok and Wiley (2003) found second language ability did decrease as the age of initial exposure increased, they argued that the pattern of their findings did not reflect the existence of a critical period so much as the gradual change in cognitive ability associated with aging in general. Others have argued that language development consists of a series of critical periods, with the more basic aspects of language development (e.g. phonology) having a shorter critical period than the more complex aspects (e.g. syntax) (Long, 1990). Regardless of the existence or not of a ‘Critical Period’ in which languages can be acquired, these studies all agree that the development of language is quicker and results in higher levels of ability with earlier exposure to the language. This debate is particularly pertinent to Wales where, as will be discussed in the section titled *Bilingualism in Wales*, children begin to learn to use English and Welsh at various stages within this Critical Period. In particular, their age at the time of introduction to

literacy in these languages also varies, raising questions about the development of their literacy skills in each language which this thesis will explore in more detail in Chapter 2.

Bilinguals and monolinguals are said to follow the same general patterns of language development as described at the beginning of this chapter (Bialystok, 2001). Research has shown that bilingual infants begin canonical babbling at the same age as monolingual children and the quality of this babbling is also similar (Oller, Eilers, Urbano, & Cobo-Lewis, 1997). While bilingual children must be able to differentiate between the two languages they are learning, the skills they must develop to achieve competence in these languages are the same (De Houwer, 2009b; Sebastián-Gallés, 2010; Werker, Byers-Heinlein, & Fennell, 2009). The stages of early vocalisation development (from reflexive noises to purposeful babbling) have been found to be similar across languages as well (Roug, Landberg, & Lundberg, 1989). However, bilingual children are able to discriminate between languages better than monolingual children (Bosch & Sebastián-Gallés, 1997; Nazzi, Bertoncini, & Mehler, 1998). For example, in a study by Sebastián-Gallés *et al.* (2012), 8 month old infants were shown silent films of bilingual speakers switching between languages. Bilingual infants recognised when the speaker switched from one language to another while monolingual infants did not. This is particularly interesting as it suggests that it is not only the sound of a language that infants recognise but also the mouth movements associated with those sounds. It appears to be the case that the monolingual children have lost this ability to discriminate between languages rather than that bilingual children have acquired it (Mehler, *et al.*, 1988). Studies have also found that 4 and 6 month old monolingual infants could make distinctions between changes in language used by speakers in silent films (Bosch & Sebastián-Gallés, 1997, 2001; Byers-Heinlein, Burns, & Werker, 2010; Weikum, *et al.*, 2007) but were no longer able to do so at 8 months (Weikum, *et al.*, 2007; Werker & Tees, 1984) while bilingual children maintain this ability (Albareda-Castellot, Pons, &

Sebastián-Gallés, 2011; Burns, Yoshida, Hill, & Werker, 2007). Sebastián-Gallés *et al.* (2012) found that this ability was not specific to the bilingual's own languages but that bilingual infants were as sensitive to a switch between two unknown languages. However, the accuracy of bilingual children's ability to make these judgements is affected by the relative dominance of each of their languages, with children tending to be able to make these judgements more reliably for the more dominant of their languages (Sebastián-Gallés & Bosch, 2002).

A bilingual country such as Wales will have variations in the relative dominance of each language according to community which is discussed in more detail later in this chapter. Researchers ascribe this ability to discriminate between languages to a need for bilingual infants to maintain attention to switches in language in order to decide which words belong to which language, which suggests bilingualism is related to attention (Sebastián-Gallés, Albareda-Castellot, Weikum, & Werker, 2012). Attention is one of a number of skills (collectively referred to as 'Executive Functions') which has found to be improved by bilingualism (Bialystok, 1999; Bialystok & Martin, 2004; Carlson & Meltzoff, 2008; Gathercole V. C., et al., 2010). Bilingual children have been found to have better control of attention than their monolingual peers (Bialystok, 1999; Carlson & Meltzoff, 2008) and this could impact skills across the curriculum (Yoshida, 2008). Research with older children has shown that this continues and results in a bilingual advantage in ignoring irrelevant material when making judgements about grammatical accuracy (Bialystok, 1986, 1988). Other research has shown that this advantage reaches beyond aspects of language to all areas of attention (Bauer, Goldfield, & Reznick, 2002; Bialystok, 1999; Bialystok & Martin, 2004; Bialystok & Codd, 1997; Gathercole V. C., et al., 2010). It is theorised that the constant need for bilingual speakers to ignore the language which is not currently being used provides exercise for the individual's control of inhibition which extends beyond the realm of

language (Bialystok, 2007; Garbin, et al., 2010). These advantages have also been observed in bilingual infants from 7 months of age (Kovacs & Mehler, 2009). This research suggests encouraging bilingualism for children would not only help their linguistic skills but would also provide valuable non-linguistic advantages.

While the early stages of language development are similar (Oller, Eilers, Urbano, & Cobo-Lewis, 1997; Pearson, Fernandez, & Oller, 1993) and while bilingualism offers some advantages to cognitive abilities, bilingual children do tend to take longer than monolingual children to achieve each of the later milestones of language development (De Houwer, 2009a; Gathercole & Thomas, 2009). This has been shown both for acquisition of the grammatical structures of each language (Gathercole, 2002a, 2002b, 2002c) and for vocabulary in one language for children ranging in age from preschool to mid-primary (Bialystok & Luk, 2012; Bialystok, Luk, Peets, & Yang, 2010; Hammer, Lawrence, & Miccio, 2008; Junker & Stockman, 2002; Oller, Pearson, & Cobo-Lewis, 2007; Patterson, 2002; Pearson, Fernandez, Lewedeg, & Oller, 1997; Pearson, Fernandez, & Oller, 1993; Thordardottir, 2011; Ucelli & Paez, 2007). Indeed, recent research has suggested these differences persist into adulthood (Bialystok & Luk, 2012) when bilinguals still show slower response times when asked to name objects (Gollan, Montoya, Fennema-Notestine, & Morris, 2005; Roberts, Garcia, Desrochers, & Hernandez, 2002) and producing fewer words when asked to name as many words as they can think of that begin with a certain letter (Gollan, Montoya, & Werner, 2002; Portocarrero, Burright, & Donovick, 2007). However, when the overall number of objects or concepts for which a bilingual child has a name, regardless of language, has been compared with that of a monolingual child, some researchers have noted no significant difference (Pearson, Fernandez, & Oller, 1993; Junker & Stockman, 2002). Acquiring vocabulary as a bilingual child is complicated as objects tend to have two names (one in each language)

rather than one (De Houwer, 2009b), and word retrieval must take into account two large word stores, not one.

Whilst bilinguals appear to follow similar patterns to monolinguals in terms of language development, the fact that they build, store, and organise two complicated language systems does also lead to some unique characteristics and issues that are not relevant to the monolingual experience. There is debate among researchers about the extent to which languages develop in isolation or together and further debate about how this manifests in simultaneous and sequential bilinguals. The way in which simultaneous bilingual children develop skills in both their languages was described by Volterra and Taeschner (1978) as a process with three stages. In the first stage, a child is not aware that they are being exposed to more than one language. Because of this, the child does not separate what they know about words according to language. Therefore, children at this stage are unlikely to be aware that an object has different names in each of their languages and will use words from both languages when they speak. In the second stage, children have learned that they know words from two different languages. However, while they use words from the same language together, they still confuse the syntactical rules of each of their languages. For example, they may use the rules of one language to pluralise nouns in the other language. In the third stage, children are able to appropriately use the words and syntactical rules for each of their languages. Support for Volterra and Taeschner's stages has been found in research describing the way in which the two languages of bilinguals interact. For example, Müller and Hulk (2001) found evidence that bilingual children applied rules from German when speaking French or Italian. They proposed that these findings supported the idea that bilingual children are, at first, unaware of the distinction between their languages which allows one language to interfere with the other as children try to separate their languages in later stages.

However, subsequent research has found evidence that simultaneous bilingual children are able to develop understanding of the syntactic rules of their languages independently and from an early age (Paradis & Genesee, 1996). For example, simultaneous bilinguals have been shown to learn the phonological systems of their two languages separately from an early age (Paradis, 2001). Even in the womb, children hear the voices of the people around them and show evidence of differentiating between familiar and unfamiliar sounds after birth (DeCasper, Lecanuet, Busnel, Granier-Deferre, & Maugeais, 1994; DeCasper & Spence, 1986; Moon, Lagercrantz, & Kuhl, In Press). For example, new-born babies learned to suck an interactive teat in a particular way in order to hear their mother's voice as opposed to another woman's voice (DeCasper & Fifer, 1980) and infants showed preferences after birth for passages their mother read frequently to them before birth over those that had not been read to them (DeCasper & Spence, 1986). Furthermore, at two days old, sucking behaviours were used to offer infants a choice between a recording of a woman speaking their monolingual mother's native language or of a woman speaking an alternative language. Infants were found to spend longer listening to their mother's language than the alternative (Moon, Cooper, & Fifer, 1993) This, along with other research, demonstrates that, not only are prenatal children aware of sounds but they are beginning to differentiate between language sounds they already know and new language sounds (Mehler, et al., 1988; Nazzi, Bertoncini, & Mehler, 1998). Such findings suggest that simultaneous bilinguals acquire their languages in more independent ways than Volterra and Taeschner's stages suggest.

Where both simultaneous and sequential bilinguals are concerned, many researchers have found evidence that the development of skills in one language impacts the development of skills in the other language (Foroodi-Nejad & Paradis, 2009; Müller & Hulk, 2001; Paradis & Navarro, 2003). The way in which this occurs is debated. Cummins (1979) argued that

the successful acquisition of a second language depends, at least in part, on a sufficient understanding of the rules that govern the first language. More recent research by Castilla, Restrepo and Perez-Leroux (2009) has suggested that the existence of interdependence between languages is not due to the transfer of skills between languages but appears because performance in each language depends on the actual language ability of the individual. According to this view, a bilingual's performance in one language can be predicted by performance in their other language. This is not a new finding as it has been demonstrated in several studies (Bernhardt & Kamil, 1995; Cummins, 1979; Verhoeven, 1994). However, while these findings have previously advised helping children establish their abilities in their first language before beginning to learn a second language (Cummins, 1979), Castilla *et al.* (2009) suggest that children should be given the opportunity to use both languages as early as possible to facilitate the achievement of language skills.

Furthermore, research has shown that many other factors affect the extent to which and the way in which the languages of a bilingual child will develop. Indeed, the experiences and opportunities of bilingual children vary so greatly that it can be difficult to find a group of children that are sufficiently comparable for reliable research to be performed (Place & Hoff, 2011). As detailed above, the order of introduction of languages can vary as can the age at which children are introduced to these languages. This means that children are exposed to each of their languages at a variety of ages and in varying amounts. This results in a great deal of variation in the amount of exposure children have to their languages both at home and outside the home. Given that exposure has been shown to be significant to the development of language in monolingual children, it stands to reason that it should be important to the development of bilingual children too, but arguably more so, due to the degree of variation across speakers.

Language Exposure

Once they are born, children are introduced to language primarily through their parents or caregivers. There is general consensus among researchers that the amount of exposure to a language predicts a child's ability in that language (Gathercole & Thomas, 2009; Hoff, et al., 2012; Paradis, 2010; Place & Hoff, 2011). That is, if a child who speaks, for example Welsh and English, hears only Welsh at home and at school and only hears English on television, they are likely to perform better in measures of Welsh ability than in English at certain points in their development. How much of each language a bilingual child hears will depend on the amount of each language spoken by their parents with the child, with each other and with visitors to the house and people in the community (De Houwer, 2009a; Gathercole, Thomas, & Hughes, 2008). Thordardottir (2011) studied the performance of simultaneous French-English bilingual 5 year old children and age and SES matched monolingual peers based on their amount of exposure to French and English. She found that the performance of bilingual participants in French and English depended significantly on the amount of exposure children had received to each language. She also found that simultaneous bilinguals displayed similar receptive vocabulary abilities (in which the child selects the picture which matches the word spoken by the researcher) to monolingual children. However, bilingual children with less exposure to the language being tested performed significantly less well in measures of expressive vocabulary (in which children were asked to name the picture presented). Her findings support other work which underlines the importance of exposure in enhancing the linguistic outcomes of children (de Houwer, 2007; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991; Pearson, 2007).

In Wales, where many children are raised bilingually, this also appears to be the case. In a study examining the Welsh language abilities of 7 and 9 years olds in Wales, Gathercole & Thomas (2005) found that children who heard only Welsh at home performed better than

children who heard both Welsh and English at home or only English on measures of their knowledge of grammatical gender. They also found that children who heard both Welsh and English at home outperformed those children who were exposed only to English at home. Rhys and Thomas' (2012) findings contrast with those of Gathercole and Thomas (2009). In this study, the languages used in a child's home (Welsh and/or English) were also found to be significant to children's acquisition of languages. However, this study found that differences in the use of Welsh and English at home did not hamper the acquisition of English but that it did impact the acquisition of Welsh. Rhys and Thomas's findings for tests of Welsh language ability agreed with some of Gathercole and Thomas' findings (2009), with both papers suggesting that increased exposure to the Welsh language in the home was associated with better performance on measures of Welsh language ability. However, Gathercole and Thomas (2009) did not find that better performance in English was associated with greater exposure to English while Rhys and Thomas' (2012) study would suggest this to be the case.

Children who hear more than one language spoken around them are unlikely to have the same level of exposure to either of their languages as a monolingual child. As a result, while bilingual children's language development is likely to be generally similar to monolingual children, there are also likely to be some minor differences (Brooks & Kempe, 2012). Nevertheless, bilingual children have been found to have learned as many nouns as age-matched, monolingual children but these words are split between their two languages (Hoff, et al., 2012; Junker & Stockman, 2002; Pearson, Fernandez, & Oller, 1993) although there are some recent studies which have found evidence to the contrary (Bialystok & Luk, 2012; Bialystok, Luk, Peets, & Yang, 2010).

The roles of the people speaking each language in a child's life can affect the way bilingual children develop language. Place and Hoff (2011) studied two year olds who were bilingual in both Spanish and English. They found that children whose mother spoke English

had developed better language skills in English than in Spanish. And it is not only the mother that can influence the development of language skills in bilingual children. In an American study of bilingual toddlers, older siblings were found to speak more English with the toddlers than other members of the nuclear family and toddlers with older siblings were found to have more developed English language skills (Bridges & Hoff, 2012)

Another aspect to be considered is the dominance of each language within the child's society. In Wales, for example, English is a much more dominant language than Welsh in most areas, since it is spoken by the entire population, rather than only by a minority, and is the primary medium of communication in the majority of work places, leisure establishments and the media. As Pearson (2007) reported, for children to achieve language skills in a minority language, exposure in the home is more important than for those learning to use a dominant language. This is because exposure to a minority language outside of the home is likely to be limited. This leads to slower development of vocabulary and certain structures in the minority language as compared to similar skills in a dominant societal language (Gathercole & Thomas, 2009).

Since variation in exposure can lead to different levels of linguistic achievements in children, this has implications in the applied setting, where a measurement of linguistic ability is a vital indicator of potential language difficulties. The extent to which using existing measures that are primarily only available in English and normed on English monolinguals, with bilingual children is useful has been debated and this will be discussed further in Chapter 2. Researchers have suggested that accurate assessments of bilingual children's ability cannot be made without considering the amount of each language they have been exposed to (Gathercole, Thomas, & Hughes, 2008), and this is particularly relevant in the bilingual classroom where children come with a variety of experiences with each of their languages, leading to variations in abilities across pupils. The following section focuses on

the Welsh language and its development in order to appreciate the variety of speakers that are the focus of this thesis.

A Brief History of Welsh Speaking in Wales.

Britain is considered to be a culturally diverse country which is home to a great many people from a variety of nationalities, speaking various languages and who have, of necessity, become bilingual. This linguistic diversity is not new. Historically, Britain has always been a multilingual country in which English has changed and adapted almost beyond recognition since its emergence around fifteen hundred years ago (Baugh & Cable, 2002). Of the 'native' languages that have been spoken in the islands and territories of the United Kingdom since before the introduction of English, those that have survived -commonly known as 'the Celtic languages' - include Irish Gaelic, Manx, Cornish and Welsh (Jackson & Stockwell, 1996).

In the eleventh century, the vast majority of the people living in Wales spoke Welsh (Baker, 2003). However, over the centuries since then, the Welsh language has declined and English has become so dominant that the UK census stopped asking people in Wales whether they spoke English in 1981 (Jones, 2012). According to Jones (2012), while the actual number of Welsh speakers increased between 1891 and 1971, the number of non-Welsh speakers increased at a greater rate meaning that the percentage of Welsh speakers in Wales decreased. In 1991, 18.7% of the population of Wales spoke Welsh (Jones, 2012). However, the passing of the Welsh Language Act (1993) and the inclusion of compulsory Welsh lessons in all schools in Wales were designed to help revitalise the Welsh language. The 2001 census suggested that this had been successful and the percentage of Welsh speakers was shown to have increased for the first time since records had begun, totalling 20.8% of the population that were aged three years or older (Jones, 2012). This seemed to suggest that the measures taken to increase the learning of the Welsh language were successful. However, the 2011 census has shown that this figure has decreased once more to 18.6% (Office for

National Statistics, 2012a). This figure indicates that the prevalence of Welsh speaking in Wales has dropped to levels similar to those of 1991. The reasons for this drop are, as yet, unclear. One argument is that, since people living in England at the time of the census were not asked whether they were able to speak Welsh, it is unclear how many more people may speak Welsh despite not living in Wales. One estimate (Jones, 2007) suggests that there are as many as 110,000 Welsh speakers living in England alone. Perhaps a global census would show that the total number of Welsh speakers in the world had remained the same or even increased in the last decade. But this alone is unlikely to be the sole reason for such a marked decrease. Many of the reasons are likely to be linked to socio- or extra-linguistic factors that influence speaker choice (Heller, 1995; Herman, 1961; Place & Hoff, 2011), including motivation to learn and to use Welsh (Dornyei, Csizer, & Nemeth, 2006; Lyon & Ellis, 1991), proficiency and confidence (Clement, Baker, & MacIntyre, 2003; Starks, 2005). Since attempts to increase the numbers of Welsh speakers in Wales have often focussed on schools (e.g. making Welsh lessons compulsory for all school aged children) (Hodges, 2011), it is reasonable to begin by looking at the experiences of children in schools in Wales as they develop language skills in Welsh and English.

Bilingualism in Wales

As can be seen from the studies described above, there is a striking lack of uniformity between the experiences of bilingual children and how their language skills develop. In Wales, children can fall into any one of the categories that represent the spectrum from monolingualism to multilingualism. Some children are born to bilingual parents and are exposed to both Welsh and English in almost equal measure from birth making them Simultaneous Bilinguals. Some children are born to parents who use only Welsh in the home and the community and are therefore initially only exposed to Welsh. Other children are born to monolingual English-speaking parents and become fluent in Welsh at school, making them

Sequential bilinguals (Gathercole, Thomas, & Hughes, 2008). It is worth noting that, in Wales, it would be very rare indeed to meet with a truly monolingual Welsh speaker. English has such dominance in Wales that all its Welsh speakers are, of necessity, bilingual. Finally, a substantial number of children in Wales are born to monolingual English speaking parents and attend English medium schools. While all schools in Wales are required to teach Welsh to some extent, for many it is taught as a second language in the same way that children learn other languages at school, such as French or German. These children, in most cases, are more similar to monolingual children in England attending an English-medium school and who learn modern languages to A-level standard (Welsh Assembly Government, 2008).

How parents in Wales make decisions about which languages their children will speak is also complicated by a number of factors. According to Gathercole *et al.* (2007), the most important of these factors is how familiar the parents are with Welsh and English. Parents are more likely to use Welsh with their children if their parents used Welsh with them when they were children. The same is true of English and also true of parents who choose to use both languages with their children. When one parent speaks Welsh and one speaks English, it is likely that they will use these languages when speaking to the child. However, it is more likely that they will speak English with each other. Also important in predicting the likelihood of passing on a language to a child, according to this report, is the language of the parent's social group. Therefore, if parents have access to a large group of friends who speak Welsh, they are more likely to speak Welsh to their children. Morris and Jones (2007) supported these findings with their research, noting that the development of a minority language depends on interactions with parents, family, friends and the wider community as well as the language policies of childcare provision available in the area. They found that it was mother's use of a minority language that was most significant in securing the transmission of that language as mothers tended to spend more time interacting with their

child than fathers. They also noted that some previously unconsidered factors were at work in the transmission of the Welsh language, such as parents' feeling that using Welsh with non-Welsh speakers was impolite and they highlight the impact of immigration on the amount of Welsh spoken within communities. It is such issues that the Welsh Assembly Government aim to address in their policies concerning the Welsh language.

Policy in Wales

Since the situation in Wales is a varied one with regard to the language backgrounds of its children, it would be expected that the education system in Wales would reflect this diversity in its teaching. The Welsh Assembly Government has stated its vision that:

“In a truly bilingual Wales both Welsh and English will flourish and will be treated as equal. A bilingual Wales means a country where people can choose to live their lives through the medium of either or both languages; a country where the presence of two national languages, and other diverse languages and cultures, is a source of pride and strength to us all.” (Welsh Assembly Government, 2002, p. 4)

One of their key concerns is that access to a Welsh education should be available to all who want it (Welsh Assembly Government, 2002). In *Iaith Pawb: A National Action Plan for a Bilingual Wales*, The Welsh Assembly Government (2003) listed their aims for Welsh-medium education. These included encouraging Welsh language transfer within the family and increasing access to Welsh-medium preschool care, ensuring linguistic continuity for pupils throughout their education and researching the possibility of ‘measuring competence in Welsh along a linguistic continuum’ (Welsh Assembly Government, 2003, p. 40). This final point is listed in response to the Welsh Assembly Governments acknowledgement that children in Wales develop skills in Welsh at various rates and their contention that separating children in Wales into two distinct categories – i.e. ‘Welsh First

Language' versus 'Welsh Second Language' - might not be the most useful way to consider children. It could be argued, however, that this document does not recognise the possible existence of similar issues for children raised in Welsh speaking homes attending English-medium schools.

As a result of these plans, the Welsh Assembly Government (2010b) issued the Welsh-medium Education Strategy. The third of its strategic aims was: 'To ensure that all learners develop their Welsh-language skills to their full potential and encourage sound linguistic progression from one phase of education and training to the next' (Welsh Government, 2010b) and this aim included the specific objective of considering the use of a continuum of Welsh language abilities rather than the distinct, first language/second language split. In the latest annual report on this strategy, the Welsh Assembly Government (2012b) stated that there had been a 10% increase in the number of pupils choosing to continue with Welsh-medium or bilingual education as they moved from primary to secondary school. However, the objective of considering a continuum is not mentioned. Instead, the developments are reported under the headings 'Welsh first language' and 'Welsh second language'. As part of the plans for Welsh first language children, the annual report describes the introduction of a National Literacy Framework and in June 2011, the Welsh Minister for Education and Skills announced the introduction of a National Literacy and Numeracy Framework (LNF) that would be used to instruct pupils in primary and secondary schools in Wales (Welsh Government, 2011). In this speech, Leighton Andrews explained that the LNF was to be introduced as part of a raft of measures to combat what he described as 'some of the challenges that we face – [i.e.] literacy, a lack of ambition and low expectations in some quarters; and too much variability between schools' (Welsh Government, 2011, p. 3). The LNF applies to children in the Foundation Phase, Key Stage 2 and Key Stage 3 of education (that is, children aged between 5 and 14 years) and is due to be introduced to schools as a

statutory requirement in September 2013 (Welsh Government, 2013). It is described as a ‘curriculum planning tool’ (Welsh Government, 2013, p. 4) and is designed to facilitate the development of literacy and numeracy skills across all areas of the curriculum. While the LNF is not intended to provide a national data gathering measure of literacy and numeracy, it does give details of the yearly expectations of achievement in these fields for children. How well children meet these annual guidelines will be determined by their teachers who will track children’s progress against the expectations laid out in the LNF for the child’s year group. In order to collect national data, the Welsh Government is introducing national reading and numeracy tests alongside the LNF. These tests were designed to provide a single measure of literacy and numeracy that all children in Wales would be tested against instead of the variety of tests currently being used (Welsh Government, 2013). Each year, children would be compared against the national average score for that year. As discussed previously, such a general norm might be a misleading standard for children with varying degrees of exposure to Welsh and English which might affect their abilities (see also Chapter 2).

Numeracy in Wales is, on the whole, likely to be similar to numeracy in other parts of the UK and, indeed, most of the world. However, this is not necessarily the case for literacy. While English is the only official language of instruction in schools in England, many children in schools in Wales are taught both English and Welsh. In Wales, the Welsh language continues to be spoken by 18.6% of the population according to the 2011 census (Office for National Statistics, 2012a). As mentioned, part of its current prevalence is due to the fact that Welsh is taught in every school although the extent to which it is taught varies a great deal according to the school’s local education authority and setting. In the academic year 2012 there were 56 secondary (25% of all secondary schools) and 461 primary schools (32% of all primary schools) classed as providing Welsh-medium education (Hughes, 2012). These figures included schools that use only Welsh for their administration and to

communicate with pupils (except in other language lessons, e.g. English, French, etc.). They also include schools classed as ‘transitional’, where Welsh is also the everyday language of the school and an emphasis is placed on encouraging the children to explore their Welsh identity and bilingual schools, where Welsh was used to teach at least 50% of subjects or 50% of the time in all lessons. Bilingual primary schools are classed as either ‘dual stream’, where the language used with children was determined by curricular provision and both Welsh and English were used daily or ‘English (with significant Welsh)’, where both Welsh and English were used for administration and communication with pupils but the predominant language of the school was dependent on its linguistic context. This means 165 secondary schools (75% of secondary schools) and 951 primary schools (67% of primary schools) describe themselves as ‘English-medium’ meaning administration and communication with pupils was through English, though some Welsh was also taught as a second language according to the curriculum of Wales (Welsh Assembly Government, 2010a).

It is clear from these figures that a good number of children in Wales are attending Welsh medium schools. In these schools, children learn to read and write in both Welsh and English. There are regional variations in how this is achieved, however. For example, this study will draw participants from the North-East of Wales, an area consisting of three Local Education Authorities (LEAs). In Denbighshire, Welsh medium education is defined as being one where the language of instruction in all subjects is Welsh through Key Stage 1 (until 7 years of age). English is not introduced until Key Stage 2. However, the expectation is that all children who receive a Welsh-medium primary education in Denbighshire will have sufficient Welsh language competence to continue to Welsh-secondary provision and, by the end of Key Stage 2 (11 years of age) ‘have reached a standard in English equivalent to that reached by pupils in predominantly English medium schools’ (Denbighshire County Council,

2013, p. 31). In comparison, children attending English-medium schools in Denbighshire are taught Welsh as a second language and are expected to achieve only basic or intermediate levels of Welsh by the age of 16 (Denbighshire County Council, 2013; Denbighshire County Council, 2012). Denbighshire provides both designated Welsh-medium and English-medium schools, as have been described, but also offers dual-stream schools in which children and parents are able to choose whether their child is taught in Welsh or in English but all children are taught side-by-side in the same class, providing more exposure to each language for all children in the school (Denbighshire County Council, 2012). Flintshire does not provide dual-stream schools and restricts its provision to Welsh-medium and Welsh second language schools. As in Denbighshire, children in Welsh-medium primary schools are initially immersed in Welsh and introduced to English as a subject in Key Stage 2 while Welsh is taught as a second language in Welsh second language schools (Budd, 2008). In Conwy, however, a bilingual policy exists for all schools (Education Services, 2012). While Conwy County Council commits itself to providing schools where Welsh is the main medium of instruction for all families who choose them, these schools provide regular instruction in English even in Key Stage 1 (Education Services, 2012). Unlike Flintshire and Denbighshire, where Welsh is less commonly used in the home (Office for National Statistics, 2012a), Conwy County Council notes the aim of extending the English language skills of children in Key Stage 1 from Welsh speaking homes.

According to the Welsh-medium Education Strategy, the Welsh Government (2010b) aims to implement a bilingual education system that will increase the amount of Welsh-medium provision on offer and which promotes an inclusive ethos in order to increase the number of fluent Welsh speakers in Wales. The strategy was prompted by an increase in demand for Welsh-medium education from parents and carers who want to increase their children's engagement with Welsh culture (Hodges, 2011) and also improve their children's

educational, economic and social prospects (Hodges, 2012) The strategy argues that ‘Welsh-medium education from the early years...offers the best conditions for developing future bilingual citizens’ (Welsh Assembly Government, 2010b, p. 7). The strategy notes that children in Wales vary according to their home language background. It describes how the children of Welsh speaking parents are likely to achieve bilingualism to a different degree and in different ways from their peers whose parents speak English. However, as the strategy explains, children in the majority of Welsh-medium schools at present are introduced exclusively to Welsh literacy skills until the age of seven regardless of their home language practices. English literacy skills are not taught in a formal setting to these children until they begin Key Stage 2 (school year 3, 7 years of age). Despite this late onset of teaching English, the strategy states that, according to assessment data, 98.5% of children in Welsh-medium schools perform to approximately the same level in English as in Welsh by age 11 and this is taken as evidence that the current system is creating bilingual users of Welsh and English (Welsh Assembly Government, 2010b). However, recent research comparing the language abilities of Welsh-English bilingual children with monolingual children has suggested a need for caution. While children from English speaking and Welsh speaking homes performed on average within the normal range for measures of reading ability in Welsh and English, significant correlations between the amount of exposure to language and performance on these measures were also found (Rhys & Thomas, 2012). Furthermore, the effects of home language exposure were still to be seen in children aged 10-11 years which may mean the government’s target for parity in performance is difficult for all children in Wales to achieve. The LNF reflects these findings in its literacy components. The literacy skills children are required to learn in Welsh and English are mostly alike, except in some areas of grammar that are peculiar to the Welsh language. Due to the immersive nature of Welsh language teaching in the early years of Welsh-medium education, Welsh-medium schools are only required to adhere to the guidelines laid down in the LNF for Welsh literacy until Key Stage 2. The LNF

does not include a set of guidelines detailing the likely progress of children in Welsh medium schools who are introduced to English in year 3. The LNF explains that children with Additional Learning Needs (ALN) or who have English or Welsh as an additional language (EAL) (i.e. children who predominantly speak a language other than English or Welsh in the home) will need teachers to take account of this as they assess children's achievement against the LNF standards (Welsh Government, 2013). This issue lacks clarity as it could be argued that children attending Welsh-medium schools from homes where only English is spoken are, in fact, children who have Welsh as an additional language. They, like EAL children, are beginning their education in a language that is not familiar to them. Similarly, children from Welsh speaking homes attending English-medium schools could reasonably be classed as EAL children. However, this is not recognised within the term and EAL children are defined in the Welsh Assembly Government's (2004) Special Educational Needs (SEN) Code of Practice as 'children whose first language is not English or Welsh' (Welsh Assembly Government, 2004, p. 45). This Code of Practice notes, as part of its fundamental principles, that children with SEN should have their needs met and that this will usually be achieved in mainstream schools. It should be noted that EAL children are included within the SEN code of practice as their English language skills may require additional attention at school and not because they are less academically advanced. However, their inclusion suggests that the Government feels the needs of EAL children must be protected in order to ensure their achievement. The additional learning needs of EAL children are also recognised in the Welsh Government's (2006) guidance circular 'Inclusion and Pupil Support' as being critical to achievement. This document requires schools to ensure equality of educational opportunity by 'accounting for and addressing the diversity present in schools. It requires the commitment of schools and LEAs to develop policies and practices to ensure equality of educational opportunity and access; safeguard vulnerable pupils; and focus on raising the achievement of all learners and increasing their participation in their schools and local

communities' (Welsh Assembly Government, 2006, pp. Section 1, p.1). This is achieved for EAL children through the provision of specialist teachers and teaching assistants who are able to speak the child's home language (Davidson, 2007).

However, the LNF does not detail the likely differences in achievement between children in Welsh-medium schools who have parents that speak Welsh and those whose parents speak English. Nor does it describe differences in the predominant language use in the community surrounding the school or how these might impact bilingual development. Its guidance is general. It issues this statement:

“In Welsh-medium primary schools, it is recognised that language and literacy skills acquisition in the early years may follow a different pattern. Immersion methodology will develop children's Welsh language skills and by Key Stage 2 there will be increasing parity in the development of both Welsh and English literacy skills. As a consequence in Reception to Year 3 inclusive, Welsh-medium schools will only be required to use the Welsh literacy component of the LNF (alongside numeracy). From Year 4 onwards we expect Welsh-medium schools to use both English and Welsh components. This will in effect mean that the English literacy component will be used when English is being taught, and the Welsh literacy component being used across the curriculum. Schools can also use the English component in Reception and Years 1-3 if they wish.” (Welsh Government, 2013, p. 10)

But, while this notes recognition of differences in development, the literacy framework offers no clear guidance for teachers concerning how to evaluate children's development according to their language experiences. Furthermore, it suggests an expectation that, in Year 4, children who have only recently been introduced to English will be assessed using the same guidelines and comparisons as children who have been learning to read and write English since entering school. As reference is made to these issues in the

Welsh-medium Education Strategy (Welsh Assembly Government, 2010b) it is worth considering them in more detail. Furthermore, in the light of earlier discussion of the difficulties of assessing bilingual children in only one of their languages and the added complication of the child's home language, is it reasonable of the Welsh government to expect that all non-EAL children in schools in Wales be assessed according to the same guidelines? And how meaningful would the results of such assessment be? This study aims to address these questions concerning literacy for monolingual and bilingual children in Wales.

Summary

This chapter has described the stages by which children learn to use language. It has illustrated the impact factors such as gender, SES, birth order and language input can have on this development. It has also explained that language is important for the development of healthy social skills and memory. The difference between monolingualism and bilingualism was explained and it was shown that, while bilingual children develop language skills according to the same patterns as monolingual children, delays are found in their achievement in areas such as vocabulary. It was shown that children who begin to learn languages earlier acquire those languages more quickly and more easily. The amount of exposure to each language was also shown to be significant in the development of the language skills of bilingual children and this raised questions for effective assessment according to standardised norms. While bilingualism may slow down the acquisition of vocabulary, it offers certain cognitive benefits in terms of better attentional control.

In Wales, Welsh is a minority language and, as such, the Welsh Assembly Government seeks to protect it and encourage its propagation among the population. While levels of Welsh speaking appear to be remaining relatively stable, the Welsh Government has introduced several strategies to increase the use of Welsh in Wales. Many of these focus on

education strategies and a particular focus on literacy has been proposed. This includes the introduction of a National Literacy and Numeracy Framework which will require annual monitoring of children's literacy and numeracy abilities. While some allowance for the differences in school language of instruction are made, the standards by which this Framework requires children to be tested are not tailored to take account of children's language exposure and the fairness of this is questioned. Furthermore, the Welsh Assembly Government expects children in Welsh Medium Schools to be meeting similar standards in English to children in English Medium schools as they enter secondary education. Given the information presented in this chapter, this leads to two questions:

1. How do the English literacy abilities of children in English-medium and Welsh-medium schools compare?
2. Do factors such as language exposure, SES, gender and birth order affect performance on measures of English literacy?

In order to address these questions, a deeper understanding of literacy and the factors which might affect it is necessary. Therefore, the next chapter will focus on the development of literacy in monolingual and bilingual children in order to investigate what areas are of particular relevance to the current research.

Chapter 2

Literacy

In the previous chapter, the development of monolingual and bilingual language was discussed as a means to appreciate similarities and differences between monolingual and bilingual development and the ways in which two languages are introduced to children in schools in Wales. One of the key elements of language instruction at school is literacy. As noted in the introduction, the Welsh Assembly Government's (2012a) National Literacy Framework describes literacy as:

“An essential life skill. To make sense of the world around them, young people need an understanding of written and spoken language, the ability to interpret what has been written or said, and to draw inferences from the evidence that surrounds them. It is also about being able to communicate – accurately, fluently and persuasively” (p.2)

This chapter focusses on the way in which children develop reading and writing skills. It discusses the literature concerning the way in which children become literate and considers the important factors related to this. In particular, it discusses the impact of orthographic depth on the ease with which literacy is acquired, focussing on issues for children who struggle with acquiring literacy skills and children who are learning to read and write in more than one language. The chapter begins with a discussion of the development of literacy in a single language, followed by similar discussions in relation to bilinguals.

Monolingual Literacy

Reading is one of the most useful skills a human child can develop. It gives a child access to all kinds of information. From the frivolous (such as tales of boy wizards) to the imperative (such as signs warning of danger) reading allows a child to explore beyond their

immediate and familiar surroundings and into the universe at large. Through reading, children can find the first, basic fact that sparks a lifelong fascination or a world in which to escape the difficulties they face at home. Some children come by this skill easily; others take more time, whilst others will struggle with it throughout their lives. Why this difference? And how have humans learned to use such a skill at all?

How Reading is Achieved

Reading is the process of looking at text (or graphemes) and processing what one sees to produce speech (phonemes), meaning, or both (Coltheart, 2005). For decades, researchers have explored the brain structures and psychological processes that are involved in reading. This search is on-going but general consensus has been reached on several points. The most salient of these is the existence in the brain of more than one route to reading. This idea first emerged in the work of Ferdinand de Saussure in 1922. De Saussure described two methods of reading. He posited that, when faced with a familiar word, reading is achieved by recognising the overall shape of the word. However, when the word is unfamiliar, reading is achieved through the second method of scanning each letter in turn in order to construct its combinatorial sound.

Forster and Chambers (1973) measured the speed with which participants read high frequency, low frequency, unfamiliar and non-words. The results of this study supported the existence of two routes to reading. They found that participants read real words faster than non-words and that high-frequency words were quicker to read than low-frequency words, regardless of word length. Their conclusion, therefore, was that real words were read through a 'dictionary look-up' system in which pronunciation was achieved by recognising a sequence of letters as a whole, and that this 'dictionary' was easier to access for more familiar words (presumably due to a higher token frequency in the written script). Significantly, their findings suggested that this route was available for use even before

participants had pieced together the pronunciation of the word by converting each grapheme into a phoneme, and that it is a quicker route to reading than the grapheme to phoneme conversion (GPC) route. Their conclusion was that participants initially made use of both a lexical search route and a GPC route when reading words and whichever route provided the quickest answer was the route used. That is, when a known word was recognised using the lexical search, the attempt to assemble the pronunciation was no longer needed but if the word was not available in the lexicon (i.e. a new word) then the assembly of the word's pronunciation from its graphemes continued. Indeed, this GPC route more than likely plays a part in reading any new word (Ehri & Rosenthal, 2007; Rack, Hulme, Snowling, & Wightman, 1994).

These ideas were refined in a diagram by Baron (1977) which has been redrawn in Figure 2-1. The diagram shows the two routes to reading that De Saussure (1922) and Forster and Chambers (1973) describe. However, it also shows that, while associations that have already been made with the printed word can be used to produce both meaning and pronunciation, there are other factors at work. The rules for converting graphemes to phonemes that are used to pronounce known words can also be used to form a plausible (language-specific) pronunciation of words that have no information associated with them (i.e. new words). But it is not only this GPC or 'non-semantic route' (Coltheart, 2005) that can help identify the appropriate readings for new words. Where there are recognisable and known parts of words involved, the 'dictionary look-up' (Forster & Chambers, 1973) or 'semantic route' (Coltheart, 2005) can be used to piece together the word based on its constituents (for example, prefixes or word roots). Figure 2-1 also highlights the direct and bidirectional relationship between sound and meaning. This connection, according to Baron (1977), means that two routes exist for both reading aloud and for accessing meaning. The 'sound' route might seem to be of little use in reading a sentence such as *Their books are*

over *there* if these words have not been seen before because their spellings are irregular. However, an approximation of the sound of these words may be constructed by using the known rules that govern the grapheme-phoneme relationships. If the sound of the word is recognised as a known word, it is possible to identify the meaning of the word.

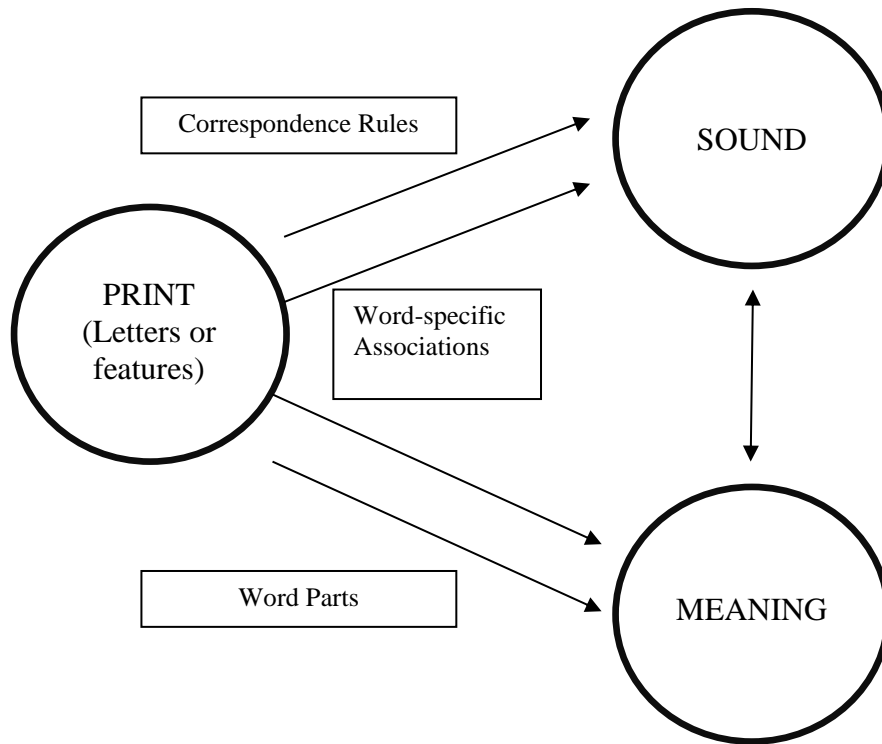


Figure 2-1 Diagram showing the two routes to reading (After Baron, 1977).

Baron (1977) compares the way in which the two paths (the ‘sound’ route and the ‘dictionary look-up’ route) work together to water hoses:

“If we imagine the two paths as hoses that can be used to fill up a bucket with information about meaning, we can see that the addition of a second hose can speed up the filling of the bucket even if it provides less water than the first. Of course, this idea assumes that using the second hose does not decrease the flow through the first one” (Baron, 1977; p.203).

He ends by pointing out that, for us to make the assumption that using one path does not reduce the efficacy of the other, the pathways must operate automatically. If a person

consciously had to choose which of the pathways to use, they would also be forced to choose to inhibit the other, thereby reducing its efficacy. As this has not been observed to happen in research, both pathways must operate simultaneously and automatically. Therefore, automaticity must be an important factor in fluent reading.

The dual-route theory has been proposed to account for a number of reading-related issues. For example, Marshall and Newcombe (1973) proposed a similar dual-route model to explain the patterns of responding in six case studies of people with dyslexia. However, there have been arguments against the dual-route theory. Single-route theories have been proposed which eliminate the 'dictionary look-up' route of the dual-route model and replace it with a single pathway through which the brain learns the rules that connect phonemes, graphemes and meaning through experience (McClelland & Rumelhart, 1981; Rumelhart & McClelland, 1982; Seidenberg & McClelland, 1989). Others have suggested a 'reading-by-analogy' process, which suggests that new words are read by comparing them with already known words and looking for those that are orthographically similar. In this way, the parts of the unknown word can be compared to the rules connecting the graphemes and phonemes of known words in order to generate a pronunciation (Glushko, 1979; Marcel, 1980). However, it has been shown in several comparison studies that such models do not account for as many of the issues with reading (such as reading real and non-words, reading exception words and dyslexia) as dual-route models (Coltheart, Curtis, Atkins, & Haller, 1993; Coltheart & Rastle, 1994; Paap & Noel, 1991).

With the advent of computer technology, researchers have been able to move these theoretical debates forward by examining reading from a processing perspective. The reading process can be simulated by creating computer programmes that mimic the reading process (Norris, 1994; Plaut, McClelland, Seidenberg, & Patterson, 1996; Zorzi, Houghton, & Butterworth, 1998). Among these is the dual-route cascaded (DRC) model (Coltheart, Rastle,

Perry, Langdon, & Ziegler, 2001). The DRC model, like other computational models, relies on creating a series of excitatory and inhibitory connections such that, when information is provided, the programme processes it and creates an output that is comparable to the outputs created by humans. The model is then tweaked until the programme's output is as similar to that of humans as possible. The assumption is that the pathways in the model must be similar to the pathways in the brain. The DRC model is an updated version of Baron's (1977) and Coltheart's (2005) dual-route theories and is depicted in Figure 2-2. The DRC model consists of the same basic routes as the dual-route theory. It has a grapheme-phoneme conversion route and a 'dictionary look-up' route. However, in the DRC model, the dictionary contents has been separated into lexicon (or vocabulary) and semantic (or meaning) routes. As can be seen from the diagram, it is possible to use many different paths to achieve reading. It is possible to access the lexicon without accessing the semantic route (e.g. for words that we recognise but do not understand) and to retrace our steps along some of these pathways if the output does not seem right. Coltheart *et al.* (2001) compared computational models of reading and concluded that the DRC model most closely approximated the reading process as it had been shown in research to mimic the majority of the quirks and patterns observed in human reading.

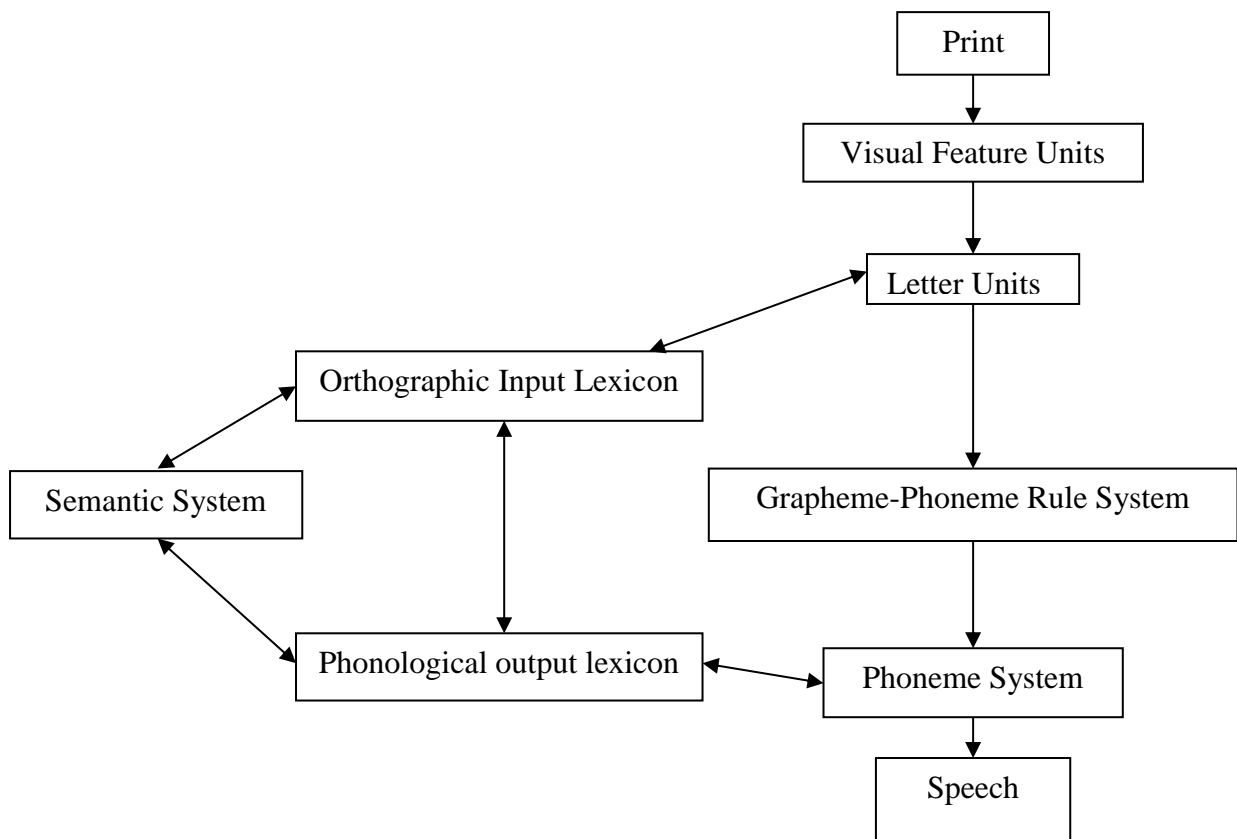


Figure 2-2 The Dual-Route Cascaded Model of Reading. After Coltheart, Rastle, Perry, Langdon, & Ziegler (2001).

More recently, researchers have made use of advancements in neuroscientific methods to assess this model's accuracy. Functional Magnetic Resonance Imaging (fMRI) has permitted scientists to see the brain at work during the process of reading, and it has found support for the dual route model by identifying specific and separate areas of the brain which are activated when attempting to read high-frequency, low-frequency and pseudo-words (Fiebach, Friederici, Muller, & von Cramon, 2002; Jobard, Crivello, & Tzourio-Mazoyer, 2003). These connectionist models have developed to include Triangle models. Dual-route models assume that the GPC route is slower than the semantic route and suggests that these two routes are independent of each other (Ashby & Rayner, 2012). Triangle models (Harm & Seidenberg, 2004; Plaut, McClelland, Seidenberg, & Patterson, 1996; Seidenberg & McClelland, 1989) (as illustrated in Figure 2-3) assume that neither route is

faster and that all routes collaborate to facilitate word reading. They claim that all the available information, be it phonological, semantic or orthographic, works cooperatively to supply the correct reading of a word, much like Baron's bath with two hoses. The cooperative nature of these processes has been questioned by research which has identified separate areas of the brain which are activated when reading high and low-frequency words (Fiebach, Friederici, Muller, & von Cramon, 2002). However, more recent studies have shown activation in areas of the brain which suggest cooperation between the two pathways and so support the triangle model (Cornelissen, et al., 2009; Pammer, et al., 2004).

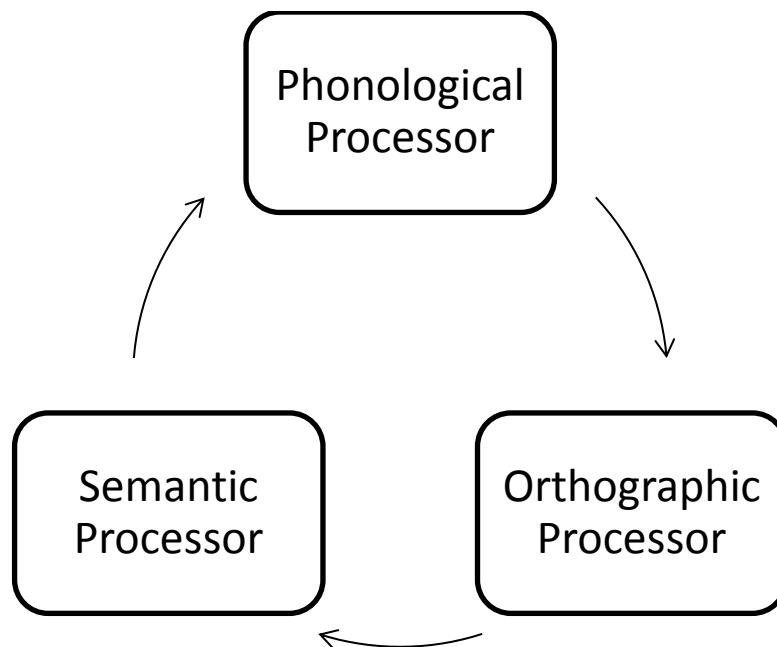


Figure 2-3 The Triangle Model of Reading (After Ashby and Rayner (2012, p. 67))

While these models reflect how reading is performed in the brain, they do not describe the process by which children begin to learn to read. The next section discusses the development of reading.

Development of reading

Studies have shown that literacy abilities are closely related to language abilities. For example, a child's level of reading comprehension depends on the child's level of language comprehension (Catts, Adlof, & Weismer, 2006; Keenan, Betjemann, & Olson, 2008; Nation, Clarke, Marshall, & Durand, 2004). Since the 1980s, several researchers have tried to define the stages of learning to read. Gough and Hillinger (1980) described children as codebreakers. They suggested that children begin by making whatever connections they can between written and spoken words until this method becomes too difficult and they cannot remember any more pairs. They search for a more efficient method and find that words can be broken into letters and each of these letters or letter sequences represents a sound. All that remains is for the child to 'break the code'; that is, to find a way to learn these rules. This is a useful skill to learn and the description of children as 'code breakers' in this context describes many of the common aspects of early literacy development. However, it only accounts for the development of one of the routes of the dual route model, the GPC route. How this develops into whole word recognition is less clearly explained.

Taraban and McClelland (1987) proposed the Conspiracy Model to describe how children learn to read and spell. This model states that children piece together the pronunciation of a new word – e.g., *hat* - by comparing it to other words they already know how to read - e.g., *cat*. By noticing that words have similar sounds at the end and realising that they also have similar shapes at the end, they can begin to recognise that the shape '-at' often goes with the sound /æt/. Therefore, when they encounter either that sound or that shape again, they can make a more educated guess as to its spelling or pronunciation. This model describes processes in learning to read which are similar to the processes involved in later reading according to the analogy models of Glushko (1979) and Marcel (1980).

Stuart and Coltheart (1988) argue that the stages of development laid down in earlier research are too prescriptive. Their research suggested that it was not sufficient to assume a common pattern of development of reading skills for all children. Instead, they found that children achieve literacy through a reciprocal relationship between phonological awareness and learning to read and that the balance of this relationship varies between children which means individual children develop at different rates and in different ways.

More recently, researchers have argued for the existence of four phases which all children must pass through in order to read correctly and quickly in any context (Cain, 2010; Ehri, 2005, 1995). The ability to read fluently is referred to as 'sight reading' by Ehri (2005) or as Automatic Reading by others (Cain, 2010; Samuels, 2012). The four phases which children must accomplish in order to be able to 'sight read' are the pre-alphabetic, partial alphabetic, full alphabetic and consolidated alphabetic stages. These stages are similar to the four reading strategies described by earlier researchers (Marsh & Desberg, 1983; Marsh, Desberg, & Cooper, 1977) which children pass through in a certain order. These stages are discussed in more detail below.

Pre-alphabetic phase. The pre-alphabetic phase describes the stage at which children use cues from the context in order to recognise words. For example, a child may appear to read the name on a bottle but is, in fact, prompted by the bottle's design and guessing that the word on it is *Cola* based on previous contextual experience (Cain, 2010; Ehri, 2005, 1995; Gough, Juel, & Griffith, 1992; Masonheimer, Drum, & Ehri, 1984). In this stage, children are using a rote strategy (Marsh & Desberg, 1983; Marsh, Friedman, Welch, & Desberg, 1981) in which they memorise a relationship between a word and some contextual cue (either from the word itself or from other identifying characteristics) based on frequency of exposure. Frith (1985) claimed this kind of reading indicated that children were relying on logographic skills in order to read but that these were available without being able to decode

the letters in the word. In some ways, it could be argued that this stage is akin to having the ‘dictionary look up’ route of the dual-route models available by itself (Marsh, Friedman, Welch, & Desberg, 1981). Children know the words that they have stored in their memory and recognise them based on contextual cues but lack the GPC route which could help them with the words they have not yet learned. Children are more interested in what is most salient to them and this determines what they learn (Ehri, 2005). However, appearing to recognise the word ‘*Cola*’ on a bottle is not the same as reading (Gough, Juel, & Griffith, 1992; Masonheimer, Drum, & Ehri, 1984; Cain, 2010). Children may only be recognising the bottle shape or the colours without recognising the word or its individual letters. Therefore, if the word ‘*Cola*’ is seen out of context, children may fail to recognise it. Further, Treiman and Broderick (1998) found that children entering formal education in Australia and the United States of America could recognise the first letter of their own name and reproduce it more accurately than any of the other letters in their name. Children could, therefore, use their recognition of the initial letter of a selection of names to identify their own written name. The first letter of words can also act as a contextual cue leading children to correctly identify ‘dog’, for example, if that is the word they have learned to associate with the letter ‘d’ but to misidentify other ‘d’ words such as ‘doll’, ‘dove’ or ‘dinosaur’ (Brooks & Kempe, 2012; Ellis & Large, 1988; Frith, 1985; Marsh & Desberg, 1983; Marsh, Friedman, Welch, & Desberg, 1981). Ellis and Large (1988) separate this stage into two parts, identifying stage 1 as the stage at which children are unable to read at all but who may have some phonological awareness and letter recognitions skills. In stage 2, children are beginning to read without using any grapheme-phoneme decoding skills but by relying on visual cues and context.

Partial alphabetic phase. In the partial alphabetic phase, children are beginning to piece together letter sounds and use them to read some words (Ehri, 2005, 1995) This indicates a move away from using visual cues in order to recognise words and towards using

phonetic cues (Ehri & Wilce, 1985; Rack, Hulme, Snowling, & Wightman, 1994). They are developing their alphabetic skills which will allow them to make use of the GPC route by teaching them the relationships between the graphemes and the phonemes (Frith, 1985; Marsh, Friedman, Welch, & Desberg, 1981). Children move from the pre-alphabetic phase to the partial alphabetic phase (or from rote strategies to sequential decoding (Marsh, Friedman, Welch, & Desberg, 1981) by becoming aware of the existence of individual symbols or letters that are used to create words and that these letters are associated with specific sounds. At this stage, therefore, children are beginning to learn which sounds match which shapes in the alphabet and start to learn words that are important to them. This is much like the codebreaking stage described by Gough and Hillinger (1980). Children are learning these words in isolation, however, and not generalising their discoveries to words at large. They have yet to recognise the significance of all the letters in a word, perhaps only using the first and last letters as cues to successful reading of individual words (Ehri, 2005). Ellis and Large (1988) argue that progression to this phase (which corresponds with stage 3 of their own model) depends on the development of short term memory skills during stages 1 and 2 of Ehri's prealphabetic phase.

Full alphabetic phase. In turn, children's acquisition of the letters of the alphabet, their significance within words, and their associated sounds, progresses to a point that allows them to begin to translate text into pronunciations. This is the full alphabetic phase. Children are aware of most of the rules that govern the relationship between graphemes and phonemes and are able to employ these to pronounce unpracticed words (Ehri, 2005, 1995). At this stage, therefore, the sounds and spellings of some words have become bonded together in children's memories (Ehri, 1995; Perfetti, 1992) This concurs with stage 4 of Ellis and Large's (1988) model in which children develop their understanding of the rules that govern the relationships between graphemes and phonemes. Marsh *et al.* (1981) explain that, while children were

developing an understanding of the direct, one-to-one mappings of the relationships between letter and sound in sequential decoding, they are now extending that understanding to include rules concerning groups of letters and exceptions to rules. Frith (1985) describes this as the development of orthographic skills. During these phases, evidence of the development of understanding of the phonology of language appears in errors such as writing *sed* instead of *said* (Treiman & Cassar, 1997). In this example, children who have learned that *e* usually makes the sound /e/ have made use of this rule to produce an incorrect but plausible spelling of *said*. In this stage, children also begin to develop a sight word vocabulary (Cain, 2010). Sight words are those that can be read automatically. For example, small, common words (e.g. *bat*, *man*) are read as quickly as single digits by skilled readers while beginner readers take as long to read these words as they take to read non-words (Ehri & Wilce, 1983; Samuels, 2012). Children are also less likely to confuse similarly spelled words as their understanding of phonology is sufficiently developed to spot such differences allowing them to also read words they have never seen before (Ehri, 1995).

Consolidated alphabetic phase. The consolidated alphabetic phase is reached once children are able to apply these rules to strings of letters and sound blends, making the process of reading quicker (Cain, 2010; Ehri, 1995, 2005). For example, children in this phase have learned the relationship between the sound of commonly used suffixes, such as *-ed* and *-ion* and their spelling so can use these reliably when presented with unknown words sharing this suffix (Nunes & Bryant, 2009). This helps children develop their morphological understanding, for example they learn that words that end in *-ed* usually refer to something in the past (Brooks & Kempe, 2012). As children learn more written words, they begin to recognise the common letter combinations and contexts across these words which facilitates their ability to spell novel words correctly (Ehri, 1995). This allows for children's reading and writing skills to become automatic. Automaticity is the ability to read words almost at

once without the need for thought or effort (Ehri, 2005). LaBerge and Samuels (1974), who first posited the idea of automaticity in reading, state that automaticity is achieved when children are able to understand a text without having to switch between the process of making connections between graphemes and phonemes and making sense of what has been written. They claim reading must become automatic as the number of processes requiring attention in order to read would exceed the brain's capacity for attention if at least some part of reading was not automatic. Stanovich (1980, 1990) used these ideas to explain how poorer readers who have lower word-recognition skills use their attention to access wider, contextual cues in order to read but that attention is taken from higher-order comprehension processes and impacts automaticity. However, resource based theories of automaticity were challenged by the research which suggested that automaticity was actually 'functional autonomy' (Fodor, 1985; Horn & Manis, 1987; Stanovich, 1990). This research argued that automaticity did not imply an absence of attention and that it is better to consider automaticity as a function which an individual cannot stop from happening but can choose to facilitate by devoting more attention to it. That is, a person cannot help but read a presented word but can choose not to attend to what is being read.

Neither Frith (1985) nor Marsh *et al.* (1981) include an equivalent to the consolidated alphabetic phase. They argue that, by mastering the orthographic and phonological rules, children develop their lexical and GPC routes as well as learning rules concerning parts of words which can be useful in reading novel words. Ellis and Large (1988) argue that assuming children only develop in terms of their understanding of orthography and phonology ignores the development of grammatical and linguistic knowledge during the earlier stages which can help children develop their reading ability. Indeed, there is considerable debate regarding whether these stages develop due to significant developments in children's abilities (Ehri, 2005; Frith, 1985; Stuart & Coltheart, 1988) or if they develop

alongside progressive increases in knowledge and understanding which are acquired through experience of spoken and written language (Perfetti, 1992; Rittle-Johnson & Siegler, 1999). However, once children have achieved this final goal, they are able to read fluidly and fluently and have access to all the pathways necessary to reading both known and unknown, regular and irregular words. However, the way in which children develop these skills can vary and several factors may have a bearing on this.

Factors influencing literacy acquisition

How quickly and easily children develop literacy skills depends on many other factors beyond the inherent orthographic transparency of the language(s) being learned. While all children would be expected to pass through each of the stages detailed above (Ehri, 1995, 2005; Frith, 1985; Ellis & Large, 1988; Marsh, Friedman, Welch, & Desberg, 1981) in order to achieve literacy, how easily it is achieved and how fluent a reader or writer children become depends on many factors. When discussing what 'causes' literacy difficulties, it is important to consider all factors which might impact the way in which children achieve literacy.

In terms of research into areas of developmental disorders, it has been recommended that the disorder's causation should be viewed at three levels. The first level is biological, the second level is behavioural and the third level is cognitive (Morton & Frith, 1995). Factors at each of these levels interact with and can be mediated by the child's environment which results in a wide spectrum of variation in children's development and ability (Hulme & Snowling, 2009).

Research has identified a wide range of factors that influence the acquisition of literacy to some extent. First, from a biological perspective, studies have found that a child's genetic make-up can influence the degree of literacy they achieve and how easily they

achieve it (Pennington & Olson, 2005). For example, research has found that boys with dyslexia have more difficulty with orthographic skills than girls with dyslexia, suggesting that dyslexia affects boys and girls in different ways (Berninger, Nielsen, Abbott, Wijsman, & Raskind, 2008b). This suggests that boys with dyslexia have more difficulty moving from Ehri's (1995, 2005) partial alphabetic to full alphabetic phases than girls with dyslexia. There is disagreement in the literature as to how much gender influences the achievement of typically developing children, however, with some researchers finding that girls outperform boys (Maynard, 2002) and others finding no difference between the sexes (White, 2007). The most recent available data from the Programme for International Student Assessment concerning reading noted a significant difference between the reading abilities of girls and boys in all 64 of the participating countries with girls outperforming boys in every case (Bradshaw, Ager, Burge, & Wheeler, 2010). Whilst genetics may therefore play a role in the severity of literacy difficulties, such genetic predisposition must be mediated by external factors.

Second, research into the development of language skills in general has noted a link between socioeconomic status (SES) and language acquisition and ability (Bowey, 1995; Hoff-Ginsberg, 1998; Hoff & Tian, 2005; Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009). For example, at an environmental level, Duncan and Seymour (2000) found that children of lower SES families had lower scores on tests of letter knowledge, suggesting that low SES children are missing out on critical activities or experiences that support literacy development that children in higher SES families access. Other researchers such as Chaney (1994), who examined the literacy skills of three year old children from a range of socio-economic backgrounds, have found that families that reported higher levels of literacy activities, such as reading stories at bedtime, tended to have higher incomes than families that reported relatively few of these activities. Other research has found that a higher number of

literacy activities is related to better literacy (Foertsch, 1992). Such activities offer children the opportunity to develop their phonological understanding which underlies the skills necessary for progression through Ehri's (2005, 1995) pre-alphabetic and partial alphabetic phases. When taken as a whole, these studies suggest that lower SES families engage in fewer literacy activities in the home and this results in less familiarity with the alphabet rather than suggesting that children from lower SES families are less intellectually capable to develop literacy skills.

Furthermore, the impact of literacy activities in the home can be more subtle than this. It is not only that the presence of literacy practices at home improves literacy acquisition but that the type of literacy practice affects the way in which literacy skills are acquired. Sénéchal and LeFevre (2002) conducted a five-year study of 168 children, looking specifically at the type of reading practice children were exposed to in the home. They found that children who read more books with their family tended to develop larger vocabularies and performed better in measures of listening comprehension. Children whose parents engaged in games or tasks which focused on spelling and reading individual words developed better word reading skills than their peers. While a larger vocabulary is useful for conversation, the spelling games focussed on developing phonological understanding which, in turn, facilitates progression through each of Ehri's phases of reading development.

While the particular environment in which a child learns to read and write can affect their acquisition of literacy and can mediate the impact of the effects of cognitive, behavioural or biological factors, it would be a mistake to assume this relationship works in only one direction. Each of these factors, including the environment, can influence each other. For example, Snowling *et al.* (2007) studied the literacy practices of children who were classed as at-risk of having literacy difficulties because of a family history of dyslexia and children who were not. No significant differences in the literacy activities the parents

provided for their children were found. However, at-risk children with poor literacy skills engaged in fewer activities related to reading and writing than their not-at-risk peers even though the same opportunities were afforded to all. While their findings supported the genetic basis of dyslexia, they found no evidence that literacy ability was related to the environment either in school or at home in terms of what was provided for children. Instead, children who were deemed to be at-risk and who had poor literacy were more likely to create an environment for themselves that was not conducive to learning to read and write by avoiding literacy-based activities. Furthermore, the parents of these children had lower expectations of their child's likely educational achievement and had more concerns about their child's progress. These factors are described as being 'a consequence of the learning difficulty itself' (Snowling, Muter, & Carroll, 2007, p. 617). In this way, the biological causes of dyslexia are seen to create changes to the environment through the child's behaviours and these environmental changes have an effect on the child's literacy abilities, creating the classic 'vicious circle'. The expectations of important people in a child's life can have an impact on how a child views themselves, as will be discussed in Chapter 3. The children in this research could be said to be avoiding challenging these views by avoiding developing their literacy practices. Again, this is a common pattern of behaviour in children with dyslexia and it will be discussed further in Chapter 3 along with its consequences for self-esteem.

It is not only activities in the home that affect the way in which language and literacy skills develop. Several studies have found that, at a behavioural level, a child's classmates also have an impact (Henry & Rickman, 2007; Thrupp, Lauder, & Robinson, 2002). These studies found that the composition of a class, in terms of the abilities of the children within it, affects the performance of children on literacy tasks. That is, children who share a class with peers with good literacy skills outperform children who share a class with peers with poor

literacy skills on literacy tasks in both school (Thrupp, Lauder, & Robinson, 2002) and preschool (Henry & Rickman, 2007) settings. This finding has led to further discussion about the need to stream children according to their ability, with some arguing that this could hamper more able pupils (Fletcher, 2009). However, more recent findings have shown that these peer effects appear to have positive effects on underachieving pupils rather than negative effects on the achievement of above average pupils (Justice, Petscher, Schatschneider, & Mashburn, 2011). Again, associations between the comparisons children with dyslexia make between their own literacy abilities and that of their peers and their feelings of self-worth have been found to exist (Alexander-Passe, 2006; Humphrey, 2002; Glazzard, 2010) and these will be discussed in Chapter 3.

Schools also impact the development of literacy in children through the quality of their teaching. Studies have found that the way in which literacy is taught in formal settings can impact the development of literacy skills in children. For example, the National Institute of Child Health and Human Development (National Reading Panel, 2000) reported that the most effective strategies for the instruction of literacy are those that focus on developing children's awareness of the phonemes used in the language and of the letters and letter-combinations associated with them. This aids phonological understanding which is crucial to reading development, as has been shown.

So far, this chapter has discussed the development of reading in monolingual children. These children are learning to read only one language. However, as noted in the previous chapter, a large proportion of the world's children is bilingual. How, then, do children learning to read in more than one language develop?

Bilingual Literacy

In Chapter 1, it was shown that bilingual children achieve the early, expected milestones in each of their languages (e.g. babbling) in parallel and that they do this at the same rate as monolingual children (Genesee, 1989; Oller, Eilers, Urbano, & Cobo-Lewis, 1997; Pearson, 1998; Pearson, Fernandez, & Oller, 1993; Petitto & Holowka, 2002). However, stages such as vocabulary development, took longer to develop (Bialystok & Luk, 2012; Bialystok, Luk, Peets, & Yang, 2010; Hammer, Lawrence, & Miccio, 2008; Junker & Stockman, 2002; Oller, Pearson, & Cobo-Lewis, 2007; Patterson, 2002; Pearson, Fernandez, Lewedeg, & Oller, 1997; Pearson, Fernandez, & Oller, 1993; Thordardottir, 2011; Ucelli & Paez, 2007). As with monolingual readers, the level of reading comprehension is reliant on levels of language comprehension for bilingual readers for both their first and second language (Droop & Verhoeven, 2003; Lervåg & Aukrust, 2010). A larger vocabulary also helps with word recognition when reading, especially for irregular words (Goff, Pratt, & Ong, 2005; Nation & Cocksey, 2009; Ricketts, Nation, & Bishop, 2007). This suggests that a slower rate of acquisition of vocabulary in each of a bilingual's languages due to lower levels of exposure to this language in comparison with monolinguals will cause some amount of delay in reading acquisition. One of the key factors which influence the development of literacy across languages, however, is orthography and an understanding of orthography is necessary in order to discuss the differences between literacy in languages.

Literacy and Orthography

Each language has its own orthography. Orthography is the term given to the rules of converting spoken words into visual representation and the visual representation of words into speech (Brooks & Kempe, 2012; Cain, 2010; Hoff, 2001). Orthographies exist on a continuum with transparent orthographies at one end and opaque orthographies at the other (Joshi & Aaron, 2006). In a transparent orthography (also known as shallow orthographies),

the relationship between sounds and letters is (relatively) consistent and reliable (Harley, 2001; Joshi & Aaron, 2006). The orthography can be relied upon to produce the correct pronunciation while reading because most words that rhyme/share sound strings will be spelled the same way. In opaque (or deep) orthographies, this relationship is not as consistent, and phoneme-grapheme correspondences that work for some combinations will not work for others (Harley, 2001; Wimmer, Landerl, & Schneider, 1994). In English, which has an opaque orthography, there are many examples of such inconsistency. Due to its history of influences from other languages (Anglo-Saxon, Latin, Scandinavian), the rules concerning the relationship between the sounds and letters of English have become complicated (Venezky, 1970). For example, there are a number of English words whose spelling is considered to be irregular in that they contain silent letters (e.g. *debt, knight, island*) or that the letters they contain do not reflect the sound they are usually associated with (e.g. *colonel, women, yacht*) (Ellis, 1993). Letters in English can have more than one sound associated with them, for example the initial *i-* in *inside* (/ɪ/) and in *item* (/aɪ/) are pronounced in two different ways but ‘look’ the same. The same sound can also be associated with different letters, for example, the initial *a-* in *any* and the *e-* in *entail* are pronounced in the same way (/ɛ/) despite being represented in print by different letters (Wimmer, Landerl, & Schneider, 1994). In order to read such words, the semantic route of the dual route models (Baron, 1977; Coltheart, Rastle, Perry, Langdon, & Ziegler, 2001; Marshall & Newcombe, 1973) is essential as a grapheme-to-phoneme conversion approach would not allow for construction of a correct pronunciation. Part of the cause of this irregularity is the existence of more than 40 phonemes in the English language with only 26 graphemes (letters) to represent them (Ellis, 1993). The depth of the English orthography is demonstrated most clearly when compared with a shallow orthography. In Welsh, for example, estimates suggest that almost all the words of the language are considered to be regular (Spencer & Hanley, 2003) compared with only seventy-five per cent of English words (Estyn, 2007). 21

of the letters of the Welsh alphabet are shared with the English alphabet. The Welsh alphabet excludes *k, q, v, x* and *z* but includes a number of common digraphs: *ch, dd, ff, ll, ng, ph, rh,* and *th* (Spencer & Hanley, 2003). The majority of these letters have a one-to-one correspondence with a sound but there are exceptions. For example, the two *y* in *mynydd* are pronounced differently (the first is /ə/ and the second is /i/) and *si* can be pronounced as /si/ or as /ʃ/. Furthermore, a number of vowel sounds are represented by a diphthong instead of by a single letter (e.g. *ai, ae, ei*). Furthermore, each of the single-letter vowels of the Welsh language (*a, e, i, o, u, w, y*) have a long and short form of pronunciation. However, these instances of irregularity are few and far between in comparison with English (Spencer & Hanley, 2003). Because of this, the GPC route described in dual-route models would be a much more effective tool for reading languages such as Welsh than for reading English.

Interestingly, an orthography's opacity often varies between reading and spelling the language. In many languages, the grapheme-to-phoneme relationships are more reliable than the phoneme-to-grapheme relationships making spelling more complicated than reading (Brooks & Kempe, 2012; Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001). This is indeed the case for Welsh, as will be discussed later.

Evidence from research suggests that learners of transparent orthographies achieve good literacy standards faster than children learning English. For example, Thorstad (1999) found that children learning Italian (employing a transparent orthography) are able to read and spell to a higher standard in one year than children learning English. Even as adults, this difference has been found to persist with Italian speaking adults demonstrating that they are faster when reading both real words and non-words than English speakers (Paulesu, et al., 2000). Similarly, children learning to read and write in Welsh (also represented by a transparent orthography) were found to be able to read more words than their English-literate peers (Ellis & Hooper, 2001). Seymour, Aro and Erskine (2003) compared the reading skills

of children learning in 13 different European languages, including English. As with the studies already described, they found that children learning more orthographically opaque languages took longer to achieve foundation levels of reading fluency. Their research notes that this difference cannot be attributed to the age at which children began to learn to read nor to their knowledge of the alphabet but to the relative complexity of the language's syllabic structure and its orthographic depth. Furthermore, they note that children learning English develop literacy skills more than twice as slowly as children learning transparent orthographies. This difference in rate of acquisition of literacy skills has been attributed to a qualitative difference in the way in which children learn English as compared with a transparent orthography such as Welsh, suggesting that children learning English must become more familiar with word parts on every level from the individual letters to blends to whole words than children learning transparent orthographies and this takes longer (Seymour, Aro, & Erskine, 2003; Ziegler & Goswami, 2005).

The efficacy of orthographic transparency in helping children to read has led to the development of phonics based programmes for schools such as Jolly Phonics (Lloyd, 2001) and research has found them to be a useful tool in helping children achieve literacy, especially when introduced early in the process of learning to read (Ehri, Nunes, Stahl, & Willows, 2001). These programmes offer a structured, systematic approach to the teaching of the sounds of the English language and the corresponding letters and letter strings. It could be said that these phonics programmes provide children with a code-breaking key for children learning to read in opaque orthographies. Their success is further evidence that transparency of orthography facilitates learning to read.

Ellis and Hooper (2001) also found evidence that it is possible to make greater use of the grapheme-phoneme conversion route of the dual route model when reading in a transparent orthography such as Welsh but not in an opaque orthography. Their research

found that when children made a mistake while reading a transparent orthography, the word was more likely to be pronounced as a non-word. For example, children might read a real word such as *cylch* (meaning circle) as *clych*, which is not a real word in the Welsh language. This suggests children made a mistake while piecing together the sounds associated with the letters in the word. However, children reading in English were more likely to substitute one word for another (such as *'hard' instead of 'hand'*) or refuse to make the attempt. This whole word substitution type of error suggests children learning English are making more use of the semantic route in order to read and rely on phonological cues as described in the stages of reading development (Ehri, 2005; Ehri & Wilce, 1985; Rack, Hulme, Snowling, & Wightman, 1994). The more words from an opaque orthography a child knows, therefore, the better their skill at reading irregular words (Hanley, Masterson, Spencer, & Evans, 2004; Stanovich, 1986)

Neuroimaging has found that people who read in transparent orthographies make use of different brain areas when compared with those reading in opaque orthographies. It has been hypothesised that this might be due to different strategies being used to read transparent and opaque orthographies and that these strategies match those described in the dual-route model. This research claims that the areas of the brain activated in people reading transparent orthographies are associated with abilities more useful to the GPC route, while the brain areas activated in people reading opaque orthographies are associated with abilities which are arguably more useful if these readers are using the whole-word recognition route (Das, Padakannaya, Pugh, & Singh, 2011; Meschyan & Hernandez, 2006; Paulesu, et al., 2000). Readers of Italian (a transparent orthography) were found to show greater activation of brain areas associated with processing phonemes while readers of English (an opaque orthography) showed greater activation of areas associated with word retrieval (Meschyan & Hernandez, 2006; Paulesu, et al., 2000). That is, readers who could rely on the relationships between the

graphemes and phonemes of their language made more use of the grapheme-phoneme conversion path of the dual route model while participants who could not rely on such relationships made more use of the ‘dictionary look-up’ pathway. However, this could be complicated by the way in which a person becomes bilingual. Das, Padakannaya, Pugh & Singh (2011) found differences in the activations of these brain areas for simultaneous and sequential bilinguals. Only participants who had learned English and Hindi (a transparent orthography) at the same time (simultaneous) demonstrated the preferential activation of phoneme processing areas when reading Hindi and of word retrieval areas when reading English. Participants who had learned to read Hindi five years earlier than they began to read English showed greater activation of the areas associated with phoneme processing in both languages. Therefore, while children introduced to both orthographies at once appear to learn to make use of the appropriate pathways or routes for each, children who learn a transparent orthography first appear to develop a preference for using grapheme-phoneme conversion in order to read even when faced with orthographies that do not have reliable orthographical rules. It is arguable that this development pattern could affect the accuracy of a child’s ability to read their second, orthographically opaque language which raises questions about how best to teach bilingual literacy in order to provide bilingual learners with all the skills they need to read in both their languages. Furthermore, any difficulty that is incurred in the development of literacy skills could have consequences for how children feel about their literacy abilities and themselves as will be discussed in Chapter 3.

However, it should not be assumed that learning an opaque orthography has no advantages. As it has been argued that fluent reading makes use of the semantic route referred to in dual-route theories, irregularity of spelling does not interfere with reading fluency once literacy has been mastered (Ellis, 1993) Chomsky and Halle (1968) argued that using silent letters in words such as *bomb* and *sign* was useful in enhancing semantic

understanding of associated words such as *bombard* and *signature* where these silent letters are pronounced. This is useful as fluent reading relies on semantic understanding to a great extent. Furthermore, some of the inconsistencies of the English orthography are caused by consistency in rules such as pluralisation. Baker (1980) found that, while people appreciated that the final sounds of the words *roses*, *robes* and *ropes* were different, the consistency in spelling indicated a shared meaning which they were keen to preserve. These inconsistencies once more help develop semantic understanding.

While orthography is a significant factor in the development of literacy, other factors can influence the development of these skills in bilingual children. The amount of each language a child is exposed to can impact the way in which their literacy skills develop as evidenced by the research discussed below.

Parental language use and bilingual literacy acquisition.

Several researchers have investigated the differences in the speed with which children from homes where families speak one language and homes where families are bilingual acquire literacy in bilingual schools. Research by Kovelman *et al.* (2008) found that children who have been exposed to more than one language since before they were three years of age perform better on measures of reading ability than children introduced to bilingualism after three years of age. They studied children whose parents spoke either Spanish or English and who attended a school which used both Spanish and English. They go so far as to argue that early exposure of a child to bilingualism could compensate in some part for any negative effects to their literacy development caused by low SES.

Recent research into the literacy skills of bilingual children in Wales has found that the language used in the home has an effect on the way in which children in Welsh medium schools develop literacy skills (Rhys & Thomas, 2012). In the results of a study of 207

children aged between 7 and 11 years of age in schools in Wales, it was found that children from homes where the parents spoke only Welsh or whose parents used both Welsh and English in the home performed significantly less well in measures of English reading ability than their peers from homes that used only English. They also performed significantly less well than their peers in monolingual English schools although all groups performed within normal ranges for their age. This finding suggests that children from Welsh speaking homes attending Welsh medium schools are achieving average levels of ability but are not catching up with peers in English medium homes when it comes to English reading skills (Rhys & Thomas, 2012).

While the mean scores of all groups of children were within average limits for their age, this work suggests that the Welsh government's decision not to include tailored outcome guidance for children attending Welsh medium schools from homes that speak differing amounts of Welsh and English could be seen as a potential issue. The National Literacy and Numeracy Framework (Welsh Government, 2013) described in Chapter 1 asks teachers in Welsh medium schools to assess their pupils' literacy against the same standards as children in English medium schools. If children are assessed in this way, the results of Rhys and Thomas' (2012) study would suggest that children from Welsh speaking homes in Welsh medium schools are more likely to be assessed as underperforming than their peers from English speaking homes and those in English medium schools. This could potentially lead to some children being wrongly referred for assessment for their literacy difficulties while other children's literacy difficulties might be missed (Cline & Shamsi, 2000, Cummins, 1984). Similar concerns have been raised regarding the assessment of literacy abilities in children with EAL, where assessments in English are unlikely to provide an accurate portrait of the child's actual ability (Cline & Shamsi, 2000; Elbro, Daugaard, & Gellert, 2012). This is because it is difficult to be certain whether a bilingual child's apparent literacy difficulties are

due to a specific learning difficulty (i.e. dyslexia) or simply to poorer skills in the language of the test than monolingual children (Durgunoğlu, 2002; Everatt, et al., 2010; Harrison & Krol, 2007). This difficulty is not limited to children who have moved into a monolingual society but also affects children living in bilingual societies (Lindgren & Laine, 2007) like Wales.

Given the ubiquity of the English language in Wales - recall that only 18.6% of the population of Wales speak Welsh, while only 3.3% of people in Wales reported not using English or Welsh as a main language meaning at least 78.1% of the population of Wales must use English as a main language (Office for National Statistics, 2012a) – it is likely that children will be exposed to more English words outside of the home through their friends, the community and by the media which would increase all children’s knowledge of English words regardless of their home language background. However, due to the opacity of the orthography of the English language, the likely lower amount of exposure of children from Welsh speaking homes and who attend Welsh medium schools to English literacy from an early age might account for their poorer literacy ability in English despite having a similar receptive vocabulary according to some accounts.

This thesis focusses on these differences in literacy ability in children in schools in Wales. While the research so far has tended to focus on global bilingualism, the situation in Wales is distinct in that one of its official languages is much more dominant than the other. Therefore, the focus of this chapter will now turn to matters concerning literacy that are specific to Wales.

Literacy and the Welsh language

Children attending Welsh medium, English medium or bilingual schools in Wales come from a variety of home language ‘types’ as noted in previous studies (Gathercole & Thomas, 2009; Rhys & Thomas, 2012). Some children are raised in families that only use

Welsh, some in families that only use English, some in families that use both these languages and some in families that use other languages either exclusively or to some extent (Gathercole & Thomas, 2009; Hanley, Masterson, Spencer, & Evans, 2004; Spencer & Hanley, 2003; Rhys & Thomas, 2012; Tudor-Efans & Cooke, 2000). Parents also have many different reasons for choosing a Welsh medium education for their children. These range from the importance of the Welsh language to a sense of cultural identity to its perceived ability to improve communication skills, better educational provision and future employment opportunities or simply because Welsh is the language of their everyday family life (Hodges, 2011; Lyon & Ellis, 1991). As a result of these factors, children in Wales will be introduced to Welsh and English at different ages and in different settings leading to different levels of achievements with language. Since literacy development is at the heart of any education curriculum, it is not surprising that one of the key issues of interest to the parents of bilingual children is how best to develop good literacy skills in both of their child's two languages. This is particularly an issue of concern for monolingual parents who are faced with the possibility of having to send their child to a minority language school, such as is the case in many regions of Wales. Indeed, in the light of Rhys and Thomas' (2012) finding that home language does affect literacy development in bilingual children, such concerns may be warranted. In order to help parents make an informed decision about their child's schooling, more research is needed into bilingual children's literacy skills under condition of second language learning.

The Welsh context is particularly interesting in relation to literacy development among bilinguals for two key reasons: (i) because children are often tackling literacy *first* in their L2 (second language); and (ii) because written Welsh and English are very different systems that require different types of learning approaches. These two points are discussed below.

Literacy and L2

The diversity in home and school language experiences means that some children are placed in a school where the language of instruction is not their native language. Research into the experiences of children learning English as a second language in schools in England has argued that bilingual children need to achieve native-like standards of English (their second language) before they can fully achieve academically (McWilliam, 1998). Cummins (1984) estimates children from ethnic minority backgrounds take two years to achieve similar levels of communicative language in English as their peers, and another three to five years to achieve similar academic language. In relation to literacy, the argument is that, before non-English speaking children in English medium schools can begin learning to read, it is necessary for them to have a sound understanding of spoken English (Hutchinson, Whiteley & Smith, 2000). Academic achievement and literacy are thus dependent on sound linguistic knowledge. This has been shown for monolingual children also. A better understanding of vocabulary has been associated with better reading comprehension in several studies (Beck, Perfetti, & McKeown, 1982; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Freebody & Anderson, 1983; Frith, 1985; Hirsch & Nation, 1992; Nagy, 2005; Stahl, 1986; Stahl & Fairbanks, 1986) and better syntactic abilities are also associated with better reading abilities (Bentin, Deutsch, & Liberman, 1990; Byrne, 1981; Combs, 1977; Stein, Cairns, & Zurif, 1984; Tunmer, Nesdale, & Wright, 1987; Willows & Ryan, 1986). Such findings apply beyond England and are likely to apply to Welsh-speaking children attending English-medium schools in Wales and, possibly to a greater extent, to English speaking children attending Welsh-medium schools, where they are expected to learn to speak a new language and to perform academically in this new language from four years of age. There is an argument, therefore, that a child's first language should be used in the classroom to facilitate the development of the second language. In many Welsh-medium schools in Wales,

an all-Welsh policy is in place requiring children to speak Welsh and only Welsh throughout the school day. How well this policy helps children from various home language backgrounds to develop language skills is discussed next.

Literacy and early immersion in Wales

Welsh language literacy has been important in Wales since at least medieval times (Baker, 2003). Since then, its prevalence as a spoken language has fluctuated, as shown by the census data, and so too has its use as a written language. The Welsh Government's current guidance (Welsh Government, 2013, 2012a) is aimed at improving literacy in both Welsh and English for children in many Welsh-medium schools through a programme of initial immersion in the Welsh language. In this way, the government aims to ensure that all children in Welsh medium schools have achieved similar levels of ability in Welsh and English literacy by the age of 11. As discussed in Chapter 1, there is some variation in the extent to which this is enforced across Local Education Authorities, with areas that contain fewer native Welsh speakers tending to enforce initial Welsh language immersion in Welsh-medium schools more than areas that contain more native Welsh speakers. For example, across the majority of Gwynedd, more than 50% of the community spoke Welsh according to the 2011 census, with some areas containing communities where more than 70% of the population spoke Welsh. In Gwynedd, all schools are considered to be Welsh-medium with a policy of Welsh first language assessment for all children at the end of Key Stage 1 and Key Stage 2 but there is variation in the amount of Welsh taught within these primary schools (Cyngor Gwynedd Council, 2011). In Conwy, where a policy of simultaneous, bilingual education exists as described in Chapter 1, the percentage of Welsh speakers in communities ranges between 30 and 70 per cent in most areas which is well above the national average (Office for National Statistics, 2012a). However, in Denbighshire this figure is lower with the majority of communities including less than 50% Welsh speakers and Flintshire's

communities contain no more than 30% Welsh speakers (Office for National Statistics, 2012a). In these authorities, designated Welsh-medium schools tend to strongly encourage the use of the Welsh language among their pupils and limit the language of provision to Welsh exclusively in the early years as described in Chapter 1.

In Wales, therefore, immersion usually means instruction in Welsh, which may be a first or second language for children for the first four years (nursery year – year 2) of school and then the introduction of English at the age of 7. According to the literature, immersion can be total (that is 100% of the initial instruction is in a chosen language) or partial (which is anything between 90% immersion to an equal divide between languages) (Baker, 2011; Beardsmore, 1993; Johnson, 1997). Immersion can also take place early in a child's educational experiences (at nursery, for example) towards the end of primary school (referred to as Delayed Immersion) or in secondary education (Late Immersion) (Baker, 2011). According to these descriptions, the majority of children attending Welsh medium schools in Wales are exposed to early, total immersion. Given that this is the educational system the Welsh Government has approved for children in Welsh medium schools, how effective is it in ensuring high standards of bilingualism and biliteracy for its pupils? In order to answer this, we will begin by looking at what can be learned about immersion education around the world.

The efficacy of early immersion: International research.

In 1981, a review of the literature concerning bilingual education for non-native speakers of English in America concluded that immersion programmes were likely to be useful in future for these children and that these programmes should receive more focus in planning (Baker & de Kanter, 1981). Since then, immersion programmes have been shown to elicit good results in English language learners (Collier & Thomas, 2004; Rossell & Baker, 1996; Swain & Lapkin, 1982). For example, Cheng *et al.* (2010) investigated the differences

in ability in English, Chinese and mathematics for children in English-immersion and non-immersion schools in China. Their research examined children in primary school a year after entry (grade 2), midway through their primary school career (grade 4) and at the end of primary school (grade 6). They found that children in immersion schools performed better on measures of English language skills than children in non-immersion schools. This higher level of performance was evident at all three grades but the difference between the performance of children in English immersion schools and those in non-immersion schools was greatest in grade 6. Furthermore, this study found that children in English immersion displayed similar levels of ability in using the Chinese language as their peers in non-immersion schools in grades 2 and 4. Interestingly, in grade 6, children in English medium immersion schools outperformed their peers in non-immersion schools in measures of Chinese ability. This study and other similar research findings (Genesee & Jared, 2008; Lapkin, Hart, & Turnbull, 2003) suggest that initial immersion in a second language does not impede the acquisition of first language literacy skills long term. Indeed, further research has suggested that there is some ‘cross-over’ between the languages of a bilingual; that is, the rules they have learned in one language are sometimes applied in their second language. These ‘crossovers’ can be useful as a strategy for the development of a second language in some cases (Berube & Marinove-Todd, 2012; Sun-Alperin & Wang, 2011).

Early immersion in Wales.

The findings from international research would suggest that the Welsh government’s aim of ensuring children in Welsh-medium schools have achieved similar and adequate levels of literacy in both their languages before the end of primary school (Welsh Government, 2012a) is reasonable. However, how similar Welsh-medium school pupils are to English as an Additional language (EAL) children is debatable. Certainly, some children will be very alike. The situation of children from English speaking homes in English speaking areas

attending Welsh-medium schools is arguably very like that of children who speak little or no English and attend English-medium schools in terms of their exposure to each language. The difference here lies in the dominance and desirability of the respective languages. Often, EAL children are learning English in a society where English is the dominant language and it is therefore desirable to acquire such skills. For children in Wales, however, Welsh is the minority language and children from backgrounds with more English exposure have been found to hold less favourable attitudes towards the Welsh language (Baker, 1992). However, what of the children from bilingual homes? And children from Welsh speaking homes?

The impact of initial Welsh-language immersion has already been outlined in the literature discussed to some extent. Studies such as Rhys and Thomas (2012) and Gathercole and Thomas (2009) indicate that Welsh immersion in the early years is complicated by the variety of home-language backgrounds that children in Wales have. In 2009, children in Wales significantly underperformed in tests of literacy and numeracy relative to the rest of the UK according to the results of the Programme for International Student Assessment (PISA) (National Assembly for Wales, 2013). Indeed, Wales' mean score for reading levels among 15 year olds in 2009 was found to be significantly below the average score for the Organisation for Economic Co-operation and Development (OECD) as a whole (Bradshaw, Ager, Burge, & Wheeler, 2010), making Wales statistically comparable with Latvia, Greece, Spain, the Czech Republic, the Slovak Republic, Croatia, Israel, Luxembourg, Austria and Lithuania. According to the PISA report (Bradshaw, Ager, Burge, & Wheeler, 2010), a comparison of the range of scores placed Wales as nearer to the OECD average range. Even so, Wales had a higher proportion of children underachieving than the OECD average and a lower number of high achieving pupils than the rest of the UK. This report found that the other three areas of the UK (England, Scotland and Northern Ireland) performed to similar levels in measures of reading ability while Wales's scores were significantly lower than these

in all measures. Given the shared education history of England and Wales, it is surprising that such a stark contrast should exist and raises questions regarding literacy education in Wales. One aspect of this, necessarily, is the bilingual nature of literacy education in Wales. However, the underachievement in numeracy also suggests a larger issue with education in Wales that cannot be solely based on bilingualism. PISA offered tests in both English and Welsh for children in Wales and these tests were carried out with 15-year-olds, who were older than the age at which the Welsh Assembly Government expects abilities in each of these languages to have reached native-like levels in Welsh-medium schools. In addition, children in other countries belonging to the OECD are also taught bilingually, for example Canada, whose mean scores for reading were significantly higher than the OECD average. Even so, there is a need to ensure that bilingual education for children in Wales is offering the best possible provision for the development of literacy skills both in English and in Welsh to ensure that children in Wales are achieving to the best of their abilities.

Part of this provision must focus specifically on children who have difficulty in developing literacy skills. In order to improve Wales' ranking in PISA, care must be taken to ensure that all children achieve good levels of literacy. A large number of children find literacy more of a challenge than their peers for a number of reasons but the most commonly known of these is the specific learning difficulty 'Dyslexia'. In order to discuss the impact of finding literacy a challenge on the lives and literacy abilities of children, the next section will focus on dyslexia as the primary example of literacy difficulties among children.

Dyslexia.

While some children take longer than others to develop literacy skills, most achieve fluent reading and writing in time. Furthermore, they do so regardless of whether they are learning one language, or two, or more. However, some children continue to struggle. One cause of this is dyslexia. It is believed that cases of dyslexia have been observed for centuries

but the first cited reports were from James Hinshelwood in 1895 (Hinshelwood, 1907; Ott, 1997). He described “acquired word-blindness” in a subject and recognised that the difficulties experienced were the result of a loss of the ability to recognise letters rather than a visual impairment per se. Hinshelwood believed understanding acquired word-blindness would help unravel the causes and effects of congenital word-blindness.

Despite these early observations, it was not until 1970 that the term ‘dyslexia’ was well enough established to be used in the House of Commons and not until 1983 that special educational need (SEN), an umbrella term that includes dyslexia, was recognised in an Education Act. Indeed, the need to increase awareness and understanding of dyslexia is ongoing (Ott, 1997).

Dyslexia is described by the British Dyslexia Association (BDA) (1996 as cited in Ott, 1997) as ‘a complex neurological condition’ (p.3). Dyslexia is a genetic condition, meaning it is congenital and heritable. Its main effects are seen in the development of language skills, such as reading and spelling, but it can also affect other areas of function, including short-term memory, numeracy, motor function and organizational skills (Ott, 1997; Pumfrey & Reason, 2003; Reid, 2013; Snowling, 2000). However, not all dyslexic children will exhibit difficulties in all these areas, which can complicate the task of forming a diagnosis (Pumfrey & Reason, 2003; Snowling, 2000).

The most common difficulty experienced by people with dyslexia is in the domain of phonological awareness. Children and adults with dyslexia experience difficulty with sounding out or writing down the appropriate sound/grapheme pattern of letters while reading and spelling (Bruck, 1992; Bruck & Treiman, 1990; Fawcett & Nicolson, 1995; Ramus, Marshall, Rosen, & Van der Lely, 2013; Stothers & Klein, 2010; Swan & Goswami, 1997; Ziegler & Goswami, 2005). Another frequent complication of dyslexia is short term memory difficulty which has an impact on skills such as repetition (auditory sequential memory) and

coding (visual sequential memory) (Barnea, Lamm, Epstein, & Pratt, 1994; Jeffries & Everatt, 2004; McDougall, Hulme, Ellis, & Monk, 1994; Ott, 1997; Siegel & Linder, 1984).

There are several difficulties with estimating the prevalence of dyslexia because of the variability of the severity of the symptoms of dyslexia between individuals and across languages (Miles, 2004). Dyslexia manifests itself in a variety of ways and to various degrees, usually categorised as severe, moderate or mild. A diagnosis of dyslexia often depends on the presence of a significant difference between measured IQ and literacy ability (Grant, 2010). How much dyslexia will affect the life of the individual depends on the severity of its effects in different areas of function, on how early the dyslexia is identified and the provision made to assist the individual (Ott, 1997; Pumfrey & Reason, 2003; Reid, 2013; Snowling, 2000). This can lead to difficulty when estimating the prevalence of dyslexia in the population as there is disagreement as to how severe difficulties must be in order to be certain they are caused by dyslexia (Warmington, Stothard, & Snowling, 2013). However, according to Miles (2004), we can cautiously say that, in Great Britain, 3% of people exhibit severe symptoms of dyslexia while another 6% exhibit milder symptoms. These percentages may appear small but, across the 56,170,900 people estimated to be living in England and Wales at the time of the last census (Office for National Statistics, 2012b) these percentages represent tens of thousands of children who find literacy noticeably more challenging than their peers.

Dyslexia and Orthography

Earlier in this chapter, the impact of orthographic depth on the acquisition of literacy was discussed. Further evidence of the effect of orthographic depth on literacy skill is found in studies of dyslexia. Children with dyslexia learning Italian find reading easier than children with dyslexia learning English and French (Paulesu, et al., 2001). This finding was ascribed to the transparent nature of the orthography in Italian. Wydell and Butterworth

(1999) describe the case of a sixteen year old, dyslexic boy who spoke both English (an opaque orthography) and Japanese (a transparent orthography) but whose literacy was only 'disrupted' in English. They concluded that, for bilinguals, the 'dyslexic traits' of individuals who use languages with differing levels of orthographic transparency will be more visible in the language with the more opaque orthography.

Other research determined the existence of a neurological deficit present in participants with dyslexia speaking both transparent and opaque orthographies, finding that transparent orthographies in some way seem to ameliorate its impact in the literacy domain (Paulesu, et al., 2001). This, in turn, 'masks' the dyslexia and may lead to later diagnosis, a misdiagnosis or possibly to the dyslexia being missed altogether. If this is the case, it could make identifying dyslexia in bilingual children difficult if they are introduced exclusively to a transparent orthography for reading and writing first. Even if orthographic transparency masked all the symptoms of dyslexia, the neurological deficit would still be present. Research has found that transparency does not ameliorate all the signs of dyslexia, however, but that children with dyslexia have different kinds of difficulty according to their language (Thomas & Lloyd, 2008). Since the majority of dyslexia screening tools are aimed at children learning to read and write in English (Cline, 2000; Cotton, Crewther, & Crewther, 2005), bilingual children are seldom compared with other bilingual children but with monolingual learners instead (Gathercole, Thomas, & Hughes, 2008). For example, since children with dyslexia in Welsh-medium schools learn to read and write in Welsh first, the ameliorating effects of the transparent orthography may mask their difficulties such that no concerns are raised. When they are then assessed following experiencing difficulties when learning English, they are likely to be assessed in a language they are less familiar with, which may give inaccurate results because of the issues identified earlier in this chapter. Thomas and Lloyd (2008) compared the abilities of children with and children without

dyslexia to read real and non-words, spell and copy text in Welsh. Their findings revealed the existence of differences between the performance of children with dyslexia and those without which could be used as a more sensitive measure of dyslexia in children learning to read and write in Welsh, such as the speed with which tasks were completed (children with dyslexia were slower) and the number of errors made per word (children with dyslexia tended to make multiple errors within any given word). Furthermore, they argue that spelling rather than reading tests would be more useful as a measure for children learning Welsh as spelling in Welsh is more orthographically complicated than reading. However, this literature search has found many more examples of research concerning reading abilities in dyslexia than writing abilities which concurs with the findings of others interested in this aspect of literacy (Berninger, Nielsen, Abbott, Wijsman, & Raskind, 2008a; Sheffield, 1996). These findings represent a sound argument for the need to develop assessments for dyslexia which are sensitive to the idiosyncracies of bilingual children (Elbro, Daugaard, & Gellert, 2012; Smythe & Everatt, 2000). Smythe and Everatt (2000) suggest five areas of ability which should be investigated when assessing for dyslexia in all children: phonological segmentation skills, auditory system, visual system, semantic processing and speed of processing. As these areas do not require tests to focus specifically on literacy abilities in a single language, the development of such tests could provide a useful assessment tool for bilingual children. While Thomas and Lloyd (2008) clearly argue the need for the development of language specific dyslexia assessments for children, Elbro, Daugaard and Gellert (2012) suggest a different strategy for identifying dyslexia in a second language. In what they describe as ‘a dynamic test of acquisition of basic decoding ability’ (Elbro, Daugaard, & Gellert, 2012, p. 172), participants were taught novel letters and their associated sounds in order to assess how well they could make use of these to create words. They suggest such a test rules out any possible confounding factors associated with being assessed in a second language.

While the more transparent orthography of languages such as Welsh, Italian, and German, may help reduce the effects of dyslexia on reading and spelling ability, people using transparent orthographies may continue to experience difficulty in the other areas affected by dyslexia. In these languages, measures of reading and spelling ability, therefore, may not be the most reliable tool for identifying dyslexia (Smythe & Everatt, 2000), something which will be discussed in more detail in Chapter 3.

While the causes and treatments of dyslexia have been (and continue to be) widely researched, the experience of dyslexia by the individual has not received the same levels of attention (Humphrey, 2002). While the symptoms of dyslexia are well documented and researched, there is not as much available literature concerning the impact of dyslexia on the individual's experiences and emotional development. In particular, there is very little literature concerning the experiences of bilingual individuals in Wales and this study aims to begin to redress this imbalance. Below, research concerning the specific issues faced by children with dyslexia in Wales is presented.

Dyslexia in Wales.

Together, the findings of the recent research discussed above suggest that Welsh would be an 'easier' language to learn than English because of its transparent nature. This is supported by Tudor-Efans and Cooke's (2000) finding that both children with and children without dyslexia learning Welsh as a second language made fewer spelling errors in Welsh than in English. Whilst such findings lend support to the efforts of Welsh-medium teaching in Wales, such 'accelerated' abilities in Welsh have been reported to interfere with the identification of dyslexia in first language Welsh children learning to read and spell in Welsh (Cooke, 2004). In some cases, dyslexia is not diagnosed until the child begins to learn to read and spell in English which, as has been noted, typically happens at seven years of age in Welsh-medium schools. The emergence of difficulties at this stage may arise from the

opaque nature of English but there are also similarities and differences between Welsh and English which mean that the rules used in one language can not always be applied to the other. For example, in Welsh, the letter *c* always makes a /k/ sound and the letter *s* is always used to represent the phoneme /s/. However, in English, the letter *c* can represent both of these phonemes. Similarly, silent letters are not used often in Welsh, though some can be seen in common words such as *ymenyn* ('butter'), *ysbwriel* ('rubbish') and *ewinedd* ('fingernails'). Even so, they are more prevalent in English which may complicate reading English words such as *psychology*, *mnemosyne*, *knife*, *know*, *thought* or the previously mentioned *colonel*, *bomb* and *sign*. Children who are used to relying on the consistent nature of Welsh in order to piece together the pronunciation of a word letter by letter suddenly find themselves faced with a language in which only a few of these rules hold true (Tudor-Efans & Cooke, 2000). This can have a profound effect on the child's socio-emotional development, in particular, their development of self-esteem as will be discussed in Chapter 3. Throughout this chapter, the development of literacy and the ways in which monolingual and bilingual children may struggle with literacy have been detailed. However, this chapter has not addressed how children feel about literacy nor its importance to the child's development of an identity of self. However, research has demonstrated that dyslexia is associated with lower feelings of self-worth in children (Alexander-Passe, 2006; Burden, 2005; Glazzard, 2010; Humphrey, 2002). Therefore, in order to understand the potential impact of differences in literacy development for children in Welsh-medium and English-medium schools, it is important to consider the emotional factors as well. Chapter 3 will introduce this area of study and explain why bilingualism may be an essential area for investigation here.

Summary

In this chapter, the models describing literacy were described. It was shown that, when it comes to reading text, the brain makes use of two routes: one which converts the graphemes to phonemes (GPC route) and one which looks up the word in an internal dictionary or lexicon (semantic route). It was also demonstrated that, in general, children develop reading in a shared series of stages, beginning with rote recognition of individual words based on visual cues and progressing through to fluent, sight-reading as phonological skills and vocabulary increase.

In bilingual children, literacy development depends to a certain extent on the depth of the orthography of each language. It also depends on the amount of each language children are exposed to at home. This chapter described the way in which such factors are at work in Wales and raised questions regarding the impact of initial immersion in Welsh on the assessment and identification of difficulties with literacy in children, dyslexia is the most common cause of such difficulties and the main symptoms of dyslexia were described. Furthermore, the possible ameliorating effects of orthographic transparency were discussed and this was applied to the situation in Wales.

This chapter has, therefore, raised a number of questions regarding Welsh-medium and English-medium education in Wales. These are:

1. Are there any differences between the Welsh and English literacy abilities of bilingual children?
2. Can English literacy tests predict Welsh literacy abilities?
3. Does learning to read and write in one language first affect acquisition of literacy skills in either or both their languages?

4. Do factors such as home language exposure, SES and age affect the development of Welsh literacy abilities of children in selected Welsh-medium schools?

These questions are explored in Chapter 6 which will present the results of experiments aimed at assessing the literacy abilities of bilingual children in each of their languages.

Chapter 3

The Self

“Children... wear their self-confidence like a shining suit of armor that attracts others to them because of its beauty and shields them from harm because of its strength.” (Dickman, 2011, p. 15)

The previous chapters have occasionally referred to the relationship between language and the development of memories and ideas. Some of these ideas will concern the self and will impact the way children feel about their own worth. This chapter will describe this relationship. It will explain the importance of feeling good about oneself and will describe the processes that develop these ideas in children. It will go on to discuss the evidence for a specific relationship between literacy abilities and issues of self-esteem and will hypothesise an effect of bilingualism on this relationship. To begin with, however, this chapter will clarify the terminology. In everyday language, terms such as ‘self-esteem’, ‘self-worth’, ‘self-confidence’ and ‘self-perception’ are used interchangeably. However, each term has subtle differences that warrant clarification. Therefore, this chapter will start with a description of the nature of ideas about the self.

What is Self-Esteem?

‘Self-esteem’ is one of a group of terms used to describe the ideas and feelings that every person has towards themselves. These terms include ‘self-esteem’, ‘self-worth’ and ‘self-confidence’. These terms are often used interchangeably in general conversation but each describes a different set of beliefs, feelings or estimations an individual holds about themselves (Riddick, Sterling, Farmer, & Morgan, 1999). For example, ‘self-confidence’ refers to an individual’s beliefs in their own abilities (Bénabou & Tirole, 2002) while ‘self-

worth' refers to the value an individual places on themselves (Crocker & Connie, 2001).

Both of these sets of ideas about the self arguably contribute to a broader set of feelings about the self known as 'self-concept' one part of which is 'self-esteem'. This study will focus on self-esteem and the self-concept specifically, therefore these terms require more thorough discussion.

Research into the development and understanding of all of these ideas about the self dates back as far as the end of the nineteenth century. In his book of 1890, *The Principles of Psychology*, William James describes the 'self' as follows: "The Empirical Self of each of us is all that he is tempted to call by the name of *me*" (James, 1890, p. 291). This description not only includes the physical characteristics which make the individual (e.g. hair colour, eye colour, physical features) nor merely their personal attributes (e.g. their character, their accomplishments or their abilities). As well as each of these, it also includes anything which is of such significance to the individual that it is included by them as part of themselves. For example, a person may feel enough pride in the house that they have built themselves that to hear it criticised is as upsetting as hearing themselves insulted. The house is so significant to the individual that it has become an extension of the self. Mead (1934) later noted that the development of 'self' is dependent on an understanding of other people's thoughts and behaviours. He equates the self to a personal identity that develops over time and in social contexts.

In later work, these ideas of the self were explored further and numerous attempts to define it were made. These included attempts to dissect the self into its component areas but no consensus was reached in how to classify them. For example, Freud's id, ego and superego (Freud, 1936) described areas of consciousness in the human mind and were used to define individual personalities and Jung (1969) separated the self into conscious and unconscious ideas, some of which were inherited and some were the result of personal

experience. These, according to Rosenberg (1979), were only one group of terms used to describe the varying aspects of self while many other researchers had constructed their own. While Freud and Jung's definitions aimed at defining the processes at work, other researchers aimed to describe the structure of the self within the individual. In an attempt to bring clarity to the field, Rosenberg united these findings in one description of the self in his book *Conceiving the Self* (1979). His definition was detailed and complex and so, for clarity, his ideas have been summarised in diagram in Figure 3-1.

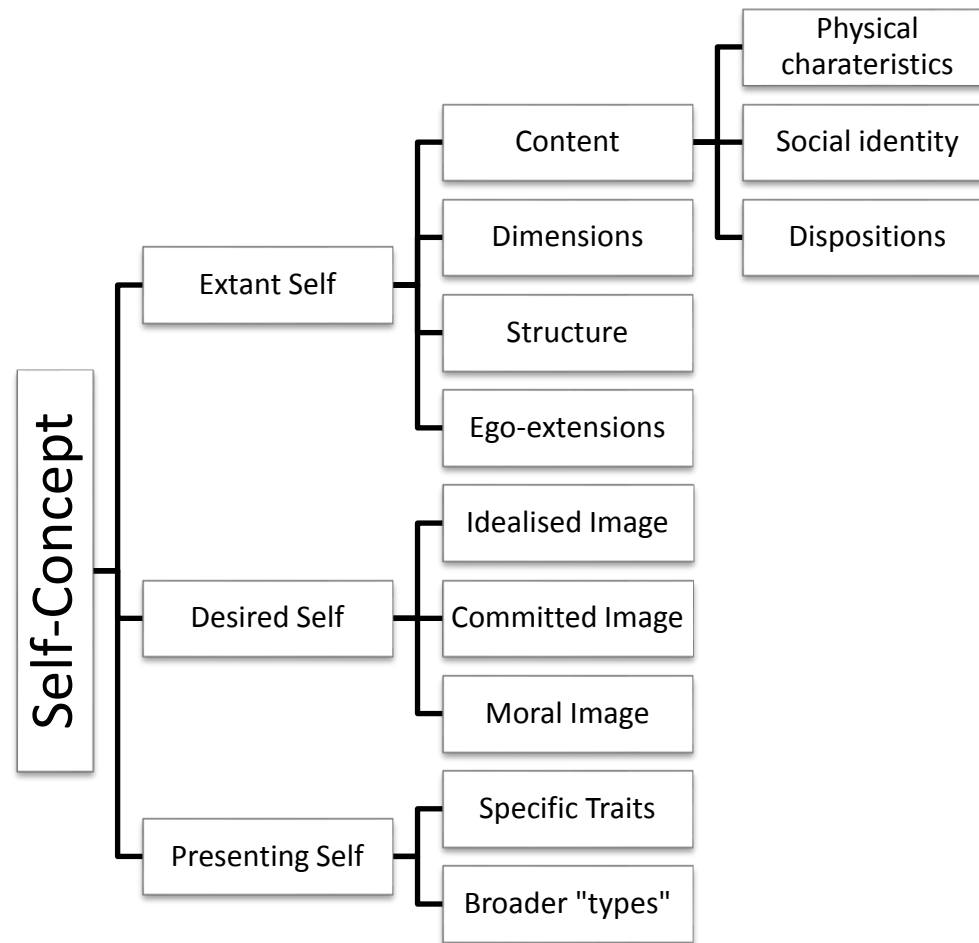


Figure 3-1 Diagram showing the construction of the self-concept according to Rosenberg's (1979) description of the elements of self-concept.

In this model, Rosenberg defines self-concept as “the totality of the individual’s thoughts and feelings having reference to himself as an object” (Rosenberg, 1979, p. 7). This definition acknowledges the role of the individual as both the object under observation and the observer. According to Rosenberg, this dual role in the production of judgements about the self is one of the reasons why the self-concept is not necessarily a true and accurate portrayal of the individual. He also indicates that the self-concept is not solely a snapshot of the individual at the present time but also incorporates reflections on past experiences and hopes for the future. He theorises that the self-concept can be divided into three smaller areas of ‘self’: the extant self, the desired self and the presenting self.

Of these, the extant self is perhaps the most complicated construct. The extant self describes the way in which a person views themselves. Rosenberg suggests that it is not enough to consider ideas contained within the extant self (i.e. the content of the self-concept) but also its structure, dimensions and ego extensions. According to Rosenberg, the extant self contains ideas about the individual’s physical appearance, their dispositions and their social identity. Many of these ideas are concrete (e.g. hair colour, race, name, etc); however, particularly in the case of social identity, many of the ideas an individual holds about themselves are changeable. For example, Rosenberg holds that it is important to consider an individual’s perceptions of their social status, the groups to which they feel they belong, any labels placed upon them and any identities which have been derived from any of the above. For example, a person might be an alcoholic for several years and then enter a period of recovery. However, this might lead to them being classed as an ‘ex-alcoholic’ by the society around them. As Rosenberg notes, “whether the individual likes it or not, as far as society is concerned part of what he is is what he was” (Rosenberg, 1979, p. 11). In school, this manifests in children being classed by teachers from an early age as ‘chatty’ or ‘silly’ or ‘bossy’. Furthermore, society provides broader social ‘types’ (e.g. children in a class may be

known to be the 'naughty' child or the 'clever' child or the 'clumsy' child) which are used to categorize people. These create a list of societal expectations from those who appear to fall within a certain 'type' (e.g. the 'clever' child can do their work by themselves while the 'clumsy' child can't be trusted with fragile objects and the 'naughty' child is most likely to blame when someone is hurt). As adults, these types persist and can be seen when people describe their group of friends saying 'Jane's the funny one' or 'John's an intellectual'. These descriptions conjure an image of the individual in the mind of the listener who forms expectations of Jane or John based on the stereotype associated with the titles 'the funny one' or 'an intellectual'. As these 'types' exist in society, they also exist within the extant self and individuals often identify themselves with one or more of them. However, while such broad classifications are used, people are also classified into a personalised group by those they know and given an individual identity, based on individual characteristics such as eye colour or mannerisms, to single them out from others around them.

Given the number of ways in which a person can understand themselves socially, it is difficult to see how anyone could construct one, clear image of themselves as they are. This is why Rosenberg maintains there is a need to consider other aspects of the extant self. For example knowing the content of the extant self alone will not give us an accurate picture of the individual as it could contain so many contrasting ideas. However, if we know the relationship between these parts (i.e. its structure) we may find more clarity. Rosenberg states that the relationships between these parts will vary from person to person but he gives three rules which he holds are applicable to all:

1. Each of the individual components of the extant self-concept are not necessarily of equal significance.

2. The self-concept can reflect both a global picture of the self and a picture of the self in specific circumstances.
3. The self-concept may be based more on how others see the individual or on how the individual sees themselves.

What Rosenberg is trying to show in these rules is that, though an individual may hold a vast array of ideas about themselves, some are likely to have more of an impact on how they view themselves than others. However, the significance of these ideas may alter depending on the circumstances. For example, an individual's ability to read may not be very important to their view of themselves in the majority of circumstances but, when they join a book club, their ability to read may seem more salient to their sense of self-worth during the club's meetings. How this effects their view of themselves as a person may also be affected by how much weight they give to other people's opinions of themselves relative to their own ability to make judgements about their own worth. This is supported by other research which has found that people with high self-esteem protect their self-esteem from the impact of negative feedback by discrediting the source of the feedback (Kernis & Sun, 1994; Markus, 1977; Shrauger & Lund, 1975; Swann, Griffin, Predmore, & Gaines, 1987)

Furthermore, Rosenberg argues that the dimensions used to make these estimations about the self should also be considered when discussing the extant self. These are the factors that influence how much impact an individual idea may have on the overall sense of self. These dimensions include the nature of the ideas, how strongly the individual feels about them, whether those feelings are positive or negative, how salient these ideas are for the individual, how consistent such feelings are and how stable over time as well as how clear, accurate and verifiable these ideas may be. Depending on these dimensions, the importance of the ideas contained in the extant self to the global self-concept can be assessed.

Rosenberg also includes 'ego-extensions' as part of the extant self. Ego-extensions are those factors which are physically or theoretically external to the individual but are felt by the individual to be part of the self. As with James' (1890) definition of the self, Rosenberg makes allowance for the incorporation of important outside factors to the construction of the self.

All of these estimations and ideas come together to form a picture in the individual's mind of themselves as they really believe themselves to be. According to Rosenberg, this can be a positive or a negative picture or a mixture of the two and the weighting of this can vary with the situation. However, alongside the extant self, people also carry ideas about the 'desired self'. As Rosenberg states, "it is not simply that a woman sees herself as a doctor, a Catholic, or a mother but that she is concerned with whether she is a "good" doctor, Catholic or mother" (Rosenberg, 1979, p. 14). He describes the desired self as containing all the ideas about how an individual would like to be able to think of themselves. The ideas contained within the desired self can be categorised into three areas: the idealised image, the committed image and the moral image.

The idealised image was first described by Horney (1950) in order to explain neurosis. This idealised image of the self is effectively a vision of the best an individual could be. It contains the dream scenario ideas most people have about what they would be if they could have three wishes. Whether it be a famous footballer or a nobel prize winner, these ideas constitute the perfect image of ultimate success and fulfilment in the minds of individuals. Naturally, these ideas vary between people and not all of them are realistically achievable. If this should become the dominant self-perception in an individual, Horney argues, it can lead to difficulties as it alters the level of acceptability. For example, instead of wanting to do well at an exam, an individual whose idealised image has become their

predominant standard of success will feel the need to achieve a perfect score and outdo the rest of the class in order to count themselves as successful.

For the majority of people, Rosenberg reasons, the 'committed image' mediates the impact of the idealised image on the individual's feelings about themselves by providing a more realistic image of what constitutes success as a person. In this image, stardom may be exchanged for promotion and a company car which might be less fanciful and more achievable for an individual, protecting them from feeling unsuccessful or as if their desires are beyond their grasp. The committed image helps protect mental health by providing a kind of buffer between the individual's extant self and their idealised image. For children in schools, the same ideas are played out on a smaller scale. Children may include passing every exam with an A* in their idealised image but view themselves as C-grade students. Their committed image, therefore, might be achieving B grades in their next exams.

Finally, the 'moral image' is the area in which all ideas about what a person *should* be are stored. Rosenberg points out that the morality in question is not a common set of rules shared by all people but will be tailored by the experiences of the individual. While certain rules such as 'I must not steal' may be commonly held, what constitutes a 'good' person may vary greatly between people. In every individual, this final area of the desired self comprises ideas regarding the way in which a 'good' person ought to think and behave. For children, the moral image is likely to contain guidance regarding how to behave in school (e.g. listening in lessons, trying your best, etc). This aspect of the self-concept could also be called the conscience. Additionally, people will vary in their belief in the importance of obeying these moral codes.

Finally, the overall self-concept must take account of the way in which a person seeks to project themselves. This is considered in Rosenberg's categorisation of the 'presenting

self'. This is based on the notion that people can choose how they display themselves to others and can alter their behaviour to suit the occasion. For example, a teenager may choose to present themselves in very different ways to their girlfriend's parents than they would to their schoolfriends. Rosenberg argues that how a person chooses to present themselves may be as simple as choosing a specific trait to display but could extend to an attempt to fit one of the social 'types' described in the social identity of the extant self. He explains that there are several reasons why a person might choose to portray themselves differently which could be to meet a need (e.g. behaving professionally in an interview in order to secure the job or listening to lessons in order to pass exams), to maintain a sense of consistency in the view of the self (e.g. adhering to a particularly salient moral code) or in order to conform with societal norms (e.g. peer pressure to wear certain clothes or listen to certain music). More recent research has indicated that the need felt by boys to adhere to the 'laddish' stereotype has seen them portray themselves as uninterested in academic aspects of school life to their friends and this has resulted in their underachieving relative to girls (Francis, 1999). This research shows how the drive to portray oneself in a particular way can have far reaching consequences.

Rosenberg's account provides a detailed view of the many ways in which an individual can construct a view of themselves and the factors which influence these ideas. In more recent years, these areas have been researched and discussed in more detail but, in the main, they have been altered little. However, one area that received less attention from Rosenberg is the area of self-esteem. He does mention self-esteem in passing and compares it with self-confidence, suggesting that self-confidence is the ability to estimate one's chances of success while self-esteem is an evaluative component of one's own worth based on an appraisal of one's own personality, abilities and history.

Since Rosenberg's work, researchers have developed the definitions he gave to aspects of the self and self-esteem has become more central to the self-concept. For example, Burns (1982) describes self-concept as the attributes and characteristics a person believes they possess which are put into context by the society in which the person moves. Therefore, if the characteristics a person believes she possesses are deemed valuable by the society in which she lives (e.g., to be literate), she will believe herself to be valuable but, where the society disapproves of such characteristics as hers (e.g., arrogance), she will learn not to value herself.

According to Schunk (1990), self-concept is the term used to describe the constellation of ideas a person holds about themselves. This definition is much like that given by Rosenberg (Rosenberg, 1979). These ideas stem from the individual's experiences in the world and their own understanding of the causes and outcomes of these experiences. For example, whether a person construes the failure of an exam as being caused by lack of revision on their part or a lack of support from teachers can affect their self-concept as much as the failure itself.

Schunk goes on to claim that self-concept can be described as the reciprocal relationship between self-esteem and self-confidence. Self-esteem is the term used to describe how a person values themselves. Self-confidence describes the strength of an individual's belief in his/her own ability. These two form a reciprocal relationship so proof that one is capable of performing any task, for example reading and writing, proficiently can increase one's belief in one's own ability, thereby increasing self-confidence. However, this also increases self-esteem by adding another proficient and valuable skill to the list of achievements considered in evaluating self-worth. It is the combination of these two estimations that form the self-concept (Schunk, 1990). This theory reflects Rosenberg's

description of self-confidence and self-esteem but provides a more simplistic view of the self-concept.

Humphrey (2002) describes self-esteem as the comparison of self-concept with the internal depiction of an 'ideal' self. Where there is little difference between the two, self-esteem will be high, but where an individual feels they fall short of the person they would like to be, self-esteem is lowered. In this theory, Rosenberg's extant self and desired self have become the main concepts upon which self-esteem is based. Interestingly, this definition is very similar to one given by James, more than a century earlier, in 1890. He wrote that self-esteem "is determined by the ratio of our actualities to our supposed potentialities" (James, 1890, p. 310) and he described this in a mathematical formula:

Self esteem = $\frac{\text{Successes}}{\text{Pretensions}}$. He went on to say that, given this relationship, self-esteem "may be increased as well by diminishing the denominator as by increasing the numerator" (p.310) meaning that higher self-esteem can be achieved either by increasing the number of our good points or by decreasing our expectations of ourselves. Or, according to Humphrey's definition, by doing things that will improve our self-concept or by making our ideal self more attainable.

According to Wells and Marwell (1976), there are four types of definition of self-esteem. Self-esteem has been described by researchers as a part of personality; a description of the way we react to our own thoughts and behaviours; the outcome of balancing one set of attitudes against another (as with Humphrey's comparison of the ideal self with the self-concept) or a description of how we feel about ourselves. The existence of so many ways to conceptualise self-esteem shows that it is a complex area to define. As the 'self' varies between individuals, so too does the meaning of the term 'self-esteem'. In practice, each of these types of definitions has meaning. A child's self-esteem may be generally high in that

she knows herself to be a good student. In general terms, part of her personality is influenced by her high self-esteem and she feels good about herself. However, if she failed a test yesterday that she expected to pass, her self-esteem might have been lessened by her internal comparisons of what happened with what she feels should have happened. In response to what she thinks of this comparison, her self-esteem may be lower either temporarily or more permanently.

This example raises an interesting aspect of the debate concerning self-esteem. Does a total, unchanging feeling of self-esteem exist or is self-esteem a variable which is calculated anew every moment according to the situation? The next section will examine the research which has aimed to answer this.

Global vs. Specific Self-Esteem

To what extent a 'global' self-concept or self-esteem can be measured has been debated widely (Mecca, Smelser, & Vasconcellos, 1989; Rosenberg, 1979). It is unclear whether it is possible to measure how a person thinks and feels about themselves as a whole or whether these beliefs and feelings change so much according to context that it is only possible to take a snapshot of an individual's self-esteem under the specific conditions the measurement is taken (Burden, 2005). It has been found that a person can hold both a general opinion of themselves and an opinion of themselves in different areas of life and that measurements can be made of each of these (Mruk, 1999). Indeed, Brown and Marshall (2006) describe three distinct states of existence for self-esteem. The first is 'global' self-esteem which is also referred to as 'trait' self-esteem. The second is 'state' self-esteem or feelings of self-worth. The third area is 'domain specific' self-esteem which is also referred to as self-evaluation. Global self-esteem is considered to be a relatively stable aspect of personality (Trzesniewski, Donnellan, Brent, & Robins, 2003) which some researchers say

reflects a person's thoughts or feelings about themselves (Coopersmith, 1967; Crocker & Park, 2004) with a possible genetic basis (Neiss, Sedikides, & Stevenson, 2002). State self-esteem describes the feelings of self-worth created by specific events, such as an exam pass or failure. Domain specific self-esteem refers to the way in which individuals evaluate their own abilities and achievements. While each of these types of self-esteem are capable of being analysed discreetly, global self-esteem and feelings of self-worth have been found to correlate (Crocker & Connie, 2001; Leary, Haupt, Strausser, & Chokel, 1998). It has also been shown that, while feelings of self-worth alter according to the situation, global self-esteem tends to be stable though this can vary according to genetic and environmental factors (Neiss, Sedikides, & Stevenson, 2002).

In order to understand the differences between each of these kinds of self-esteem, it is important to understand how self-esteem develops. The next section will examine the research concerning the formation of self-esteem in children and the factors that may influence it.

The Development of Self-Esteem

Since humans are considered to be social animals, the development of social skill is very important and one of the key components in this is the development of an understanding of the self (Lewis, 1990). This is a complicated process and, it is believed, never reaches a conclusion but continues throughout a person's life (Mead, 1934). As people never stop ageing, having new experiences, encountering new social interactions with new people and finding themselves in new situations, all of these things along with the losses of older friends and contexts, will continue to inform and enrich a person's view of themselves.

Self-concept begins to develop very early. Making sense of the world is a challenge children begin to tackle almost as soon as they are born (Durkin, 2000; Gross, 2005; Lewis,

1990). Initially, babies must learn that their bodies belong to them, that the fingers that move when they want them to move are their own fingers (Maccoby, 1980; Piaget, 1936). As they grow, children's first conceptions about themselves are concrete. They classify themselves according to hair or eye colour or physical build (Gross, 2005; Rosenberg, 1979). As more people are introduced into the child's world, children become aware that different people expect different behaviours and characteristics of them and learn to adapt to fit these expectations (Cooley, 1902; Mead, 1934; Petkova, 1995). This makes the child's view of themselves more detailed as the self-concept broadens to include subtly different 'selves' which are used in different situations (Dowling, 2006; Gross, 2005). This is depicted clearly when adults use turns of phrase such as 'I was wearing my parent hat' or 'I am in boss mode'. Children demonstrate their ability to switch between personas when role playing and this helps them to develop their understanding of other people's behaviours as well as their own (Mead, 1934; Schwebel, Rosen, & Singer, 1999). Adults and children are aware they behave differently according to the context in which they are acting, the role they hold within it and the expectations of the other people involved.

As children move from infancy to childhood, they begin to perceive themselves as unique and, to some extent, fixed (Gross, 2005). That is, they see themselves as different from the people around them and that what makes them different (e.g. haircolour) will stay more or less the same over time. They have learned to use words such as *me* and *you* to differentiate the self from other (Bates, 1990). Further advancements in language and cognition allow for more interaction with the people around them and facilitate their ability to understand how others perceive them and what others value (Dunn & Brophy, 2005; Durkin, 2000; Gross, 2005; Nelson, 2005). Young children describe themselves in terms of physical and concrete, personal aspects such as hair and eye colour (Schunk, 1990; Broughton, 1978). As toddlers, they learn to include their activities (Keller, Ford, & Meacham, 1978) and likes

and dislikes in these descriptions (Broughton, 1978). Midway through childhood, they begin to include ideas about their feelings, competence, character and knowledge in their self-concept (Damon & Hart, 1982). Just as children begin school, they are learning to use social comparisons (comparing themselves with their peers) to elicit knowledge about themselves (Durkin, 2000). By the age of eight, they are using these comparisons when speaking of themselves to others (Gurney, 1988). During this period, children also appear to become aware of the concept of ego-extensions and make use of these to taunt their peers. This is heard in classrooms when children insult each other's family members rather than the individual in a deliberate effort to be hurtful. Children are clearly aware that insulting a person unrelated to the peer in question would not affect them (Rosenberg, 1979).

As Rosenberg (1979) notes, children are classified by others and themselves according to several criteria – including gender, race, place in the family – as soon as they are born. These initial categorisations influence the development of self-concept and affect how other people behave with respect to the individual. Many of these categorisations are subjective rather than concrete and are socially defined, such as social class or gender roles. It is possible for an individual to be socially ascribed to a category they would rather dissociate from. Our perceptions of self are affected to a great extent by the people who are most important to us. The judgments and opinions of parents, peers, teachers and other authority figures can change how we understand what has happened to us and so affect our self-concept (Argyle, 1994; Cooley, 1902; Coopersmith, 1967; Mead, 1934; Sinclair, Huntsinger, Skorinko, & Hardin, 2005). However, this is complicated by the fact that we do not see ourselves as others see us. An individual knows all three areas of self-concept as described by Rosenberg: the extant self, the desired self and the presenting self. Other people cannot know every thought and feeling an individual experiences in the same way as the individual and so their perception of the individual will not be based on comprehensive

knowledge. Furthermore, behaviours often require interpretation and the way in which people interpret events will vary according to their experiences and dispositions (Dutton & Aron, 1974; Grubb & Turner, 2012; Gudjonsson, 1984; Kenig & Ryan, 1986). This makes it possible for an individual and an onlooker to perceive a behaviour in very different ways, allowing for further discrepancy between the judgments of the individual and the onlooker (Rosenberg, 1979).

One of the first things babies learn to recognise is a smile and the smiles of important people in their lives reassure the baby that they are acceptable from birth (Barrera & Maurer, 1981; Farroni, Menon, Rigato, & Johnson, 2007; Roberts, 2005). Babies soon learn how to behave in order to win these smiles. As their self-concept blossoms, it is difficult for infants to make sense of all the feelings and experiences they undergo. At this time, the important people in the infant's life (parents, siblings, carers, etc.) help the infant understand the world and his relationship to it (Baldwin & Holmes, 1987; McAlister & Peterson, 2007; Peterson, 2000; Ruffman, Slade, & Crowe, 2002; Slaughter, Peterson, & Mackintosh, 2007). If important people respond positively to the emerging child as a whole, the child is more likely to feel positively about himself (Diener & Millch, 1997; Gergely & Watson, 1996). Children are particularly sensitive to the opinions of the people most important to them and respond not only to verbal language but to body language also (Durkin, 2000; Roberts, 2005).

Toddlers with secure attachments to the important people in their lives are able to develop more complicated and detailed ideas about themselves than children who do not have such security (Pipp, Easterbrooks, & Harmon, 1992). At the earliest stages of a baby's life, a sense of self is formed by prolonged and regular contact with one person, in most cases the mother. This gives the child security to form a stable attachment and, where this is absent, children may not develop a complete sense of themselves. The importance of people who

can be relied upon to provide a continuous presence in an individual's life persists into adulthood and being withdrawn from other people entirely can result in the sense of self becoming less clear, as in the case of people who have been kept in solitary confinement for extended periods (Dowling, 2006). A secure attachment between the child and its parents has been found to protect children against a variety of potentially negative behaviours such as suicide (Sheftall, Mathias, Furr, & Dougherty, 2013), social and emotional difficulties (Feldman, Bamberger, & Kanat-Maymon, 2013; Pascuzzo, Cyr, & Moss, 2013; Shaw & Dallos, 2005; Sroufe, 2005) and offending (Frodi, Dernevik, Sepa, Philipson, & Bragesjo, 2001; Lyn & Burton, 2005). Furthermore, attachment has been found to be important to the development of literacy skills with securely attached children tending to receive better quality reading instruction from their parents and therefore learning to read more easily than insecurely attached children (Bus & van Ijzendoorn, 1988; Bus, Belsky, van Ijzendoorn, & Crnic, 1997).

Kernberg (1987) found toddlers who reacted to their own reflection in unexpected ways also had similarly unusual aspects to their relationships with their mothers. For example, a family of children raised by a mother with depression reacted in very different ways to their own reflection. The eldest child (age 4) showed no interest in the mirror, the middle child (age 2) took the mirror to her mother to play with while the youngest child (age 9 months) did not smile at his own reflection. In each case, the reaction of the children to their reflection was judged to be unlike that of their peers who displayed more typical behaviours for their age. For example, typically, 6-12 month old children have been found to react to their reflection as a potential playmate while 1-2 year olds tend to withdraw from their reflections in shyness (Amsterdam, 1972). In Kernberg's study, the children's atypical behaviours were attributed to the differences in the mother's relationship with each child. By watching the mother's interactions with her children, Kernberg found that the mother's

relationship with the eldest child was strained while her relationship with the middle child was warm and her relationship with the youngest was deemed to be mechanical, reflecting the way they interacted with the mirror. This study shows how important the role of other people can be in the formation of a child's ideas about themselves. Young children lack the experience to make their own judgements so rely heavily on the opinions of important adults to help them decide how to categorize experiences (Dowling, 2006). Children often mimic the behaviour of their parents in all manner of things in order to learn what they should do in different situations. It follows that the parent's treatment of and feelings toward the child may also be mimicked as the child learns how to think and feel about herself. This is not a new discovery. In 1902, Cooley described 'the looking glass self' to illustrate how our self-perception is heavily influenced by our beliefs about other people's opinions of us. The importance of the opinions of others increases as the child ages.

Harter (2006) details the way in which children develop a sense of themselves. At first, age 2-3, children begin to make use of the terms 'me' and 'I' showing they are aware of themselves as a separate being from the world around them but they do not yet have the capacity to conceptualise a sense of self-esteem. Researchers have even argued that the way language is used to talk about the individual affects how people experience the self (Harré, 1995; Potter & Wetherell, 1987). That is, cultures which make use of words such as 'I' and 'me' suggest an internal self that is responsible for an individual's feelings and behaviours while other cultures use language that describes these as gifts from an external source (Potter & Wetherell, 1987). Recall that having the correct language to describe experiences influences a child's ability to create memories (Brooks & Kempe, 2012; Hayne, 2004; Simcock & Hayne, 2002) as discussed in Chapter 1. It is reasonable to suppose that forming memories about the self is difficult, therefore, before a child has the vocabulary to describe 'self'. Furthermore, the nature of that vocabulary (whether the self is an autonomous entity

or subject to external manipulation) will also affect the way in which memories about the self are made. Therefore, equipping children with appropriate terminology to describe the self is important even at the earliest stages of this development.

Children between the ages of 4 and 7 appear to demonstrate their feelings about themselves in their behaviour. In research, teachers tended to feel that traits such as curiosity and confidence were expressions of high self-esteem associated with secure attachment while withdrawn, reticent children were more likely to have low self-esteem (Haltiwanger, 1989). Harter argues that Cooley's 'looking glass self' does not appear until age 8 as younger children do not have the social understanding or perspective-taking skills to make use of this kind of feedback. She also argues that children under the age of 8 do not have the skills or understanding to make the necessary differentiation between Rosenberg's extant and desired self in order to form a sense of self-esteem. However, this does not mean the actions of people around the child have no impact on the development of the self. As already discussed, attachment and parental behaviour, for example, can have a profound impact on how a child views themselves. Rather, with the development of their understanding of other people's behaviour, children become better able to incorporate more subtle feedback into their self-perception. The kinds of social skills Harter argues are necessary to creating an idea of self-esteem can only be developed once a child has developed a 'Theory of Mind'. Theory of Mind is the term given to an individual's understanding that their own thoughts, feelings, perceptions and memories are not real in a tangible sense, are separate from other people and can be different from those of other people (Astington & Baird, 2005; Durkin, 2000; Gross, 2005). This knowledge is key to beginning to understand why other people behave in different ways as it is through this theory of mind that children are able to consider unknown variables, make judgements about what is likely to be the case and understand that people may be intentionally or unintentionally misleading (Astington, 1993; Astington & Baird,

2005). Theory of Mind usually begins to emerge in children in the preschool years (between 3 and 5 years of age) (Astington, 1993; Astington, Harris, & Olson, 1988; Damon, Kuhn, & Siegler, 1998; Durkin, 2000). Researchers have found that a child's understanding of these ideas deepens until between the ages of 6 and 10 years (Bruchkowsky, 1992; Flapan, 1968; Griffin, 1992). These ages mirror those suggested by Harter for the age at which self-esteem can develop. And, indeed, the importance of theory of mind, also referred to as 'social understanding', to the development of self-concept has been detailed in several studies (Astington, 1993; Bosacki, 2000; Flapan, 1968; Frith & Happe, 1999; Harter, 1999). The social component of the developing self is at play throughout the school years. It is central to Cooley's (1902) 'looking-glass self'. He argues that people make use of the thoughts, ideas, reactions and behaviours of the those around them to understand and alter themselves. This would not be possible without the development of theory of mind. It has been shown that people alter their beliefs and preferences to be more similar to those of people they want to be liked by (Lowery, Hardin, & Sinclair, 2001; Lun, Sinclair, Whitchurch, & Glenn, 2007; Sinclair, Huntsinger, Skorinko, & Hardin, 2005; Sinclair, Lowery, Hardin, & Colangelo, 2005). For example, if a child wants her teacher to like her and knows that her teacher thinks reading is very important, she is likely to think that reading is very important too. This is known as social tuning (Gross, 2005). This happens unconsciously, in general, but people also make use of others to inform their self-concept in a more direct way through social comparison. Worth is a relative concept: one painting may be much the same as another in terms of the cost of the materials used to make it but if one was painted by Picasso it is likely to be worth much more to art collectors. Similarly, people make judgements about their own abilities by comparing them with others when no other yard stick is available (Festinger, 1957; Mussweiler, 2003). For example, receiving a B grade in an exam tells a person exactly how their performance compared with the expectations but how is a person to know how kind

they are or how generous? This is done through social comparison (Festinger, 1957).

Usually, people derive the most insight when they make comparisons between themselves and people who are most similar to them in terms of their experiences or characteristics which are relevant to the point under examination (Miller, 1982; Suls & Wheeler, 2000).

While this kind of social comparison can tell an individual a great deal about who they are, people can also use it to protect their self-esteem by comparing themselves with those they know to be less able than they are (Aspinwall & Taylor, 1993; Buunk, Oldersma, & de Dreu, 2001; Lockwood, 2002). But these kinds of comparisons can also be made internally when an individual compares their own present performance with their performance in the past (Ross & Wilson, 2003; Wilson & Ross, 2003). These kinds of social behaviours will be discussed in relation to the school lives of children later in this chapter.

One model for the way in which other people's opinions and behaviours impacts self-esteem has been depicted in Figure 3-2.

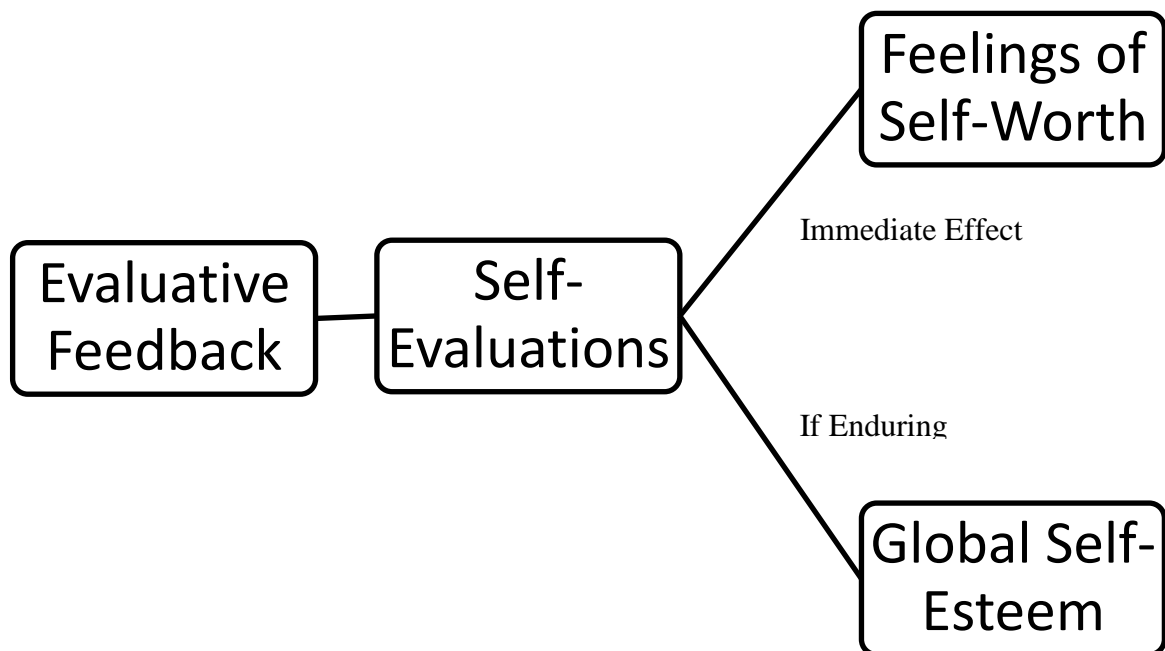


Figure 3-2 A cognitive, bottom up model of the formation of self-esteem. After Brown & Marshall (2006).

This model shows how feedback from others regarding our behaviour is combined with our own self-evaluations of what has happened to create an immediate reaction to the event. This immediate reaction creates our feelings of self-worth in that moment. If the event is significant enough to create an enduring impact, it will also affect our global self-esteem. There is disagreement as to the accuracy of this model, however, with several researchers advocating a top-down model in which global self-esteem is not determined by evaluative feedback but combined with it in order to make self-evaluations of a specific situation (Brown, 1998; Brown, Dutton, & Cook, 2001). This is shown in Figure 3-3. In this instance, global self-esteem is formed early and remains constant but the evaluative feedback from others is able to affect the way in which an individual evaluates themselves and their feelings of self-worth at different times and in different situations. This evaluative feedback can be mediated by the global level of self-esteem. That is, a person with high self-esteem might be more likely to attribute another person's anger to that person's having had a bad day rather than to their own behaviour, thereby protecting their feelings of self-worth.

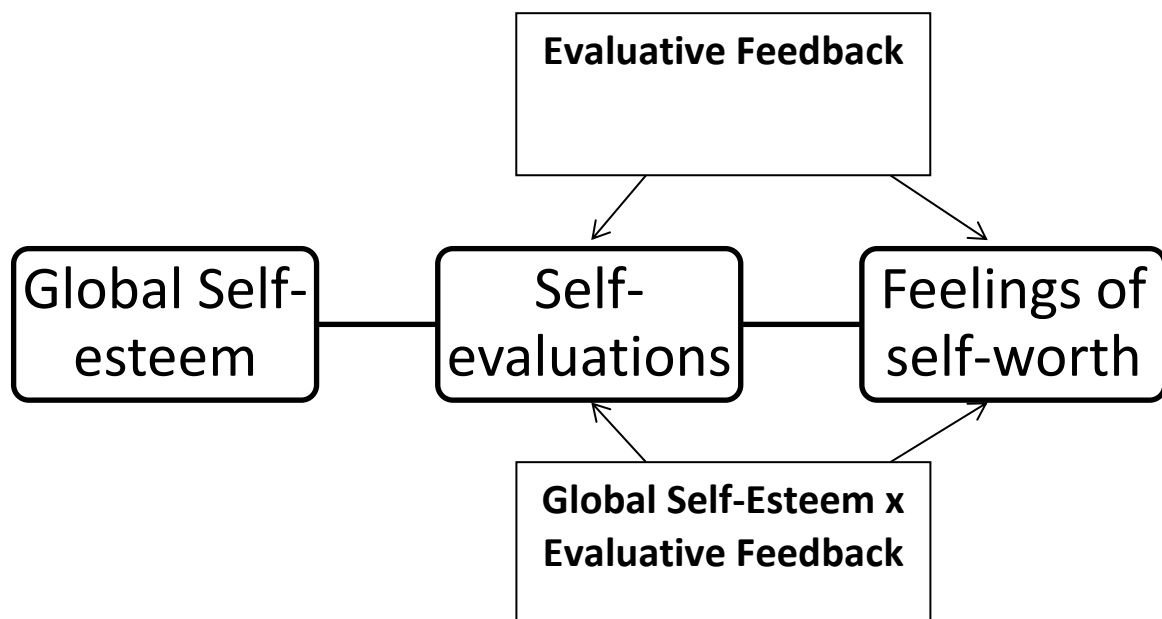


Figure 3-3 Diagram showing the top-down model of the development of self-esteem. After Brown & Marshall (2006).

As Brown and Marshall (2006) explain, the research into the field of the self indicates that there are many aspects to the self and these can also be categorised in many different ways. Each of these categories (i.e. self-concept, global self-esteem, feelings of self-worth) is important in its own right and none is more significant than the other. However, the research clearly shows that what we think of ourselves and how we feel about ourselves are not necessarily the same thing.

Given this, it is important to understand the factors that can affect both the ways we think and feel about the self. There are several factors that can affect the way self-esteem develops and these are discussed below.

Factors Influencing Self-Esteem Development

Many other factors can influence the development of the self-concept. For example, self-concept has been found to be linked to socio-economic status, where people with higher socio-economic status also have higher self-esteem (Twenge & Campbell, 2002; Zhang & Postiglione, 2001). Perceptions of the self can also be affected by gender and age. Research has found that younger children tended to have more positive self-perceptions than older children and boys felt better about their ability in sports and mathematics while girls felt better about their abilities in reading and music (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Josephs, Markus, & Tafordi, 1992).

The development of the self-concept has also been found to be linked to the individual's locus of control (Frederickson & Jacobs, 2001). Locus of control describes where in relation to themselves an individual feels control of a situation resides (Ajzen, 2002; Lefcourt, 1982; Judge & Bono, 2001; Wallston, Wallston, & DeVellis, 1978). Children who believe success in a test, for example, can be achieved by revising have an internal locus of

control, since they believe their own actions can produce the desired outcome. Children who believe they will only succeed in a test if their teacher is in a good mood are said to have an external locus of control. In this example, nothing the child does will affect the outcome, therefore the child has no control over his own situation and believes his fate is dependent on the mood of the teacher. In a study by Frederickson and Jacobs (2001), children who had an internal locus of control had more positive self-concepts than those who felt they would fail regardless of the effort they made.

The way in which an individual interprets events is influenced by their self-concept (Burden, 2005). If a student believes themselves to be unsuccessful, a failure on a test is more likely to be attributed by them to their general lack of ability rather than as a single, unfortunate experience. This, in turn, reinforces the student's low self-esteem (Dowling, 2006). This reflects Brown and Marshall's top-down model of self-esteem depicted in Figure 3-3.

Pelham and Swann (1989) identified three factors which contributed to a global sense of self-esteem. These were how much an individual tended to have positive and negative feelings, how people viewed their own strengths and weaknesses and how people frame these views. These findings echo Rosenberg's (1979) description of the importance of considering the dimensions and structure of the contents of the extant self.

Considering all this evidence, it is clear children's belief in their capability is essential if they are to continue challenging themselves with new subjects and experiences, especially in academic settings. It is also clear that changing a negative self-concept once created is a difficult task, especially when individuals tend to act in ways that protect their beliefs about themselves, whether they are helpful or not (Burden, 2005; Gross, 2005). Considerable research has been done on the topic of cognitive dissonance, which is the term used to

describe an event that forces an individual to see that their behaviour does not reflect the person they want to be (Aronson, 1969, 1997; Brehm & Cohen, 1962; Festinger, 1957; Greenwald & Ronis, 1978; Jarcho, Berkman, & Lieberman, 2011; Murray, Wood, & Lilienfeld, 2012; Thibodeau & Aronson, 1992). In effect, cognitive dissonance is the distress caused to an individual when they are confronted with proof that their ‘presenting self’ from Rosenberg’s (1979) model of self-esteem (i.e. the way they behave) does not match their ‘extant self’ (i.e. the person they think they are). To appease this distress, it has been found that people will engage in elaborate and not always rational justifications of their behaviour in order to reduce the dissonance between their behaviour and their beliefs about themselves (Croyle & Jemmott, 1990; Cummings & Venkatesan, 1976; Gibbons, Eggleston, & Benthin, 1997). This means that, instead of choosing to change their behaviours to bring them in-line with their self-perception, people tend to justify their behaviours so that they can continue to engage in them without those behaviours threatening their beliefs about themselves. The classic example is the smoker who believes herself to be a healthy person (Gibbons, Eggleston, & Benthin, 1997). Smoking is not a healthy behaviour but, instead of deciding not to smoke the next cigarette, she may justify it by arguing to herself that she has no other vices or that today has been particularly stressful or cancer isn’t as common as the health campaigns suggest or that someone she knows smoked every day until she was 92 years of age.

Children in schools, who are faced with new situations regularly, are open to experiencing cognitive dissonance related to their education. For example, the child who believes himself to be clever may discover a subject he finds impossible to penetrate. Children who think of themselves as the best at PE lessons may struggle when the curriculum introduces dancing. Particularly in Welsh medium schools, children who believe themselves to be good readers when only required to read Welsh may well experience cognitive

dissonance if they struggle with English literacy when it is introduced. Given that research shows many people are more likely to explain away such difficulties than to engage with changing them, are children at risk of explaining away such difficulties (e.g. 'I don't like English books anyway') rather than feeling motivated to improve their skills? Some evidence for this comes from the finding that children, when presented with a choice between two equally viable options (two stickers or two sweets), devalue the unchosen option later (Egan, Santos, & Bloom, 2007). Furthermore, some studies have shown that the value placed on a subject by children affects their behaviour in subject lessons (Measor, 2012) with pupils paying less attention and misbehaving more frequently in subjects that were deemed to be less important to their future employment success. Some children in Measor's (2012) study showed evidence of devaluing subjects in which they believed their performance to be poor. This may in part explain why children who have received less exposure to Welsh at home view Welsh as less favourable than English (Baker, 1992) as noted in Chapter 2 as less exposure to Welsh has been associated with lower abilities in Welsh which could prompt some children to devalue the Welsh language.

So far, this chapter has examined ideas about the self as a whole. However, it is possible to experience different feelings about the self according to the situation as shown by the existence of cognitive dissonance which could not occur if people always felt the same about themselves regardless of the situation. In school, for example, a child may feel better about herself in English lessons than in Physics lessons either because she receives more positive feedback from her English teacher or because she always has the top mark in her English class or because she is with her best friends in that class. The way in which self-esteem is affected by situation has led to debate concerning the domain specificity of self-concept. One of the specific areas of self-esteem that has received a great deal of research is

Academic self-esteem and this chapter will make use of this area to explain how self-esteem can vary from moment to moment according to the circumstances.

Academic Self-Concept

Further support for the notion that self-esteem exists in specific domains rather than as a single, global entity comes from research into the effect of education on the self concept of children. Here, researchers have found that successes in school (such as high grades or passing tests) are related to the development of higher self-esteem in specifically academic areas but are not always as important to the development of global self-esteem (Byrne, 1996, 1984; Marsh, 1993, 1992; Marsh, Trautwein, Ludtke, Koller, & Baumert, 2006).

The importance of considering the role of academia when discussing self-concept is underlined by the development of a model of self-concept which separates global self-esteem into academic and non-academic areas, as shown in Figure 3-4.

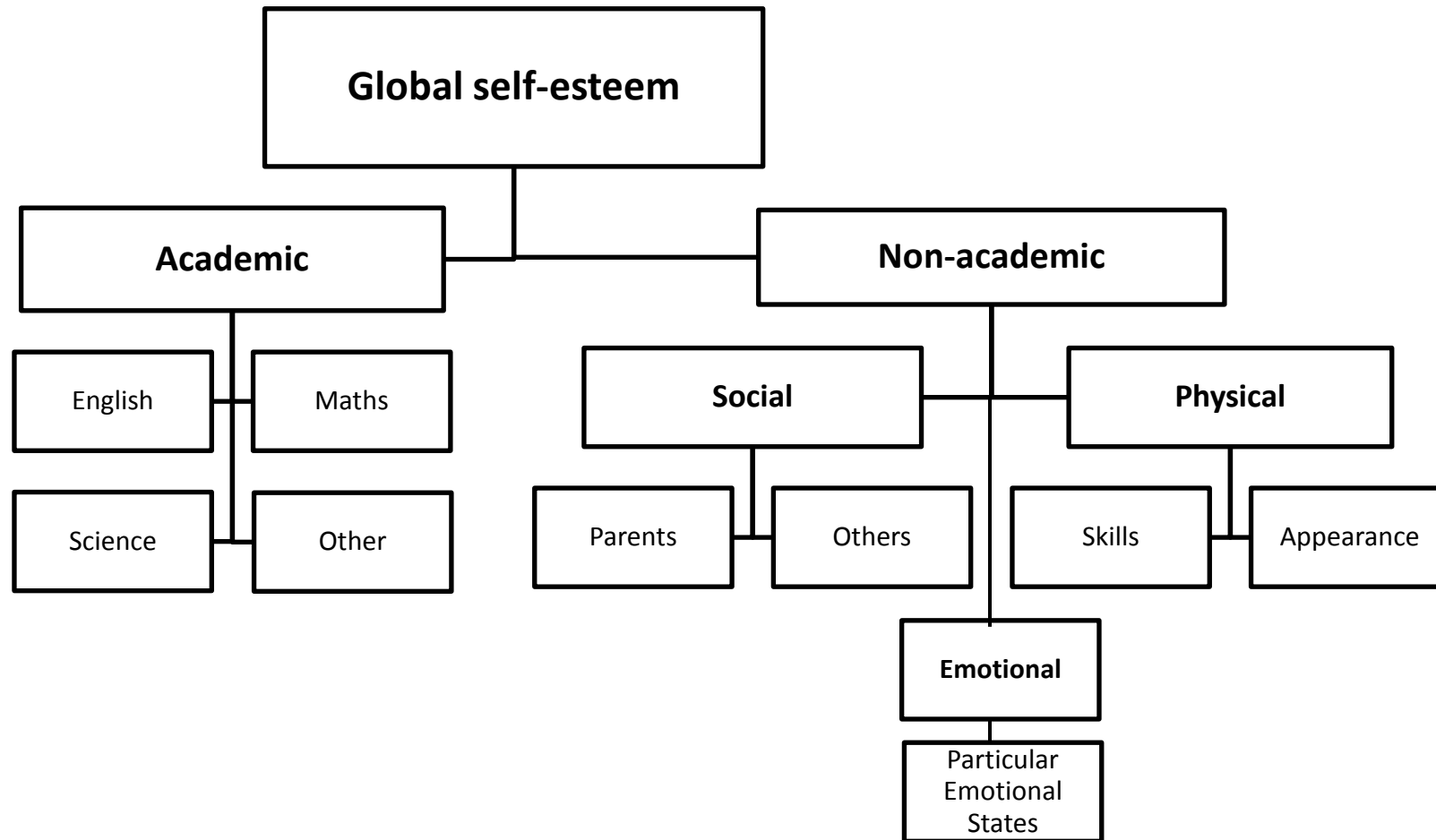


Figure 3-4 Diagram of the hierarchy of self-esteem. After Shavelson, Hubner, & Stanton (1976).

This model gives academic self-esteem a very prominent place within global self-esteem and recognises that self-esteem may be further narrowed into specific areas of study (maths, English, science, etc). It also notes that children are likely to base their self-esteem as much on these estimations as on their social relationships and their physical abilities and appearance. The Marsh/Shavelson model (as described by Marsh (1990) focusses on the academic area of the self-concept and shows its true complexity. It is shown in Figure 3-5.

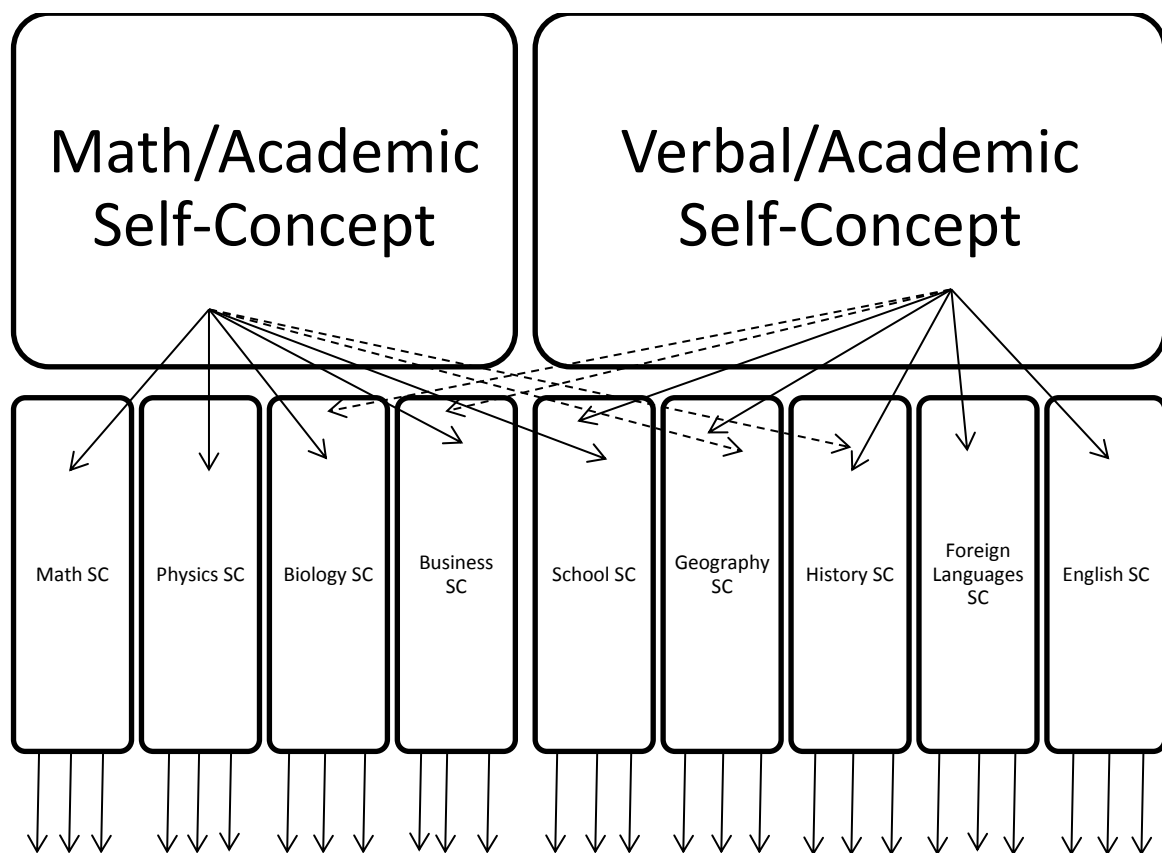


Figure 3-5 The Marsh/Shavelson model of academic self-concept. After Marsh (1990).

As can be seen, the Marsh/Shavelson model of academic self-concept is not limited to dividing academic self-concept into subject areas but includes an intermediate level at which broader, academic skill sets are included. These skill sets (i.e. mathematical skills or verbal

skills in the academic context) apply to most or all of the subject areas to varying degrees and contribute in turn to the academic self-concept developed for each. Furthermore, the model indicates that self-concept in a specific, academic subject is not the smallest unit of measurement of academic self-concept. Each of these subject areas can be divided in smaller, topical areas in which children will have developed a self-concept. What this does acknowledge, however, is the transferability of skills learned in school across subject areas and their role in the development of an academic self-concept. For example, language skills such as reading and writing are likely to affect the academic self-concept of any subject in which reading and writing are necessary to some extent.

Academic self-esteem is a factor in the self-concept of the majority of people who have received a formal education. It exists in adults as well as children but, given the amount of time children spend in school and the emphasis placed there on academic abilities, academic self-esteem may be likely to have a greater impact on children's global self-esteem than that of adults who have left education. Indeed, Rosenberg, Schooler, Schoenbach and Rosenberg (1995) provide evidence to suggest that academic self-concept is a more useful measure for predicting academic behaviours than psychological well-being but its impact on levels of global self-esteem is dependent on how important academic success is to the individual.

There is further debate concerning the usefulness of measuring self-esteem according to a spectrum with high self-esteem at one pole and low self-esteem at the other (Salmivalli, 2001). Some authors argue for a more sensitive system which considers types of self-esteem instead of its value. These 'types' have been created by assessing both the level and the stability of self-esteem (Kernis, 1993) or by grouping people with similar patterns of self-esteem together (Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999). This has been

argued to be more useful for explaining the links described above between self-esteem and an array of behaviours (Salmivalli, 2001). In these instances, self-esteem is often used to describe a person's motivations for engaging in challenging behaviours. However, understanding self-esteem and its variations is useful for understanding all behaviours. Furthermore, maintaining a healthy self-esteem is important for a variety of reasons which are discussed below and, therefore, it is necessary to be able to assess and monitor the self-esteem levels of individuals in order to address any difficulties as quickly as possible.

The Importance of Self-Esteem

In line with the development and increasing popularity of psychological therapies (e.g. psychoanalysis), an accurate understanding of the self has been understood to be the route to good mental health for decades (Grant, 2003; Johnstone & Dallos, 2006; Kennerley, 1997; Rosenberg, 1979; Sacks, 1985). The importance of the self is underlined by its inescapability. Regardless of the situation, the time or the individual's wishes, the self is ever present and impossible to disregard (McDougall, 1933). A positive self-esteem can only develop if children have a clear and accurate picture of themselves (Baumgardner, 1990; Campbell, 1990; Erikson, 1959). The development of a positive self-esteem is essential for many reasons. Once self-esteem, positive or negative, has reached a more advanced state of development, it becomes stable and resistant to change (Aronson, Wilson, & Akert, 2007; Battle, 2002). When people have an understanding of their individual character, they are unlikely to act outside of it (Aronson, Wilson, & Akert, 2007; Gross, 2005; Roberts, 2005) even when the beliefs held about the self are not positive or helpful. It is therefore imperative that children are helped to develop a clear picture of their abilities and character in an accepting environment since misunderstandings at an early age (such as 'I am unable to

learn') quickly become fixed and ideas that are not established early (such as 'I can achieve') are unlikely to be developed later on (Dowling, 2006).

Furthermore, the development of a healthy, positive self-concept and good self-esteem is essential as failure to accomplish this can have life-long consequences. In young children, confidence is dependent on their earlier experiences and the reactions of those around them (Cassidy, 1988; DeHart, Pelham, & Tennen, 2006; Dowling, 2006; Furnham & Cheng, 2000; Ryan, Stiller, & Lynch, 1994). Later in life, high self-esteem gives the individual confidence and optimism (Baumeister, Campbell, Krueger, & Vohs, 2003; McFarlin & Blascovich, 1981); it is what enables an individual to feel secure in their own identity and allows the recognition of the individual's own abilities and successes (Brown, 1993; Roberts, 2005; Vasta & Brockner, 1979). Low self-esteem is one of the personality traits most often found to be associated with risky health behaviours, such as alcohol and nicotine use (Friedman & Schustack, 1999). A negative self-esteem is also likely to be at the root of behaviours such as bullying (O'Moore & Kirkham, 2001; Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999) and narcissism and aggression (Salmivalli, 2001).

School provides a wide array of experiences for children. Examinations and essays are commonly associated with school but children also have opportunities for acting or singing in public, giving answers in class, being chosen for sports teams and even appearing on television or radio. Each of these new experiences could add positively to a child's self-esteem but, depending on the experience the child has and how they construe it, it could also have a detrimental effect. One of the core skills taught in schools is literacy and, as Chapters 1 and 2 have noted, the Welsh Government has emphasised its importance alongside numeracy by creating specific assessments for children throughout their school years. These reading and spelling tests will become part of the school experience for children in Wales and

so contribute to the development of their self-concept. What, then, is the impact of literacy on self-esteem? The next section will address this issue by discussing the research concerning the self-esteem of those who struggle with literacy.

Dyslexia and Self-Esteem

As discussed above, the list of factors that can affect self-esteem in children is long but there is some evidence that children with dyslexia face extra obstacles to the development of a positive self-esteem (Humphrey, 2002; Humphrey & Mullins, 2002a; Riddick, Sterling, Farmer, & Morgan, 1999; Rosenthal, 1973). For example, the self-esteem of female dyslexic students has been found to be particularly affected (Alexander-Passe, 2006). This is likely due to the combination of two factors which have separately been found to be associated with lower self-esteem; namely dyslexia (Alexander-Passe, 2006; Humphrey, 2002; Humphrey & Mullins, 2002b; Riddick, Sterling, Farmer, & Morgan, 1999; Rosenthal, 1973) and being female (Allgood-Merten & Stockard, 1991; Feather, 1991; Fertman & Chubb, 1992; Kling, Hyde, Showers, & Buswell, 1999).

Humphrey and Mullins (2002a) have found children with dyslexia tend to associate literacy with intelligence more than non-dyslexic children do. This is, in part, supported by societal attitudes towards education and intelligence (Bell, 1997; Cook-Gumperz, 1995). Characters perceived as intelligent throughout fiction are often observed by other characters to be 'bookworms' (Austen, 1996; Bronte, 2006; Rowling, 2001) and the traditional emphasis in education has always been on the three 'Rs', two of which (reading and writing) constitute literacy. Furthermore, literacy is important to development in most of the other subjects in the school curriculum as well as language subjects (Archambault, Eccles, & Vida, 2010). Due to the way in which British society generally prizes literacy, children who struggle to achieve reading and writing skills may also struggle to develop a fully positive self-concept.

The comparisons they make between their own attributes (i.e. finding literacy difficult) and what society deems to be good (i.e. fluent reading and writing) can leave them feeling they do not live up to society's demands (Burden, 2005). This is a process similar to social tuning (which was discussed earlier) suggesting children align their own beliefs and preferences to those of the people around them. In particular, a child's peers have a profound impact on their social tuning with children often wanting to be more like their friends (Oetting & Beauvais, 1987; Paluck, 2011; Ryan, 2001).

Research has found there is a strong relationship between children's reading ability and their self-esteem (Alexander-Passe, 2006; Burden, 2005; Glazzard, 2010; Hughes & Dawson, 1995; Humphrey & Mullins, 2002b; Riddick, 1995, 1996; Rosenthal, 1973). There is, however, some debate about how much reading ability affects a child's global self-esteem and how much is limited to affecting only academic self-esteem (Burden, 2008; Polychroni, Koukoura, & Anagnostou, 2006). Chapman's (1988) review of the literature concerning the self-concept of children classed as 'learning disabled' concluded that the strength of the literacy/self-concept relationship was made unclear by the variation in the tools used to assess self-concept and the comparison group chosen for each of these studies. However, the findings showed a general agreement that the self-esteem of 'learning disabled children' was lower than that of typically developing children. A similar review conducted more recently by Zeleke (2004) found that the research indicated a clear link between learning difficulties and academic self-concept but that the relationship between global self-esteem and learning difficulties had less clear evidence.

A child who finds reading difficult is more likely to develop low self-esteem whether they are generally academically capable or not (Riddick, Sterling, Farmer, & Morgan, 1999). Children with dyslexia entering school discover they are experiencing more difficulty

learning to read and write than the children around them, a discovery that many find stressful (Alexander-Passe, 2006). This can be exacerbated by the child with dyslexia's beliefs about other people's perceptions of their difficulties. If children with dyslexia feel their parent or teacher, for example, attributes their difficulties to lack of effort or lack of intellect, the child will notice and, due to the extent to which children rely on adults to interpret the world, may internalise these ideas (Riddick, 1996; Morgan & Klein, 2001, as cited in Alexander-Passe, 2006). Often, children with dyslexia are beginning to notice these difficulties at the same time as their Theory of Mind is developing as was detailed earlier. This development in social understanding increases the child's ability to interpret other people's behaviours instead of relying only on what is explicitly said or done. It also enables them to make use of social tuning and social comparisons, as described earlier, in creating their beliefs about their own difficulties. Without a diagnosis, children with dyslexia have only what they can glean from their social understanding to help them determine the causes of their difficulties. Parents and teachers can be mystified by the difficulties otherwise normally developing children experience and this can lead to frustration and stress for the child with dyslexia as they attempt to live up to the expectations laid upon them (Ryan, 1994). According to Humphrey's (2002) description of self-esteem, a child with dyslexia may include being able to read and spell easily as part of their 'ideal self' because they see other children achieving this. When they compare this ideal self with the reality in which they are finding reading and spelling difficult, this will cause their self-esteem to suffer. This is supported by Morgan's (1997) study which found children with dyslexia who display delinquent or criminal behaviour learned to doubt their ability when they felt they were not performing as well as their peers in literacy tasks and this lowered their self-esteem.

Glazzard's (2010) study centred on semi-structured interviews with children with dyslexia. Glazzard examined the roles of social comparison, teachers, family and friends in

the development of self-esteem in children with dyslexia. Eight of the nine children interviewed spoke about times when they had compared themselves with peers before being diagnosed with dyslexia and said this had left them feeling either disappointed, less intelligent or isolated. The most significant finding of this study was that most of the participants described a positive increase in their self-esteem after receiving a diagnosis of dyslexia. This diagnosis freed them from wondering why they were experiencing more difficulty with literacy than their peers and allowed them to separate their difficulties from their overall intelligence. This ability to distinguish between their own ability and their dyslexia gave them an opportunity to think about themselves in more positive terms, thereby increasing their self-esteem. These findings were similar to several other studies (Ingesson, 2007; Palombo, 2001; Terras, Thompson, & Minnis, 2009) and in particular to those of Riddick (1995) who found diagnosis helped self-esteem. Riddick summarised the reasons given by children for this and found dyslexic children felt the diagnosis allowed them to stop believing they lacked intelligence, helped them to understand the cause of their difficulties and reassured them they were not the only child experiencing these problems. Furthermore, research has shown a relationship between higher self-esteem and more positive attitudes towards dyslexia in both children and their parents and that these two together help protect children with dyslexia against the negative consequences of internalising the difficulties they experience (Terras, Thompson, & Minnis, 2009).

Not only is diagnosis important to the self-esteem of children who find reading and writing a challenge but the kind of school they attend may also have an effect. The Special Education Needs and Disability Act (2001) requires all schools to have a plan of inclusion for all children. However, mainstream schools may not protect the self-esteem of dyslexic children as well as specialist schools and units. Burden and Burdett (2005) found that children in an independent special school did not exhibit signs of learned helplessness as

might have been expected from previous research and Humphrey (2002) found that, while differences in self-concept exist between children with dyslexia and those without, these differences are more apparent in mainstream schools. These and similar studies (Jones & Heskin, 2010; Riddick, 2006) argued that children with dyslexia in mainstream schools make unrealistic comparisons between themselves and other children in their class who are not dyslexic. Therefore, children in specialist schools are more likely to be more positive about their abilities because they are making comparisons with children experiencing similar difficulties. Burden and Burdett (2005) added that the children in their study tended to feel they were masters of their own fate, something which enabled them to see their own effort as the key ingredient to their own success. These findings built on earlier work that found that children who were receiving 'remedial help' in response to the learning difficulties had higher levels of self-esteem than children with learning difficulties who did not receive support (Chapman, 1988). These findings suggest the existence of a complicated relationship between academic achievement and self-esteem. This relationship was analysed by Skaalvik and Hagtvet (1990) who posited that academic self-concept formed a reciprocal relationship with academic achievement which mediated its effects on global self-esteem. The apparent benefits to self-esteem attributed to attending a specialist school have been found to persist into adulthood (Nalavany, Carawan, & Brown, 2011)

Teachers have been found to have a significant role to play in the development of self-esteem and academic achievement in dyslexic children. Experiences at school, in particular the expectations of teachers, have been shown to have a profound and negative effect on children with dyslexia (Hornstra, Denessen, Bakker, van den Bergh, & Voeten, 2010) which persist into adulthood with adults tending to remember school as an unhappy time for them (Hughes & Dawson, 1995). While parental support is an important factor in the development and maintenance of self-esteem (Terras, Thompson, & Minnis, 2009),

children have reported it can be overpowered by the behaviour of teachers and peers (Glazzard, 2010). The research has also found teachers can have both favourable and adverse effects on self-esteem. Humphrey & Mullins (2002a) found dyslexic children tended to ascribe success to the quality of their teacher rather than to their own ability and, in this way, failed to use their academic success to bolster their academic self-esteem. Children, like adults, have different temperaments and personalities which can mean the same approach may work for one child but not for others. In Glazzard's (2010) study it was found children felt differently about the support they received from teachers. Some children felt the teacher's understanding of their individual needs was most important while others wanted more flexibility and adaptations to the lessons. However, the most important factor identified by the children was an effective relationship which allowed them a comfortable space in which to talk to their teachers.

While the majority of the research shows dyslexic children in special schools are protected from making unrealistic comparisons there are other issues to consider. In interviews with mothers of children with SEN, one mother spoke of how her son felt isolated from his family because his siblings all attended the same, mainstream school which was closer to home while he attended a special school (Cole, 2005). This may lead to feelings of exclusion which do nothing to support a healthy self-image.

While some research has indicated that children who experience reading difficulties go on to have social and emotional difficulties in adulthood (Ekinsmyth & Bynner, 1994) others have argued that, with the right support provided early, learning difficulties need not have a lifelong impact on self-esteem (Bruck, 1987). McNulty (2003) and Ingesson (2007) both identified early to middle childhood as the time of greatest conflict for the self-esteem of children with dyslexia as this is when the difficulties caused by dyslexia tend to become

apparent. This is the time when most care must be taken to ensure that support is given to children who struggle with literacy (Burden, 2005; Ingesson, 2007; McNulty, 2003).

Although the cognitive difficulties endure as children with dyslexia reach adulthood, once they are able to remove themselves from the academic environment, many of the emotional difficulties subside. For pupils with dyslexia who go on to university, there is no such abatement since they continue to be in a situation where high literacy standards are required and so their negative feelings may persist (Riddick, Sterling, Farmer, & Morgan, 1999).

Academic success in pupils with dyslexia has been linked to high self-esteem (Coopersmith, 1967). Children with dyslexia with high self-esteem are much more likely to attempt new challenges and volunteer responses than those whose self-esteem is poorer (Alexander-Passe, 2006). In Poland, research has shown that pupils with dyslexia who go on to university tend to have higher self-esteem than those who do not (Wszeborowska-Lipinska, 1997 as cited in Alexander-Passe, 2006). Other research, however, has suggested that people with dyslexia tend to opt for vocational training and do not persist with education beyond what is compulsory (Ingesson, 2007). Even so, when asked about literacy skills, students with dyslexia have described themselves as less capable and more anxious than their peers, when it comes to reading and spelling – two core ingredients of the learning environment, and two crucial ingredients of academic assessment (Riddick, Sterling, Farmer, & Morgan, 1999). This is a feeling which is present throughout the academic career of children with dyslexia. Fairhurst and Pumfrey (1992 as cited in Burden, 2005) described how teenagers who found reading more difficult believed themselves to be perceived as less important to the class and had lower self-esteem than their peers.

The importance of supporting children who find literacy a challenge is underlined by the finding that poor readers are more likely to express feelings of anxiety, inadequacy and lack of motivation (Zimmerman & Allegrand, 1965). People with dyslexia have been found

to be more likely to suffer depression than those without (Burden, 2005; Ryan, 1994; Scott, 2004) Furthermore, a study by Lewandowski and Arcangelo (Lewandowski & Arcangelo, 1994) concluded persistent feelings of academic failure as a child can result in reduced ability to cope with stress throughout life.

There are several ways in which people cope when faced with a difficulty. These are often categorised as being either task, emotion or avoidance based (Endler & Parker, 1999). Task based coping describes ways of coping which address the problem and seek a solution with determination and persistence. Emotion-based coping refers to the way in which people attribute the problem, whether they believe it is as a result of external factors or due to their own flaws and is based on ideas from Attribution Theory (Kelley, 1967; Kelley & Michela, 1980; Weiner, 1979) Strategies that involve ignoring the problem or seeking distraction from it are termed avoidance-based coping.

Children with dyslexia can use all three kinds of coping to address the problems caused by their specific learning difficulty. Alexander-Passe (2006) analysed the coping strategies of children with dyslexia. He found that task based coping is associated with best outcome as it addresses the problem directly. It would be reasonable, therefore, to expect schools to provide support for children to ensure they have the skills to make use of this kind of coping. However, this does not always happen and children develop other ways of coping when faced with difficulties with literacy. Studies have found that children who cope emotionally (for example by believing their difficulties with reading and spelling are their own fault and their successes are due to external factors, such as luck) tend to feel more frustration and self-doubt (Butkowsky & Willows, 1980; Alexander-Passe, 2006; Burden, 2005).

Finally, as a result of not feeling they are able to achieve academic success, some children with dyslexia cope by avoiding academic situations. This can take many forms, from the subtle, such as repeatedly needing to sharpen a pencil before beginning work, to the extreme, such as faking illness or self-harm. In this way, their belief in their inability to succeed becomes a self-fulfilling prophecy (Alexander-Passe, 2006). Several studies have found that making use of less adaptive strategies such as avoidance or emotional coping is linked with behavioural difficulties in children (Hampel & Petermann, 2006; Thuen & Bru, 2004; Wright, Banerjee, Hoek, Rieffe, & Novin, 2010)

It has been found that children with dyslexia are more likely to use avoidance (such as timidity, withdrawal from stressful situations and the constant seeking of advice and guidance) as a coping strategy (Humphrey, 2002). Alexander-Passe (2006) found female students with dyslexia tended to cope in more emotional and avoidance based ways, especially through social diversion. Male students with dyslexia were less likely to avoid problems. Often, this avoidance takes the form of only choosing to read and spell known words instead of new or difficult words. This can lead to examiners and teachers describing their work as immature because their vocabulary is apparently impoverished compared to that of their peers (Pollock, Waller, & Pollit, 2004). However, at least in this way, they avoid being incorrect and risking being accused of laziness or carelessness. This protects their self-esteem as it is seen as preferable to be immature rather than embarrassed by failure (Lawrence, 2006).

Failure has been viewed as having a key impact on the development and maintenance of self-esteem (Lawrence, 2006). Traditionally, it has been felt that failures would harm self-esteem in children and, anecdotally, schools have tried to reduce this effect by avoiding competitive school events such as sports days. However, Dweck (2000) suggests that it

would be better to teach children to deal with failures in a constructive way instead of protecting them. Her argument is that self-esteem has been viewed as something that is given to children by the people around them but it would be better to teach children how to manage their own self-esteem. In particular, she argues that protecting children from academic failure only teaches them that errors of intelligence are 'shameful' and should be hidden. In her view, children who have been protected from failure grow to find they struggle when faced with failure later in life. In this, her work agrees with that of Lawrence (2006) Dweck suggests shifting the focus for developing academic self-esteem from the academic outcome (e.g. tests, speedy completion of work, etc) to the effort made in pursuit of understanding. Not only would this allow children to regulate their own self-esteem, Dweck argues, but it reduces the need for children to make social comparisons. If tests are used as the measure of success, children are more likely to compare their grade with peers to discover how well they have done. Therefore, tests create competition among children. However, if success is measured according to an internal assessment of the work done in order to succeed, Dweck states that children are more likely to cooperate rather than compete at school. While this argument appears sound, it assumes children will not find other ways in which to compete with their peers at an academic level, such as who can finish writing a story first, etc.

Beginning an academic career can also impact self-esteem. Entering school presents children with a new setting, new people and new experiences all at once and the stress of this means self-doubt is common in children at this time (Dowling, 2006). Barrett (1986, as cited in Dowling, 2005) used photographs to elicit children's feelings about starting school and found most were scared not only of the new setting but of making mistakes and not knowing what to do. The fear of getting things wrong continues to inhibit children's behaviours throughout school (Dowling, 2006). Schools provide children with a class of peers with whom to compare themselves. They also set guidelines and standards which children are

required to meet and against which children measure themselves. Since self-concept is related to these kinds of comparisons, school has a powerful role in the development of children's self-esteem, especially as children begin school before their self-concept is fully formed.

The characteristics of poor self-concept will vary from child to child according to the difficulties they experience and the school setting in which they are placed (Humphrey, 2002). For example, children with emotional and behavioural difficulties are more likely to suffer problems with social self esteem (Margerison, 1996) whereas children with moderate learning difficulties are more likely to suffer low esteem in academic and global areas (Barrett & Jones, 1996)

Marsh and Yeung (1997) found that children, at least in part, form their beliefs about their academic capability on the basis of their past performance in academic tasks. Their findings support the concept of a 'reciprocal effects' model, arguing that academic self-concept affects academic performance and academic performance affects academic self-concept. To protect children's self-esteem in this area, care must be taken to keep expectations of the child's behaviour within the realm of what is achievable for that child. Where children are constantly expected to do more than they are able, they are likely to feel insecure and to fear making mistakes, this can lead to children no longer making an effort to learn and becoming helpless (Roberts, 2005). This is an issue that could reasonably apply to children who have no special educational needs but who are pursuing an education in their second language as is the case for children with English as an additional language.

This is particularly an issue that may well affect the children in Wales who are learning through the medium of Welsh but whose assessment in English literacy according to the Welsh Governments Literacy and Numeracy Framework will expect them to perform to

the same levels as children only learning English. Since the research described above has focussed on the experiences and difficulties faced by monolingual English children in the main, the next section will describe the situation for bilingual children.

Bilingualism and Self-Esteem

Very little research has been conducted in the effects of bilingualism on the self-esteem of children to date. Research concerning the self-esteem of bilingual groups tends to focus on cultural rather than linguistic issues (Portes & Zady, 2002). Even so, claims have been made that bilingual education increases self-esteem though these originally had no research evidence to support them (Alexander & Baker, 1992). However, Wright and Taylor (1995) found that being taught in a heritage language had a positive impact on the self-esteem of children as opposed to being taught in a second language. They attributed this to an increase in regard for people belonging to the heritage group (in this instance Inuit) when taught through the heritage language while regard for this group decreased when instructed through the second language (which was either English or French). In other research, language use has been found to be a significant factor in deciding membership of ethnic and social groups (Kramsch & Whiteside, 2007) which is a big part of creating the self-concept (Burns, 1982; Mruk, 1999; Rosenberg, 1979; Schunk, 1990). Later research examined the effect of a total shift from school instruction in the heritage language (Inuktitut) to instruction in the dominant language (English) during the early years of their formal education (Bougie, Wright, & Taylor, 2003) and found the change in language caused a decrease in children's self-esteem.

Research has identified a relationship between bilingualism and low self-esteem in the elevated school drop-out rates of Spanish-English bilinguals in America (Garcia, 2001). It has been argued that Spanish-English bilinguals in America receive negative messages from

the people around them about their language use due to the dominant nature of the English language in America and its use as the language of instruction in most American schools (Limbos & Geva, 2001). These negative messages become part of the self-concept, lowering self-esteem (Valenzuela, 1999). However, it has also been found that literacy may be a significant factor in bilingual self-esteem. Research in America has found that children who identify themselves as biliterate (Spanish and English) have higher self-confidence than children who are monoliterate or those who are able to speak two languages but are not literate in both (Huang, 1995). Higher English language abilities (i.e. ability in the dominant language) has also been found to be associated with higher self-esteem among bilingual, minority groups in America (Portes & Zady, 2002)

Neugebauer (2011) argues that, in considering the self-esteem of bilinguals, an additional factor of linguistic self-esteem must be assessed. She argues that, while self-esteem and bilingualism have both been shown to be independently associated with academic success, the interaction between the two in relation to academic success has not been investigated previously. However, her study suggests that language practices form a significant area of self-esteem, especially for bilinguals. These studies do not necessarily translate to the situation in Wales. For example, the children in these studies were not able to continue their formal education in their heritage language throughout as they might in Wales. But these studies and the work presented so far do point to an area of research in Wales that is at once necessary and under-investigated: How does bilingualism affect the development of literacy and self-esteem in children in Wales?

As has been shown in the previous chapters, developing literacy skills in Welsh is likely to be easier to achieve given that its orthography is more transparent than in English. The question is whether this easier acquisition of literacy skills will have a significant

positive or negative effect on the self-esteem of children in Welsh medium schools. It has been argued that the transparency of Welsh masks some of the effects of dyslexia in children, which may make the social comparisons made by children with dyslexia less stressful and so protect self-esteem. However, when English is introduced, these difficulties are likely to be starker. Bougie, Wright and Taylor's (2003) findings may well suggest that the introduction of English after initial immersion in a heritage language will decrease children's self-esteem but, perhaps, the beneficial effects of biliteracy in these children as in Huang's (1995) study will provide some protection against this. It is the aim of this study to investigate how these three factors - bilingualism, self-esteem and literacy – interact with each other in Wales and to explore how children feel about their abilities and the social comparisons they make.

Summary

This chapter has discussed the nature of self-esteem, describing its structure on both a global and specific level. The ways in which self-esteem develops as part of the self-concept has been discussed and factors that may influence it have been detailed. In particular, the academic self-concept has been discussed as this thesis concentrates on the school experiences of children in Wales. This chapter explained that self-esteem was important in ensuring the development of an emotionally healthy adult and to help children avoid academic failure as well as other difficulties. It has been shown that dyslexia has a significant impact on the self-esteem of children. This study aimed to look particularly at the self-esteem of bilingual children with dyslexia in Wales. However, as was noted earlier, the diagnosis of dyslexia in Welsh speaking children is more difficult than in English and therefore children are not always identified during the school years as having dyslexia. Finding a sample of Welsh-speaking children with dyslexia who were of an age to be newly introduced to English literacy was therefore considered to be problematic. Instead, as the

research suggests that literacy ability is a significant factor in the development of self-esteem, the literacy abilities of all of the children in this study were assessed in English and, where appropriate, Welsh. Two factors were noted as significant in the way dyslexia affects self-esteem: first, children with dyslexia tend to hold negative beliefs about their literacy abilities and second, children with dyslexia make unfavourable comparisons between their own abilities and that of their peers. These studies focussed on monolingual English speakers, however. This chapter documented the few studies concerning bilingualism and self-esteem in an academic as opposed to a cultural setting. While cultural factors are important, this study focusses on children in Wales who generally share a common culture to some extent regardless of the languages used. The evidence presented in Chapter 2 suggested that the transparent orthography of Welsh might provide some protection for literacy abilities. If that is the case, increased literacy abilities and more favourable peer comparisons in Welsh may combine to provide protection for the self-esteem of children who find literacy more challenging. However, studies discussed in this chapter have identified the role of language dominance in the society as having a significant impact on self-esteem for groups who speak a minority language such as Welsh. This chapter has therefore raised a number of questions for Wales in relation to the self-esteem of its children which this study aims to address.

These are:

1. Is the global self-esteem of children in Welsh-medium and English-medium schools the same?
2. Is the self-esteem of children in Welsh-medium and English-medium schools the same for specific areas of self-esteem (e.g. academic self-esteem)?
3. Do children in Welsh-medium and English-medium schools cope with stressful situations by using the same strategies?

4. Is literacy ability related to the self-esteem or choice of coping strategies of children attending Welsh-medium and English-medium schools?
5. To what extent is self-esteem and coping style related to factors other than literacy such as SES, gender, birth order, age, non-verbal IQ and home language use?
6. Do children in Welsh-medium and English-medium schools make different estimates of ability and peer comparisons concerning their English literacy abilities?
7. Do children in Welsh-medium schools make the same estimates of ability and peer comparisons for their literacy abilities in English and Welsh?
8. Is measured self-esteem related to estimations of ability or peer-comparisons concerning language ability?

The next chapter will begin by investigating these issues further through a pilot study with adults with dyslexia who attended Welsh-medium and English-medium schools. This age group was chosen as they had the greatest insight into experiences with literacy difficulties throughout education. This pilot study also aims to ensure the measures chosen are appropriate for answering the questions set.

Chapter 4

Pilot Study

The purpose of this pilot study was to trial some of the measures intended for use in the main studies. The initial aim of the research was to study the experiences of bilingual people across the lifespan from primary school to university and beyond. The pilot study began by testing adults and teenagers on a range of measures deemed useful for informing the questions raised in the preceding chapters. A group of participants who had received a diagnosis of dyslexia and a group who had not were selected for this pilot study. This distinction was chosen to differentiate between people who could be said to have experienced difficulties with literacy and those who had not. This age group was chosen in order to provide reflections on their experiences throughout education. The aim of the pilot study was to inform the choice of measures and age groups for the main study and to ensure the most pertinent issues are being addressed.

Method

Participants

7 males and 15 females took part in this initial, pilot study. The participants had a mean age of 21 years, 2 months (range: 15y; 6m – 53y; 6m). All 22 participants had attended or were attending Welsh medium schools. 9 of the participants had received a clinical diagnosis of dyslexia from an Educational Psychologist whilst at school or university and 13 had not. This was to allow for a distinction between the groups according to their experiences with literacy. Of those participants who had received a diagnosis of dyslexia, 4 were male and 5 were female while 3 of those who had not received a diagnosis of dyslexia

were male and 10 were female. Participants were recruited in three locations. Location A was a higher education institution in North Wales, which was attended by people from a large area and from various social and economic backgrounds. Ten of the participants came from location A. Location B was a secondary school in a strongly Welsh speaking area of North Wales. It was set in a small town in a rural area with some significant social and economic deprivation, though this was not above the national average according to the Estyn¹ report. 6 of the participants came from Location B. A further 6 came from location C. Location C was a secondary school in an urban setting in North Wales. The language of the local community was nearly equally divided between Welsh and English and, while some children came from areas that were significantly disadvantaged, according to the Estyn report, the majority did not. Finally, three of the participants were recruited independently. Each of these participants lived in North Wales and had attended Welsh medium schools in the local area. Participant's consent was gained by explaining the research to them, providing them with an information sheet (Appendix A) and asking them to sign a consent form. Where participants were aged under 18, parental consent was also sought by way of a consent form (Appendix B) which was distributed by the school.

Measures

In order to assess each participant's self-esteem, coping styles, the languages they used and how they felt about them and their relevant background information, each individual that took part in this study was asked to respond to a number of questions in four questionnaires.

¹ Estyn reports have not been referenced in the bibliography to ensure the anonymity of the people that took part in this study.

Culture Free Self-Esteem Inventory - CFSEI-3 (Battle, 2002)

As discussed in Chapter one, the development of self-esteem is detailed and nuanced. For that reason, the measurement of self-esteem is difficult. Original attempts to formulate a measure of self-esteem were quickly confounded by the wealth of variation between people and their experiences. Therefore a standardised measure of self-esteem was chosen by the researcher for ease of administration and analysis.

The first edition of the Culture Free Self-Esteem Inventory (CFSEI) was developed by James Battle in 1981. Since then, it has been updated twice and the third edition (CFSEI-3) was chosen for use in this study. It measures self-esteem according to the definition that self-esteem is:

- The way in which a person estimates their own characteristics and skills
- Reliant upon cognitive development
- Made up of separate areas that can be measured (Battle, 2002).

The CFSEI-3 provides a standardised measure of the overall self-esteem of an individual referred to as the Global Self-Esteem Quotient (GSEQ). It can also provide a standardised measure of self-esteem in the following specific areas of a person's life (Battle, 2002):

- Academic Self-Esteem: a measure of an individual's opinions about their own academic and intellectual abilities.
- General Self-Esteem: a measure of an individual's opinions about their attractiveness, success and personality.
- Parental/Home Self-Esteem: a measure of an individual's opinions about their relationship with their family and their position within it.

- Social Self-Esteem: a measure of an individual's opinions about their friendships and their abilities in social situations.
- Personal Self-Esteem: a measure of an individual's anxieties and the value they place on themselves.

The CFSEI-3 takes three forms: Primary Form, Intermediate Form and Adolescent Form. The Primary Form consists of 29 questions which measure the GSEQ of children between six and eight years of age. While the questions asked cover all the specific areas listed above, with the exception of Personal Self-Esteem, this form does not provide a standardised measure of any one area alone. The Intermediate Form consists of 64 questions for participants aged between nine and twelve years of age. It provides a measure of GSEQ and also of the specific areas excluding Personal Self-Esteem. The Adolescent Form consists of 67 questions for participants aged between thirteen and eighteen years of age and provides a measure of GSEQ and all five specific areas of self-esteem. Every form of the CFSEI-3 also provides a guideline measure of defensiveness. This measure consists of ten questions on each form that are designed to measure how likely the participant is to respond in a socially desirable way rather than honestly. A cut-off score is provided for each form to indicate how reliable the answers can be considered as an accurate portrayal of the participant (Battle, 2002).

The standardised scores of the CFSEI-3 are derived from a sample of 1,727 participants from the United States of America. The participants in this study and those following are all from Wales therefore comparison between their scores and the American standardised scores is likely to be less reliable than comparison with a UK sample. However, it was felt by the researcher that these populations were similar enough in several pertinent factors (e.g. dominant language, educational system, culture) to make use of this assessment

meaningful. The use of standardised scores, even when not based on the population under examination, provides a method of making scores comparable across ages, allowing for more accurate comparisons between groups.

Administration.

Participants were asked to respond to each of the items on the adolescent form of the CFSEI-3 with either 'Yes' or 'No'. The CFSEI-3 can be administered either by asking the participant to read the questionnaire themselves and respond by placing a tick in either the 'Yes' or 'No' box by each item or it can be administered by the examiner who reads the instructions and each item to the participant and records their responses (Battle, 2002). For the purposes of this pilot study, administration by the examiner was preferable. As the participants selected for this study included those who found literacy challenging, it was felt that presenting participants with what amounted to a reading task might affect the self-esteem of some during that period and so their responses to the CFSEI-3 might not be a reliable reflection of their general self-esteem. For the same reason, the CFSEI-3 would always be administered first so that none of the other tasks that participants were asked to perform would positively or negatively impact the measure of the participants' self-esteem.

Once each item has been responded to, a score is allotted to each response according to whether it reflects high (score = 1) or low (score = 0) self-esteem. Scores were then totalled for each of the subscales of self-esteem for the Adolescent Forms. Each of these raw scores was given a standardised score by referring to the standardisation tables for the adolescent form provided in the CFSEI-3 manual. Once this was done, a global self-esteem quotient (GSEQ) was derived by summing the standardised scores of the subscales and locating this number on the appropriate table for standardised GSEQ in the CFSEI-3 manual. The standardised GSEQ score has a mean of 100 and a standard deviation of 15 (Battle,

2002). Standardised scores of global and subscales of self-esteem are used in all analysis carried out in this research unless otherwise stated.

Coping Inventory for Stressful Situations (CISS) (Endler & Parker, 1999)

The Coping Inventory for Stressful Situations (Endler & Parker, 1999) was developed to assess the strategies used by individuals to cope when faced with stressful events. It consists of 48 descriptions of ways in which a person might cope in a stressful situation. Of these items, 16 describe Task-Oriented coping strategies, 16 describe Emotion-Oriented coping strategies and 16 describe Avoidance-Oriented coping strategies. Task-Oriented coping strategies aim to address the problem and solve it. They are strategies that try to discover the cause of the problem, generate solutions and put those solutions into practice. Emotion-Oriented coping strategies seek to decrease anxiety by heightening emotion, but this is not always fruitful. These coping strategies include self-recrimination, day-dreaming about better situations and anger. Avoidance-Oriented coping strategies seek to decrease anxiety by removing the individual from the problem. Strategies for achieving this can be divided into Distraction Strategies; such as taking on new tasks and keeping busy, or Social Strategies; such as visiting friends. The CISS divides the 16 items describing Avoidance-Oriented coping strategies into 8 that measure Distraction Strategies and 8 that measure Social Strategies (Endler & Parker, 1999).

The CISS is available for adults (age 18 years and over) and adolescents (age 13 to 18 years). For the purposes of this research, only the adolescent inventory was necessary. This study did not intend to provide clinically accurate measures of coping style but, rather, to make a comparison between the amounts of coping style used by monolingual and bilingual participants. As financial constraints prohibited the purchase of both versions, the adolescent form was deemed adequate for use in this pilot study and most appropriate for the following

studies with school children. The adolescent version was standardised through administration to 817 participants within the age range. The test-retest reliability was investigated and found to be adequate and subsequent research has found that the CISS has good construct validity (Endler & Parker, 1999).

Administration.

Participants were asked to rate how often they used each of the 48 descriptions of ways to cope when they were faced with a stressful situation on a five point scale where 1 signified that they did not use the strategy at all and 5 indicated that they used the strategy very often. Once participants had completed their ratings, the scores were transferred to a scoring sheet which separated the items according to which type of coping it described. The sum of the scores given for the items in each category was calculated, and this score was compared with the tables of standardised scores to provide a T score (Endler & Parker, 1999). These T scores (standardised scores) have been used in all analysis concerning coping styles in this research.

While the CISS was developed as a self-administered inventory, as with the CFSEI-3 it was felt it would be more appropriate for the researcher to administer the test to avoid any discomfort that might be felt by any participant who would find reading the questions themselves a challenge.

Language use and preference questionnaire (LUPQ)

When attempting to select a group of bilingual people for research, it is necessary to ensure they are homogenous in order to ensure the results of the research are reliable. When attempts have been made to select participants according to their proficiency in each language, many problems have been encountered. As Bialystok (2001) notes, differences

between the grammatical and orthographic structures of language can make comparisons of proficiency difficult. Grosjean (2010) suggests that it would be better to use language use in order to describe bilinguals.

In line with these findings, a series of questions was developed to discover which languages were used by participants, the frequency of their use and any preference participants had for these languages. The Language Use and Preference Questionnaire (LUPQ) (Appendix C) asks participants to rate their ability to speak, read, write and understand Welsh and English according to a seven point scale. This question was designed to assess the participants own beliefs about their abilities in these areas. Next, Participants were asked to use a seven point scale to rate their confidence in using Welsh and English in different situations; for example, reading instructions or speaking in public. This question was intended to assess whether the participants confidence in using a language depended on the situation or their dominant language. They were asked to compare how easy they found using Welsh and English in different situations; for example, to speak to friends or to write in formal settings. To do this, an eleven point scale was used, on which 0 meant English was much easier than Welsh, 5 signified that English and Welsh were as easy as each other and 10 indicated that Welsh was much easier than English. This scale consisted of eleven points in order to allow for a wide range of comparisons to be made and to provide a centre point for people wishing to rate each language as equally easy to use. This question aimed to assess whether participants always found one language easier than the other or if this changed according to the situation. Participants were also asked to place themselves in their primary school class and in their secondary school class according to their ability to speak, read, write and understand Welsh and English using a seven point scale. These questions aimed to assess the comparisons participants made of themselves with other children as they learned to use languages when they were in school.

The questionnaire went on to ask which language the participants used when thinking, when they began to learn to read and write in each language (and who taught them) and which language they used most of the time and to what extent.

The background questionnaire

In order to collect non-linguistic, demographic information, a further questionnaire was developed. This questionnaire asked for details of the participants' date of birth, their occupation and their level of education. It requested details of their mother's and father's occupation and level of education. It also elicited details of their parents' use of Welsh and English with them when they were children by asking participants to estimate a percentage of time spent by their mother and father using each of these languages with them. For participants who were under 18 years of age, a parental consent form was included with this questionnaire. Parents were asked to sign this form and return it to the researcher if they were willing for their child to participate. The verbal consent of the participant and the school was also sought to conduct the research during school time. Participants who were aged 18 years or over were asked to sign a consent form for themselves.

Results

Due to the low number of participants involved in this pilot study, it is not possible to perform any parametric tests with any degree of reliability. However, the purpose of this pilot study was to provide an opportunity of trialling measures and to identify key issues and variables to include in the main study. To assist with this, some analysis of the data was necessary to ensure scoring procedures were understood and useful. Therefore, some descriptive analysis of the data is given below along with an explanation of how this experience influenced the design of the main study.

Dyslexia and Self-Esteem

Global self-esteem quotient (GSEQ)

The mean standardised scores of GSEQ were taken for each group. Figure 4-1 shows the mean GSEQ scores of participants with and without dyslexia. As can be seen, the people without dyslexia that took part in this study had, on average, higher self-esteem than those with dyslexia.

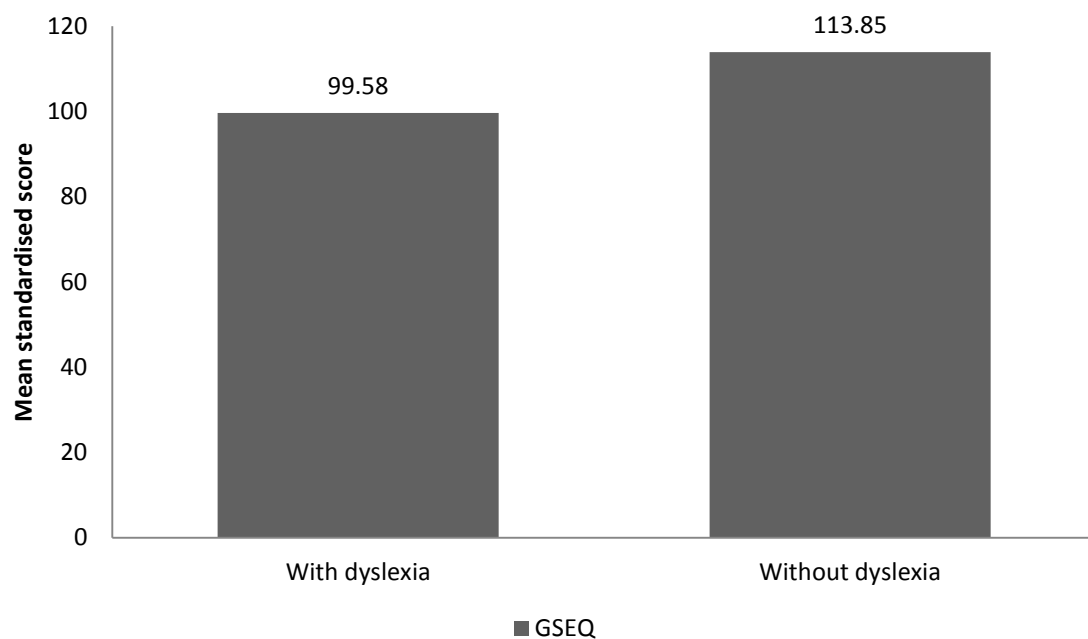


Figure 4-1 Graph showing the mean, standardised global self-esteem quotient of participants with and without dyslexia.

The CFSEI-3 also measures self-esteem in specific areas (academic, general, parental and social). The mean standardised scores of self-esteem in each of these areas for participants with and without dyslexia are shown in Figure 4-2. As can be seen from the graph, participants with dyslexia had lower self-esteem in every area compared to those who did not have dyslexia.

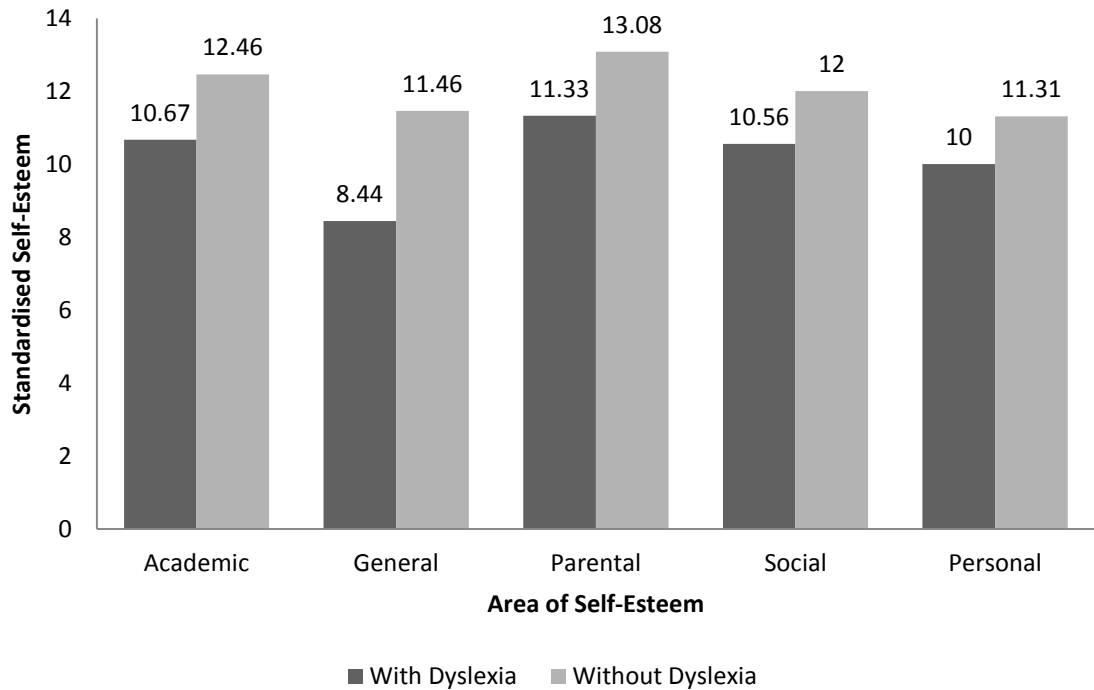


Figure 4-2 Graph showing the mean, standardised scores of areas of self-esteem for participants with and without dyslexia.

During administration of the CFSEI-3, some participants were confused by American turns of phrase which may have affected the answers given. These were changed to reflect British parlance in the main study. Scoring of the CFSEI-3 was found to be straightforward both for raw and standardised scores.

Coping

The mean standardised scores of coping styles given by participants with and without dyslexia were calculated. The results can be seen in Figure 4-3.

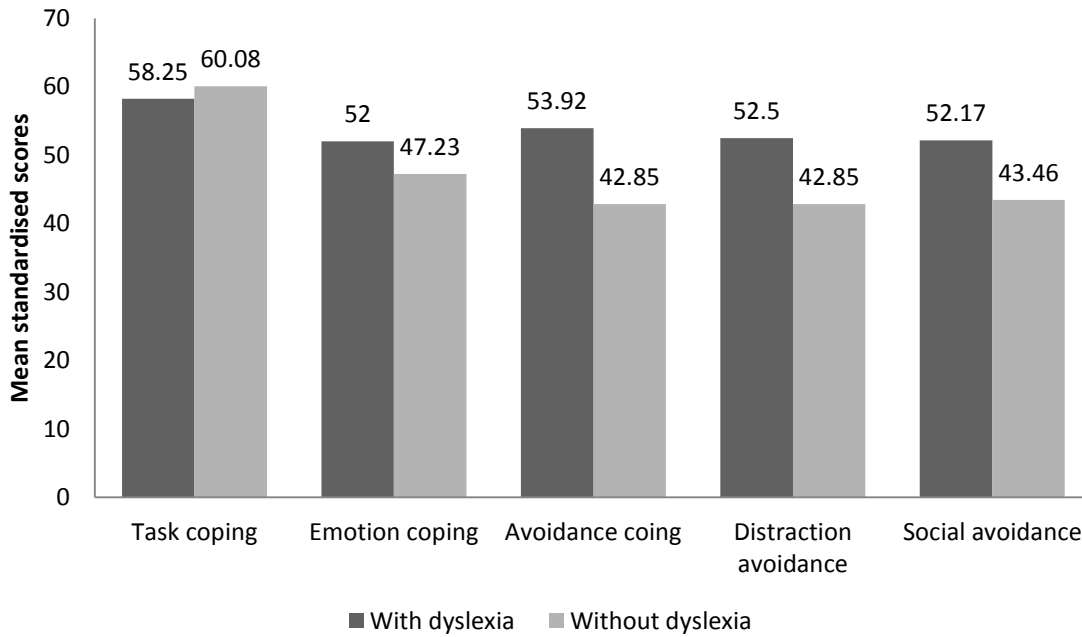


Figure 4-3 Graph showing the mean, standardised scores of coping styles for participants with and without dyslexia.

The graph shows that, in this study, participants with dyslexia used more emotion based and avoidance based coping strategies than participants without dyslexia. Conversely, participants without dyslexia used slightly more task-based coping than those with dyslexia.

Administration and scoring of the CISS was clear and no issues were reported by participants concerning answering the questions.

Perceptions of Ability and Dyslexia

Self-ratings of ability

Figure 4-4 shows the average self-ratings of ability to speak, read, write and understand Welsh and English given by participants with and without dyslexia. Qualitative analysis of the data shows that participants without dyslexia consistently rated themselves as better able to perform each of these tasks than participants with dyslexia, particularly in

relation to written English. Exploring these questions with children in the main study was therefore deemed crucial to the research questions outlined in the first three chapters.

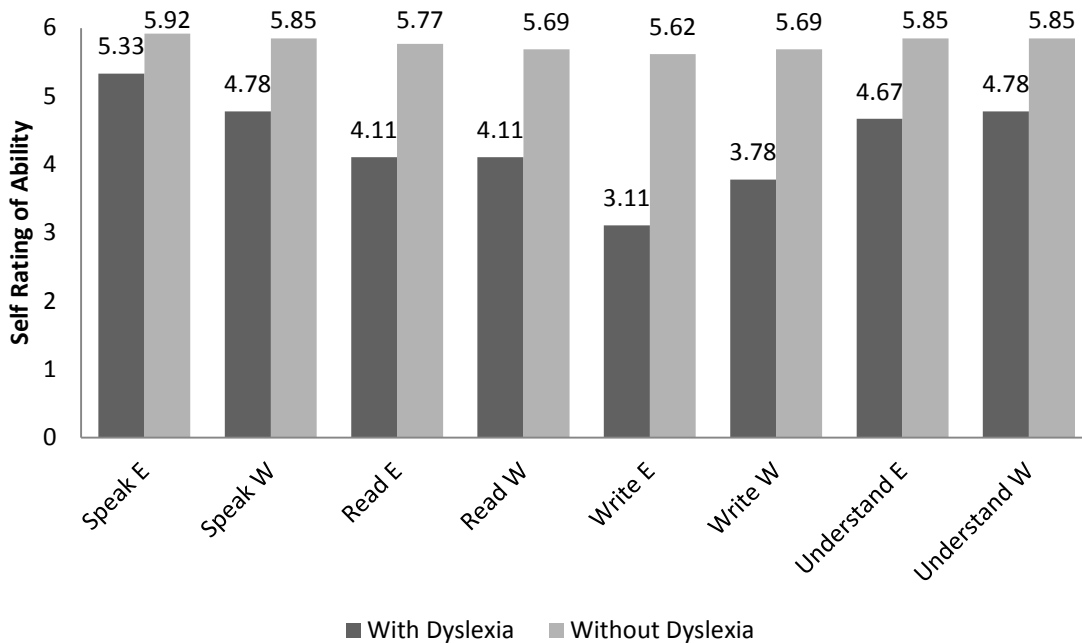


Figure 4-4 Graph showing the mean self-ratings of ability to speak, read, write and understand Welsh (W) and English (E) given by participants with and without dyslexia on a scale from 0 (very poor) to 6 (very good).

Participants experienced little difficulty in responding these questions but occasionally asked to be reminded of the scale (e.g. what a score of 0 signified).

Self-ratings of confidence

Figure 4-5 shows the self-ratings of confidence in using Welsh and English to perform a number of tasks given by participants with and without dyslexia. Again, participants with dyslexia consistently rated themselves as less confident than participants without dyslexia.

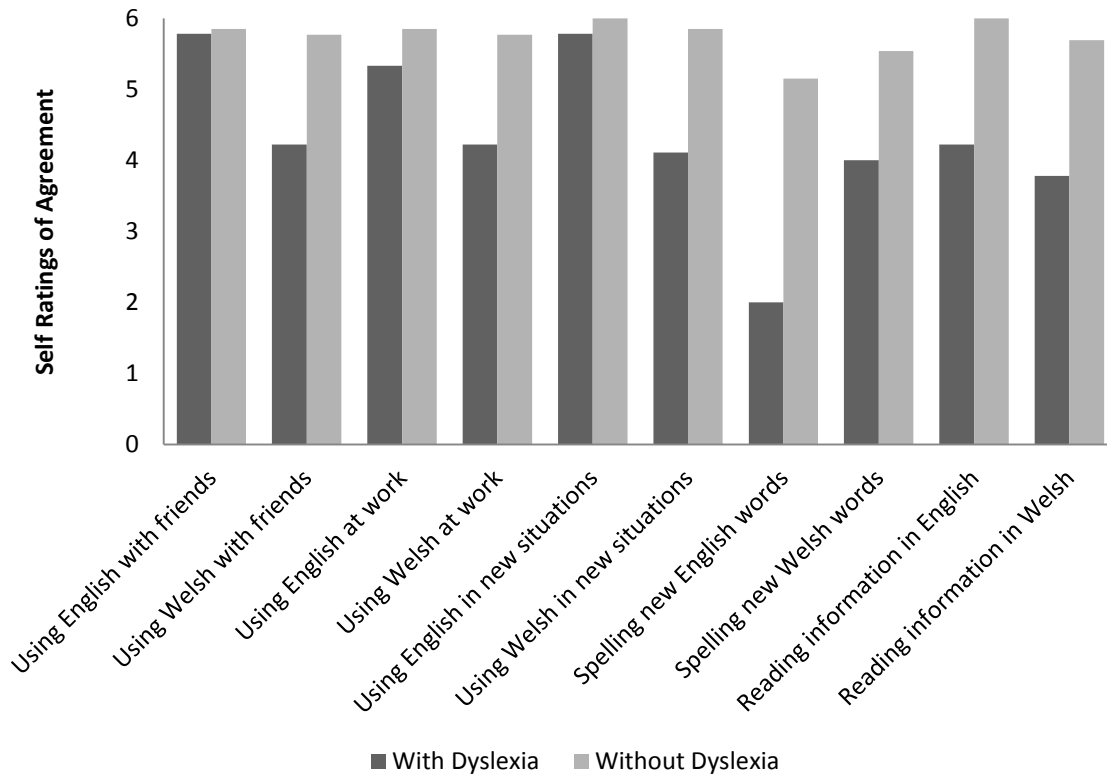


Figure 4-5 Graph showing the mean self-ratings agreement with statements of confidence in using Welsh and English in a variety of situations given by participants with and without dyslexia on a scale of 0 (strongly disagree) to 6 (strongly agree).

Here again, participants understood the question being asked but occasionally forgot the scale which they were asked to use in rating their confidence. Here, again, spelling in English seemed to highlight the greatest difference between the two groups underlining the importance of further investigation into this.

Ease of use of Welsh vs. English

Figure 4-6 shows the mean estimates of ease of use of Welsh versus English in a variety of verbal and literacy-based situations given by participants with and without dyslexia. Qualitative analysis of the results suggest that the participants without dyslexia in this study find English and Welsh as easy to use as each other for the majority of tasks. Participants with dyslexia show a little more variability, tending to find Welsh easier for literacy tasks than English and also for informal conversation.

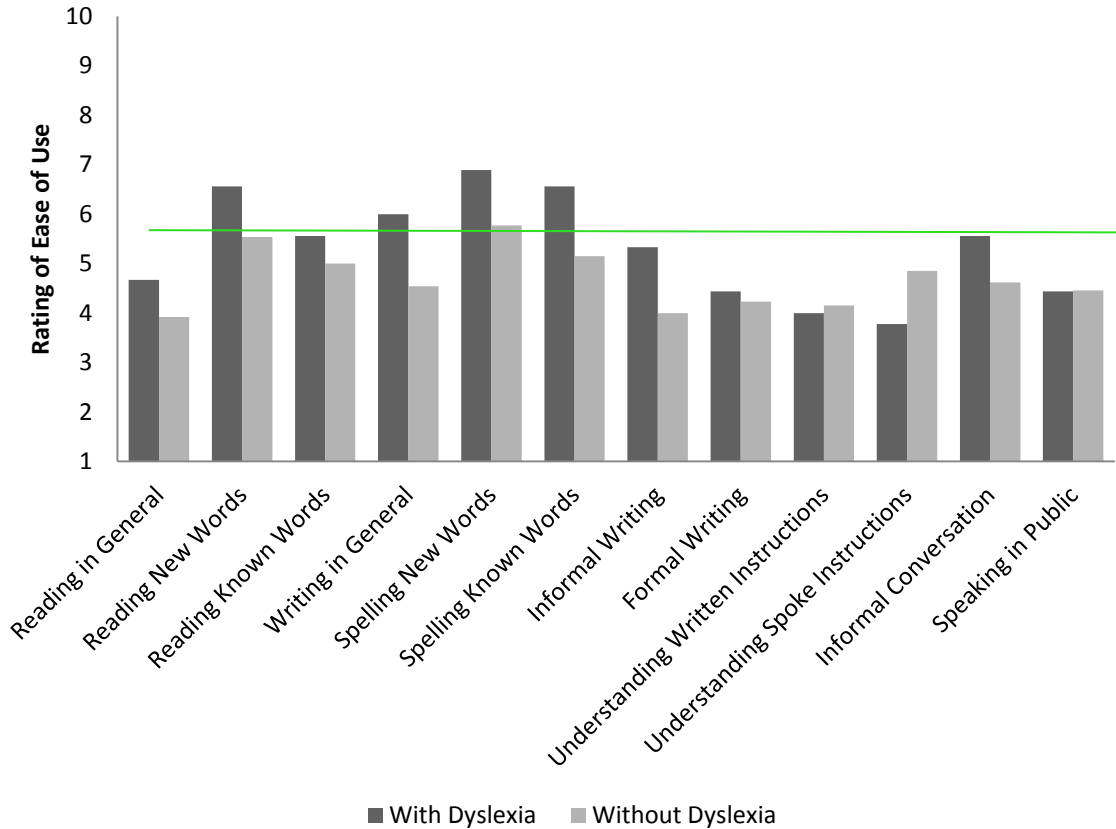


Figure 4-6 Graph showing the ratings given by participants with and without dyslexia for the ease of use of English vs Welsh in a variety of situations on a scale of 1(English is easier than Welsh) to 10 (Welsh is easier than English) (5 = both the same)

Participants found the concept of this task more difficult. Some participants needed additional clarification concerning what they should make comparisons between and some found the scoring system confusing. This indicated such a task would be more difficult to explain to children but it also indicated the importance of comparing the beliefs of bilinguals about their abilities in each language.

Classroom position

Figure 4-7 gives the mean self-ratings of position within the primary school class given by participants with and without dyslexia for speaking, reading, writing and understanding Welsh and English. As can be seen, participants without dyslexia rated

themselves as higher, on average, in their primary school classrooms than participants with dyslexia across all categories.

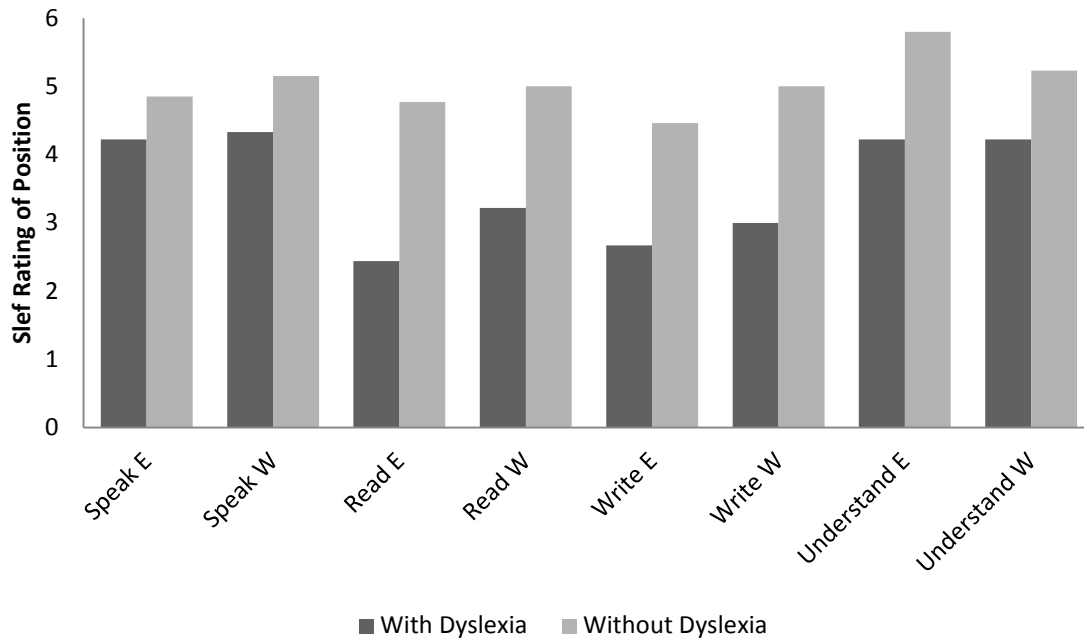


Figure 4-7 Graph showing the mean self-ratings of position in primary school classroom for speaking, reading, writing and understanding English (E) and Welsh (W) given by participants with and without dyslexia on a scale of 0 (bottom) to 6 (top).

Figure 4-8 shows the mean secondary school class positions given by people with and without dyslexia who took part in this study. Again, people with dyslexia in this study rated themselves as lower within their class than those without dyslexia. This suggests exploring these questions with children currently attending such schools would benefit the research questions investigated in the main study.

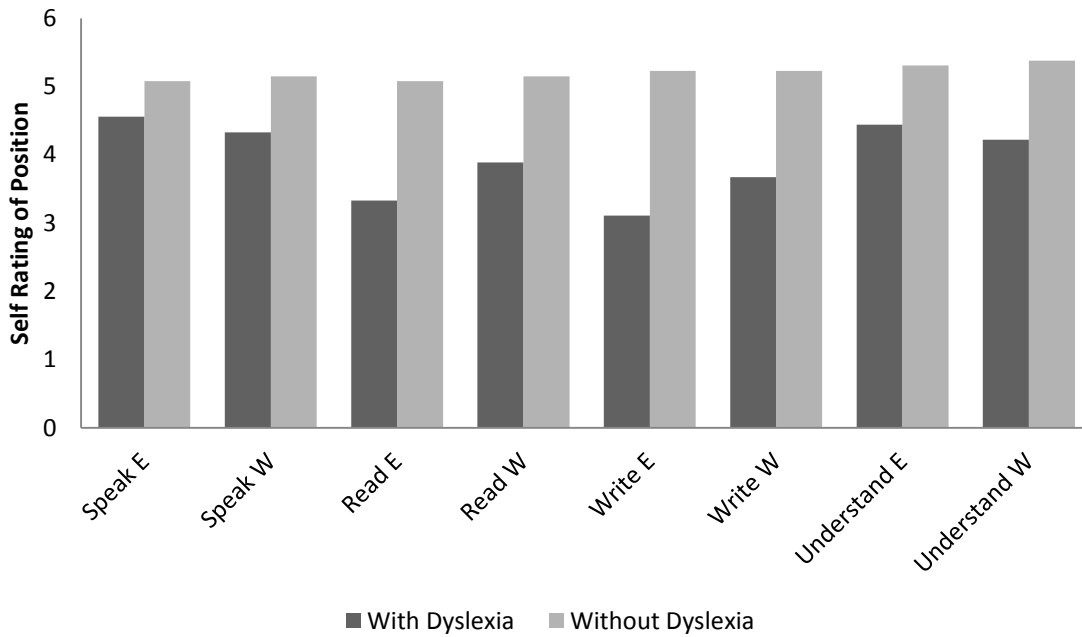


Figure 4-8 Graph showing the mean self-ratings of position in secondary school classroom for speaking, reading, writing and understanding English (E) and Welsh (W) given by participants with and without dyslexia.

Participants understood the questions asked here well but sometimes asked for clarification concerning the scale used to rate their position within the class.

The Background Questionnaire

Language use

A qualitative analysis of the data regarding parental use of languages during the participant's childhood indicates general patterns. Figure 4-9 shows the mean standardised scores of global self-esteem given by participants whose parents spoke only English, only Welsh or both English and Welsh to them as children. As can be seen, participants whose parents spoke only Welsh to them as children reported lower self-esteem than participants whose parents spoke some or only English.

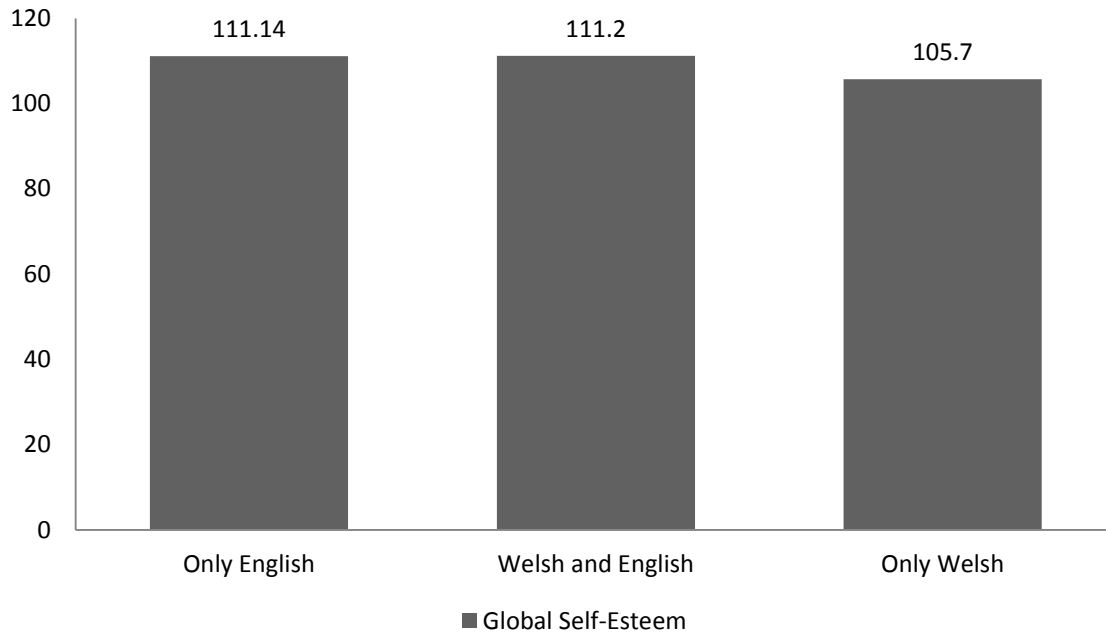


Figure 4-9 Graph showing the mean, standardised scores of global self-esteem of participants whose parents spoke only English, Welsh and English or only Welsh to them when they were children.

In terms of the subscales of self-esteem, Figure 4-10 shows that participants from homes that spoke only English in this study had lower academic and parental self-esteem than other participants but higher general, social and personal self-esteem. Exploring these issues with children who are currently striving towards academic achievement across the different home language groups would therefore be interesting.

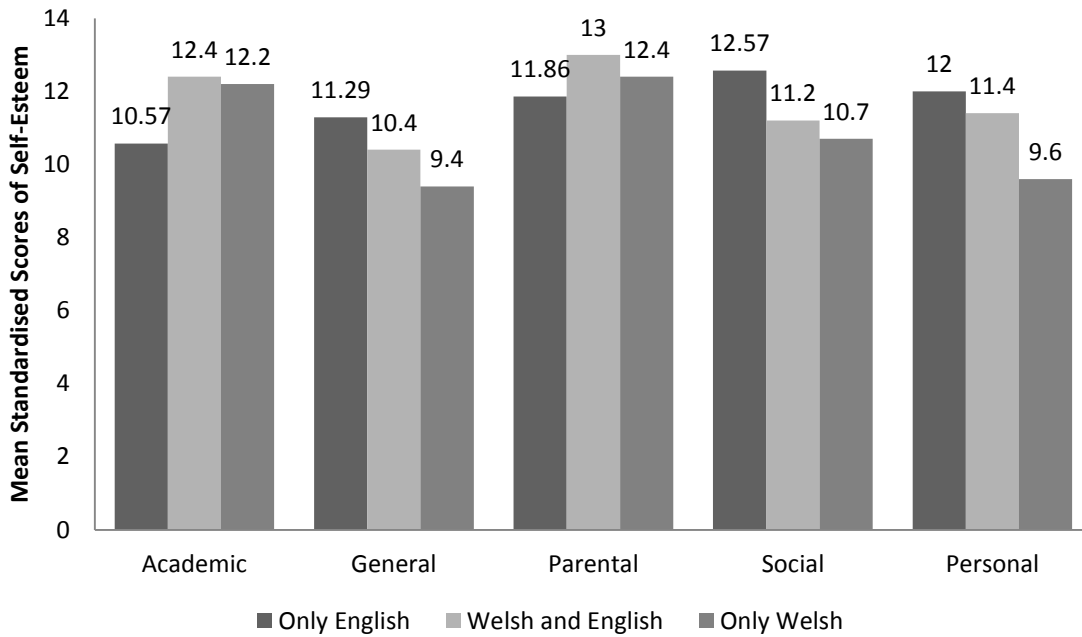


Figure 4-10 Graph showing the mean, standardised scores of self-esteem in each subscale measured by the CFSEI-3 according to the languages spoken at home by participants parents when they were children.

Participants did not report any difficulties in responding to the Background Questionnaire and scoring this questionnaire was straightforward.

Reflections on the Measures Used

No significant issues were found with the use of any of the measures in this study. The standardised measures (The CFSEI-3 and CISS) had already been tested by their designers and proved to be worded clearly enough for participants and easily administered. Occasionally, participants had difficulty with words or turns of phrase that are more frequently used in America than they are in Britain. For example, *'are people your age smarter than you are?'* was occasionally understood to mean *'are people your age better dressed than you are?'* and not *'are people your age cleverer than you are?'* as intended by its authors. In the main study, therefore, these terms were substituted with equivalent terms that would be better understood by children in schools in Britain (e.g. *'smarter'* changed to *'cleverer'*).

The questions and rating scales used in the LUPQ were understood by all participants. Occasionally, participants needed to check the rating scale for the question estimating the ease of use of Welsh versus English in a variety of situations. Some participants felt they had forgotten what a mark of '0' or '10' indicated. Reminders were given but, due to the lack of clarity, it was decided that this question would not be used with children.

The pilot study also revealed interesting patterns across the two groups of participants that deserve further exploration. Whilst retrospective beliefs about emotion and behaviour are useful to a point, it is difficult to be certain that participants' ratings of their position in their school classrooms (especially at primary school level) were accurate as they relied on memory. Memory is a notoriously poor tool to use as it can be impacted by so many factors. For example, the accuracy of eyewitness testimony can be affected by the event they are asked to recall (Hollin, 1981), how aware they are of the possibility that they could be misled during questioning (Thomas, Bulevich, & Chan, 2010), whether the memory has been rehearsed over time or not (Boydell & Read, 2011), the emotions involved in the memory (May, Owens, & Einstein, 2012) and how much the eyewitness has focused on emotional rather than factual memories of the event while rehearsing it (Soleti, Curci, Bianco, & Lanciano, 2012). Memories of school can be emotive for anyone and such feelings could influence participants' recall of the situation when they were in school. Furthermore, a number of these participants had received a diagnosis of dyslexia meaning there was an increased chance of them having experienced a variety of negative emotions associated with their literacy ability. Given this, perhaps asking adults to recall their school experiences was not the most accurate way of eliciting this information. Therefore, later studies needed to ask these questions of children directly.

The background questionnaire appeared to pose no difficulties for the participants and no issues were raised regarding its administration.

Implications for Further Study

This pilot study has raised several interesting issues for consideration in taking the research forward. The implications of these for the main study are outlined below.

Participant's age

On review of the findings from this pilot study, it was decided the next stages of this research should focus on children rather than adults. This was due to the following considerations:

1. Previous research has focused on children rather than adults and so comparisons between findings would be more reliable if participants of more similar age were used.
2. Some of the questions being asked required participants to recall their experiences in school. As there are many factors which can impact accurate recall of events and information, it would be better to ask these questions of children who are currently experiencing school life. Their ratings of class position were, therefore, likely to be more accurate than those of adults who were asked to remember it.
3. During informal discussion, participants tended to describe negative experiences related to their literacy abilities in primary and secondary school rather than after leaving education. The researcher felt the participants' opinion was that the most significant effects of literacy difficulties on self-esteem stemmed from these experiences.

Therefore, children from primary and secondary schools were asked to participate in the studies described in Chapters 5, 6, 7 and 8 as these provided more accurate information about these issues. This allowed for comparisons to be made to identify whether or not the influence of peer comparisons and home language use changes over time. Due to the number and nature of the measures to be used, it was decided that participants aged no younger than 7 years would be used. Younger children were likely to find the tasks too difficult and the standardised measures do not provide standardisation tables for younger children.

As the Welsh Assembly Government's aim is to ensure that levels of literacy among children in Welsh-medium schools is similar to that of children in English-medium schools by the age of 11 years, it was decided that this age group should be examined specifically in order to assess to what extent this is being achieved.

Literacy measures

While the participants in this pilot study were categorized according to whether or not they had received a diagnosis of dyslexia, it was deemed beneficial to include a standardised measure of reading in Welsh and English as well as measures of English and Welsh writing abilities and Rapid Automatised Naming (RAN). The addition of these measures allowed for analysis of the accuracy of participants' estimates of their own abilities in these areas. It also permitted the analysis of the relationship between factors such as home language use and parental levels of SES and education and the actual literacy abilities of children.

Furthermore, as children in Wales are less likely to be identified as having dyslexia early in their educational career (Cooke, 2004) it was considered likely to be difficult to locate a sample of primary school aged children with dyslexia. The initial intention of this work was to compare children with dyslexia with those without dyslexia as had been done in previous studies. The feasibility of such a study was discussed with Ann Cooke and Liz

DuPre of the Miles Dyslexia Centre at Bangor University. They considered that, due to time constraints and the difficulty of finding a suitably sized sample of children with dyslexia particularly in Welsh-medium schools, children who had not received a diagnosis of dyslexia should be recruited from primary and secondary schools in Wales. This was done and their literacy abilities were then assessed using reading, writing and RAN measures both in English and in Welsh. These were used to classify children as higher or lower ability in terms of their literacy abilities.

School Language

While using children from Welsh-medium schools would permit a comparison between the findings of this study and previous research with monolingual children, current comparisons would not be possible without a comparison group. Therefore, children from both English-medium and Welsh-medium schools were recruited for participation. As both of these school types exist in Wales, it was felt the inclusion of participants from both would allow for a better comparison of the experiences of children in Wales. Furthermore, the pilot study indicated the potentially interesting issue of the language of the home which will also be included for consideration in the main study.

Chapter 5

Study 1: Literacy

In Chapter 1, the issues concerning bilingual education and the government's focus on literacy standards were discussed. This raised two questions which the experiments in this chapter aimed to address. These questions were:

1. How do the English literacy abilities of children in selected English-medium and Welsh-medium schools compare?
2. Do factors such as language exposure, SES, gender and birth order affect performance on measures of English literacy?

Method

This study analysed the differences and similarities between the literacy ability of mid school-aged participants in Welsh medium and English medium schools.

Participants

117 children aged between 6 years 9 months and 12 years 5 months from Welsh medium and English medium primary and secondary schools took part in this study. These are shown in Table 5-1.

Table 5-1 The number of children who participated in this study according to their school language, their combined language exposure and their gender.

	Gender		School Language		Home Language (Welsh-medium only) (>60% of the time)		Age (years:months)	
	Male	Female	Welsh	English	Welsh	English	Mean	Range
Younger Children	32	30	38	24	16	18	7:9	6:9 – 8:7
Older Children	19	36	37	18	11	20	11:10	10:9 – 12:5
Total	51	66	75	42	27	38	9:9	6:9-12:5

The primary school aged children were drawn from three Welsh medium primary schools in North East Wales and four English medium schools, three of which were in North East Wales and one was close to the Welsh border in North West England. The consent of the head teacher was requested to administer letters explaining the research to children (Appendix B). These letters requested parents to give their consent to their child's participation in the study. Children were asked to give verbal consent to their participation once their right to withdraw had been explained to them and the confidentiality of the data had been assured.

Primary schools A, B and C were designated by the local authority as Welsh medium schools. Analysis of the Estyn² reports and discussions with teachers in each of these schools revealed that Welsh was the language of all instruction within the school, excluding English lessons. According to the Estyn report, primary school A was in an urban setting where the surrounding community was not economically disadvantaged and in which a roughly equal amount of Welsh and English was spoken. Socio-economic status (SES) was measured for all children but it was not possible to recruit enough children to be able to match groups according to SES in the time available. However, it was possible to use this information to assess possible links between SES and literacy abilities in each language and analysis of the data are presented later in this chapter. Children were chosen from schools in areas with similar socio-economic landscapes and children's socio-economic status was measured in order to make comparisons based on this. However, due to the limited amount of time available for recruitment to this study, selecting matched groups according to this variable

² Estyn reports have not been referenced in the bibliography to protect the anonymity of the schools and children that participated in this study.

that were of sufficient size for meaningful, statistical analysis was not possible. 25 of the children came from this school. The Estyn report for primary school B noted that it was in a rural setting with a surrounding community with little economic or social deprivation. The majority of people living in this community spoke Welsh as a first language. 6 of the children in this study came from Primary school B. 7 of the children in this study came from primary school C, which was located in an urban area where the surrounding community was not considered to be either particularly advantaged nor particularly disadvantaged according to the Estyn report. People in the surrounding area spoke predominantly English. As is described, therefore, the children from Welsh medium primary schools come from a variety of communities reflecting the diversity of Welsh language use in Wales.

Primary schools D, E, F and G were all English medium primary schools. Primary schools D, E and G were located in Wales and, though some Welsh was taught, discussion with the head teachers in these schools and reading of the Estyn reports revealed that only basic, verbal Welsh was taught with almost no teaching of Welsh literacy. Primary school F was located in England, where no Welsh was taught at all and where the community's primary language was English. The Estyn report for primary school D noted that it was in a rural setting within an area of social and economic deprivation. The predominant language of the community surrounding primary school D was English. 2 of the children in this study attended primary school D. Primary school E was located very near primary school A and so was in a community with little social or economic disadvantage and where English and Welsh were spoken in roughly equal measure. This was confirmed by the findings of its Estyn report. Primary school E provided 11 of the children that took part in this study. Primary school F provided 8 of the children in this study and was located in a semi-rural area in England with a surrounding community that contained less social and economic deprivation than the national average according to its OFSTED report. Three of the children

came from primary school G which was located in a rural area of North-East Wales which is not socially or economically advantaged or disadvantaged. The predominant language of the surrounding area is English. This was confirmed by the Estyn report for primary school G. Children in each of these schools, therefore, hear little or no Welsh in their communities and are taught a small amount of Welsh as a second language in some of the schools.

Of the secondary schools that were willing to participate in this study, secondary schools A and B were designated Welsh medium schools where the language of instruction in all lessons was Welsh (excluding English lessons). The Estyn report for secondary school A noted that it was located in a semi-rural area. 7 of the children came from this school and their community had some features of social deprivation. The predominant language used in this community was Welsh. 29 of the children in this study came from secondary school B which was located in a semi-rural area with some pupils attending from significantly disadvantaged areas according to the Estyn report. The community around this school contained a balanced mixture of English and Welsh speakers.

Secondary schools C and D were both English medium schools in North East Wales. Discussion with the head teachers at these schools revealed that, while Welsh was taught to every pupil to a second language level, children received as much input in Welsh as they did in any other modern language taught at the school. Secondary school C provided 12 of the children in this study. It was located in an urban area that included some significantly deprived areas. The local community was made up of a majority of English speakers. Seven of the children came from secondary school D which was located in an urban area with many

of the children attending coming from significantly deprived areas. The predominant language of the surrounding community was English.³

The children were separated into groups according to their age or the language of instruction in the school or according to age and school language of instruction. Children in both school language groups were divided into a younger age group (children in year 3 of primary school) and an older age group (children in year 7 of secondary school). The mean age of children in each group is shown in Table 5-2.

Table 5-2 The mean ages (in years: months) of older and younger children in English medium and Welsh medium schools.

School Language	Age Group	Mean Age (in years: months)	Standard Deviation (in months)
English Medium	Younger children	7:11	5.93
	Older children	11:10	4.3
Welsh Medium	Younger children	7:8	4.38
	Older children	11:11	3.73

³ Discussion with head teachers revealed that Welsh literacy was introduced for some of the English-medium secondary school children, it was still very basic and no different to their literacy in other modern languages introduced at this stage. Any children in English-medium schools who reported using Welsh conversationally or whose parents reported using Welsh at home were removed from the study. Therefore, since the focus of the work was on the impact of literacy development, vocabulary measures were not believed to be necessary and were not included in the test battery.

Measures

Children were all asked to complete a number of tasks and questionnaires in order to assess their literacy abilities, their language background and to gather information about their parents' Socio-economic status (SES) and level of education. These are detailed below:

Background questionnaire

Parents were asked to give their consent to their child's involvement with the study. Parents that were willing for their child to participate were asked to answer a brief questionnaire (see Appendix B). These questions asked for their child's date of birth and details of the parents' use of languages with their child, asking both the mother and father to estimate what percentage of the time they spent using Welsh, English and any other language. Children whose parents reported using any language other than Welsh and English were not involved in this study. Parents were also asked to note whether or not their child had any special educational needs or learning difficulties. Those children whose parents answered yes to this question were not included in the study. The background questionnaire also asked parents to estimate when their child began to speak both Welsh and English. Parents of children in English medium schools were also asked these questions about Welsh to establish that those children in English medium schools had no exposure to Welsh at home. Finally, parents were asked to note their current occupation and the highest level of education achieved by each.

From this information, the maternal and paternal SES of each child was established. Parents' employment was categorised in four groups: unemployed, low SES (unskilled labour), medium SES (skilled labour) and high SES (professional work). Parents were also categorised according to whether they had attended university or had left full time education after school. The home language of each child was calculated by summing the percentage of

Welsh spoken by the parents and dividing by 2. Children whose parents spoke less than 40% of Welsh to them were classed as coming from (predominantly) English speaking homes, those whose parents spoke between 40% and 60% were classed as coming from English and Welsh speaking homes and those whose parents spoke Welsh 60% of the time or more were classed as coming from (predominantly) Welsh medium homes. The number of children whose parents spoke between 40% and 60% English at home was very low and so these children were not included. In this way, a meaningful difference in the amount of exposure to languages children in each group had received was ensured.

Children's ages were determined using their dates of birth and the date of testing. Children younger than 6 years and 6 months or older than 12 years and 6 months were excluded from the study. Children between the ages of 9 years and 10 years and 6 months were also excluded to distinguish between the primary and secondary age groups. These age groups were chosen because they were near the transition points between the foundation phase and key stage 2 and between key stages 2 and 3. These ages also represented children in primary school at the youngest age that could be measured using the standardised measures chosen for this study and the age group which the Welsh Assembly Government has noted is the age by which children in Welsh-medium schools should have achieved comparable levels in both Welsh and English literacy. The language of instruction of the school each child attended was determined through examination of local authority documents and discussion with head teachers.

Neale Analysis of Reading Ability – Revised (NARA-II) (Neale, 1997)

Every child was asked to complete a measure of English reading ability. To do this, Neale Analysis of Reading Ability (NARA-II) was chosen as a standardised test that could be easily administered to children. The NARA-II is an assessment of reading ability which

provides measures of reading accuracy, reading comprehension and reading rate. The first edition of this widely used measure was published in 1958 in Australia. It was revised in 1980 and, in 1988, the British Edition was produced (Neale, 1997). The British Edition exchanged Australian terms for words that were more common in Britain to ensure children in the UK were not disadvantaged by unfamiliar terms.

The NARA-II provides standardised measures of reading accuracy, reading comprehension and reading rate. The edition used in this study was standardised according to the results of a greater number of children aged between 6 years and 12 years 11 months of age than were used in standardisations of previous editions. The children involved in this standardisation sample were all recruited during the summer term of 1996 (Neale, 1997) making these scores recent enough to ensure the performance of children today is likely to be similar.

Administration.

The NARA-II consists of a booklet of stories that increase in terms of the number of words used in the story and the level of challenge posed to comprehension by the text. All children were asked to read each story aloud beginning with the simplest passage. As the participant read the passage, the researcher noted when errors were made on the answer sheet and recorded the nature of each of these errors. One point was awarded for each word misread, omitted or mispronounced. Each passage has a permissible number of errors associated with it. If the number of errors made whilst reading the passage equated to or surpassed the number of permissible errors for that passage, administration of the task was discontinued and the results of the final passage read were not included in calculations of ability. If the permissible number of errors was not surpassed, children were asked to continue until they had read the sixth and most difficult passage. Accuracy scores were

calculated for each passage by subtracting the number of errors made from the number of permissible errors. The total of these scores provided a raw measure of reading accuracy which was then transformed into a standardised score by using the data provided with the NARA-II. These tables provided information on a standardised score for each participant according to their age.

Once the child had completed reading the first passage, they were asked a series of questions to assess to what degree they had understood what was being said in the story. One point was awarded for each correct answer. The total number of questions answered gave a measure of the child's reading comprehension ability. This score was transformed into a standardised score using the transformation tables provided with the NARA-II. These standardised scores are used in all analysis of children's English reading accuracy and comprehension throughout the research unless otherwise stated.

English Written Task

All children were asked to complete a brief writing task in English to assess their English word production and spelling abilities. After consultation with Liz DuPré at the Miles Dyslexia Centre, it was decided it would be best to use a task based on the one-minute writing task described in the Dyslexia Screening Test (Fawcett & Nicolson, 2004). One minute was believed to be too short a time for children to fully demonstrate their ability to write in English and so this time was increased to three minutes to account for this. Children were given one of two topics, either 'What I do in the Morning' or 'The Alien Who Couldn't Brush His Teeth'.

Administration.

Children were given a plain piece of paper and were told they would have three minutes in which to write a story about one of the two topics noted above. Younger children were asked to perform this task individually with the administrator but older children completed this task at the same time as each other. When older children were asked to complete this task in groups, the administrator explained that they would need to be quiet and that they should write their own words and not ask anyone else to help them. The researcher used a stopwatch with a countdown function and alarm to measure the three minutes. Children were asked to stop writing as soon as the time had elapsed regardless of whether they had finished the story or the sentence they were writing. Children were not required to use the entire time if they did not feel able but those children that did stop writing before the three minutes had ended were encouraged to try to think of more to write.

The texts produced were scored in two ways. Firstly, the number of words written by each child was counted to provide a total word count for each text. A score of one was allocated to each complete word written. One point was awarded for each number written or for the time when it was written in digits (e.g. 7.30am was considered to be one word). Words that had been crossed out were not awarded a point. The total number of points was then calculated.

Secondly, the number of errors made was calculated to provide an overall error count for each text. Each letter that was incorrect or absent within a word was awarded a score of one, meaning more than one error could be made in each word. This allowed for more accurate comparisons of ability.

Pilot.

Administration of the written task was straightforward and no difficulties were encountered with explaining the task. Occasionally, younger children would ask for help with spelling or sentence structure. This was dealt with by responding with *'how do you think it's spelled?'* or *'do you think you can try to spell it yourself?'* A few minor, unforeseen difficulties were encountered during the scoring of the task. Firstly, some common terms were written by some children as one word and by others as two. For example, some children wrote *'toothpaste'* while others wrote *'tooth paste'*. In this marking of these tasks, each word was treated in the same way as the participant had treated them. Therefore *'toothpaste'* would score one point but *'tooth paste'* would score two points. This would also affect the mean word length calculation but this method provided the best reflection of the participant's individual use of written language.

Standard Progressive Matrices – Plus Version (SPM+) (Raven, 1998)

To examine whether reading ability is related to IQ, children's IQ was measured as part of the study. However, many measures of IQ, like the Wechsler Intelligence Scale for Children (Wechsler, 2004) and the National Adult Reading Test (Nelson, 1982), rely heavily on verbal ability. Since this study aimed to include children of a variety of literacy abilities, it was felt that using an IQ measure dependent upon knowledge and understanding of words was likely to skew the results by penalising children whose vocabulary was compromised by their reading difficulties. Furthermore, some of these tests are exhaustive and therefore take a long time to administer. Given the number of other measures being used in this study, a shorter test would be more useful both in ensuring children's attention was maintained throughout and in certifying the most efficient use of the time administrators were allowed to be in the school.

The Standard Progressive Matrices – Plus Version (SPM+) (Raven, 1998) was designed to provide a standardised measure of IQ that is not related to verbal abilities. It is described as ‘a nonverbal test of ability, and not a test of nonverbal ability’ (Raven, 1998, p. 2). The SPM+ is one in a series of Progressive Matrices developed by John Raven. The first version of the Standard Progressive Matrices was introduced in 1938 and, since that time, the Raven’s Progressive Matrices have come to be widely used by clinicians and researchers. Several different versions have been constructed, including the Coloured Progressive Matrices, the Advance Progressive Matrices and the SPM+ (Raven, 1998). The SPM+ was developed in response to the finding that each generation was improving by one standard deviation in those areas measured by the Standard Progressive Matrices, causing a ceiling effect (Flynn, 1987). The SPM+ therefore includes items that are more challenging than those that were included in the original Standard Progressive Matrices (Raven, 1998).

The items in the SPM+ begin at a simple level with repetitive picture patterns and become progressively more difficult as they progress with later patterns relying on mathematical knowledge and visuo-spatial ability. The 60 items in the SPM+ are divided into five sections of twelve items. Each of the twelve items in a section rely on the same kind of mathematical or visuo-spatial rules to solve them but later items are more difficult than earlier items within the group. Therefore, it is possible to learn these rules in the earlier and easier items in a section and employ these rules throughout the section to help find answers (Raven, 1998).

The SPM+ has been standardised on the scores of 926 children aged between seven and eighteen years in the United Kingdom (Raven, 1998).

Administration.

Every child that participated in this study was asked to complete the Standard Progressive Matrices. The SPM+ consists of a series of 60 picture patterns with a part of the pattern missing. Beneath each pattern are 6 or 8 pieces the same shape as the missing section but only one contains the correct picture to complete the pattern. Children were asked to select the piece which correctly completes the pattern by colouring in the corresponding, numbered piece on the answer sheet (older children) or by saying the number that corresponded with the correct piece to the administrator (younger children). Children scored 1 point for each correct answer and 0 points for each incorrect answer. The total number of correct answers was then compared with the standardisation tables in the SPM+ manual according to participant's age. This produced a standardised score of IQ.

Pilot.

The SPM+ was piloted with a small number of children ($N = 10$) between 7 and 11 years of age. Those aged 7 – 8 years found this task to be extremely taxing and time consuming. The SPM+ manual suggests that it can take up to forty minutes to administer the test and, with this group, it appeared to take considerably longer. This added a significant amount of time to the total amount of time children were asked to spend engaged in this research. In some cases, indeed, the difficulty of later items was experienced as distressing by some children. Administration was ceased as soon as any child showed evidence of being upset by the task.

Due to the number of tasks presented to the children during the test administration and the need to maintain engagement, it was decided that a subgroup of the items in the SPM+ would be presented to children in the primary schools group. This decision was taken to

ensure children did not lose engagement with the tasks administered to them and to reduce any stress felt by the children.

Six items from each section of twelve were chosen for the subgroup. These items were chosen to be representative of the sections so that the development from less to more challenging was preserved. When trialled, children in the youngest age group found the task less tiring and were more likely to remain engaged. While this change meant standardised scores of the nonverbal abilities of children in this age range were not determinable, it was felt this was a worthwhile sacrifice to ensure children did not experience unnecessary distress or exhaustion. Older age groups did not appear to have difficulty engaging with the full SPM+

These changes meant that the standardised scores could no longer be used. However, in order to allow for some comparison of results between age groups, the percentage of correct responses made to the items administered in the SPM+ was calculated. By calculating a percentage of correct answers, the discrepancy caused by the younger group's responding to 30 items and the older group's responding to twice as many was eliminated. This percentage was also used to categorise children according to their ability, with those children who scored more than 40% correct answers being classed as 'High IQ' and those who scored less than 40% were classed as 'Low IQ'. The 40% correct mark was chosen as this was the nearest ten to both the mean (42.7%) and the median (43.3%) for children's results, providing nearly equal numbers in each group. It should be noted, however, that these classifications are solely used as a convenient shorthand for this study and do not signify a clinically significant measure of 'higher than average' or 'lower than average' IQ.

English Rapid Automatized Naming (ERAN)

While traditional measures of literacy (i.e. reading and writing tasks) are reliable measures of these abilities, they may be complicated by bilingualism. As already mentioned, orthographies vary not only between languages but also between reading and writing abilities within languages (Brooks & Kempe, 2012; Rayner, Foorman, Perfetti, Pesetsky & Seidenberg, 2001). Given this, a measure of literacy that is not reliant upon any standard orthography could provide interesting information. Following a talk by Maggie Snowling at the Newcastle Child Language Seminar (2011), it was recommended that a measure of Rapid Automatized Naming (RAN) was included. Research has also found that people with dyslexia are slower when asked to rapidly name stimuli presented to them (either pictures or numbers or letters) (Ackerman & Dykman, 1993; Badian, 1995; Bowers, Steffy, & Tate, 1988; Fawcett & Nicolson, 1994; Hulme & Snowling, 2013; Wolf & Bowers, 1999). The ability to name stimuli quickly is usually measured using the Rapid Automatised Naming (RAN) task which was developed by Denckla and Rudel (Denckla, 1972; Denckla & Rudel, 1974, 1976). Originally, the RAN task was assumed to be associated with phonological development or processing speed (Hulme & Snowling, 2013). However, more recently it has been hypothesized that the RAN task identifies more general, lower level difficulties with visual or processing abilities (Jones, Obregon, Kelly, & Branigan, 2008; Wolf & Bowers, 1999). Use of the RAN in eye-tracking experiments has also suggested that the difficulty experienced by people with dyslexia is due to difficulties in producing the word rather than difficulties in identifying the stimulus (Jones, Obregon, Kelly, & Branigan, 2008). While processing speed is also affected by conditions such as attention deficit hyperactivity disorder (ADHD) and dyspraxia (Grant, 2010) there is some evidence that children with reading difficulties experience more difficulty with this task than those with ADHD (Semrud-Clikeman, Guy, Griffin & Hynd, 2000). Importantly, however, when the RAN task uses

pictures, the 'reading' involved in completing the task does not rely on any orthography. While transparent orthographies have been described as 'masking' some of the literacy difficulties shown by children with dyslexia (Paulesu *et al.*, 2001) it does not hide all of the difficulties they experience (Thomas & Lloyd, 2008). The RAN potentially provides a means to examine these underlying abilities without potential interference from orthographic differences either between languages or mode of delivery. All in all, therefore, the RAN task seems to simulate the reading process in miniature, possibly offering a quick screening tool for difficulties with literacy.

The original task developed by Denckla and Rudel (1974) has been adapted over the years since then. One of the most widely used versions is part of the Dyslexia Screening Test (DST) (Fawcett & Nicolson, 2004) which is a tool for assessing English speaking children suspected of having dyslexia. The DST contains a RAN task which is referred to as Rapid Naming and this was used to assess the RAN abilities of children in English. In this study, this task is referred to as the English Rapid Automatised Naming task (ERAN). This test consists of a series of pictures of twenty common objects which are repeated once.

Administration.

Children were shown the sheet of pictures and told that each of the pictures had an English name. The researcher then named each of the twenty pictures while pointing to the appropriate picture. It was then explained to the participant that they must name each of the pictures in turn, beginning at the top left of the sheet and working across each row to the bottom right. They were asked to name the pictures as quickly as possible. Children were timed from the naming of the first picture until the naming of the final picture. Each picture named incorrectly was awarded one point and the number of incorrect names were added

together to create an error rate score. A point was not awarded when a picture was initially named incorrectly but the participant went on to correct it.

Pilot.

No significant difficulties were experienced when using the ERAN with children who only spoke English.

Results

Research Question 1:

How do the English literacy abilities of children in selected English-medium and Welsh-medium schools compare?

This experiment compares the English reading and writing abilities of children in English-medium and Welsh-medium schools who participated in this study. While a summary of these results will be provided, a complete discussion of these will be given in the final chapter. The children who participated in this study were drawn from Welsh-medium and English-medium schools in one area of Wales as described above. Given the political, social and linguistic variations across local education authorities and communities in Wales, it should be remembered that these results do not necessarily reflect the situation in all Welsh-medium and English-medium schools in Wales.

Reading accuracy.

A two-way ANOVA with standardised scores of English reading accuracy as the dependent variable and age, gender and school language as the independent variables was performed on the data. These independent variables remain constant for each two-way ANOVA conducted in this section. This analysis found a significant main effect of school

language ($F(1, 104) = 8.93, p = .003$) but no significant main effect of age or gender. The mean, standardised scores of English reading accuracy for the children in English-medium and Welsh-medium schools are shown in Figure 5-1. A significant interaction was found between school language and age ($F(1,104) = 17.33, p < .001$).

As can be seen in Figure 5-1, the children from English-medium schools performed significantly better than children from Welsh-medium schools when asked to read short, English texts of increasing difficulty. The children from Welsh-medium schools made significantly more errors while reading these passages. Interestingly, whilst the mean score for each group was below the NARA-II standardisation mean of 100, the overall mean score for both groups was well within the 'norm' for the child's age (i.e., within the range of 85 to 115 or within 1 full standard deviation below and above the mean).

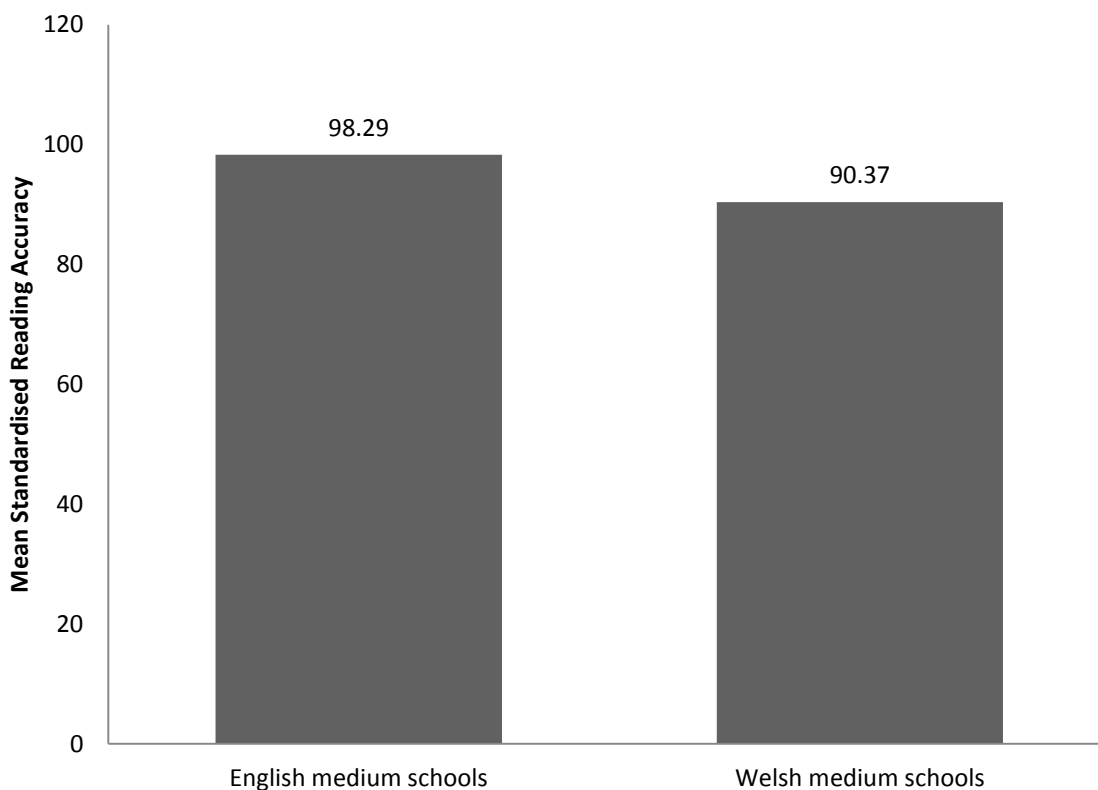


Figure 5-1 Graph showing the mean standardised English reading accuracy scores of children from Welsh and English medium schools.

The interaction between age and school language was investigated using one-way ANOVAs comparing the standardised reading accuracy scores of children in Welsh-medium and English-medium schools according to their age group (older or younger). These found that while a significant difference existed between the scores of the younger children in Welsh-medium and English-medium schools in this study ($F(1,60) = 26.13, p < .001$), no significant differences existed between the scores of the older children according to the language of instruction in their schools. These results are shown in Figure 5-2.

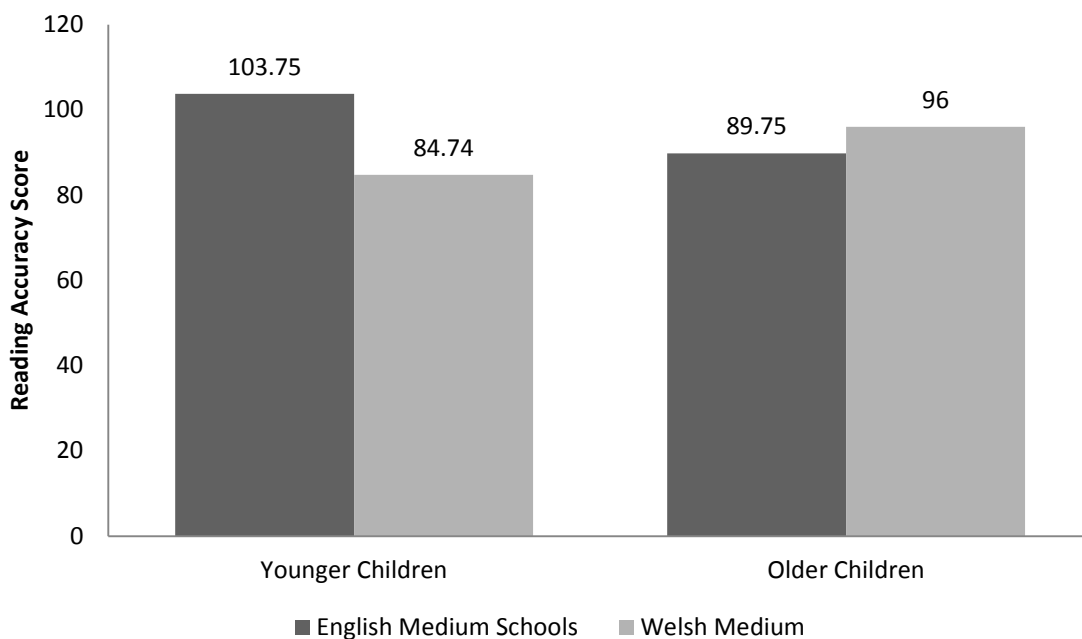


Figure 5-2 Graph showing the mean, standardised English reading accuracy scores of older and younger children in English medium and Welsh medium schools.

As can be seen in Figure 5-2, younger children in English-medium schools significantly outperformed younger children in Welsh-medium schools. This is, perhaps, to be expected as younger children in Welsh-medium schools have only recently been introduced to formal instruction in English literacy. By the older ages, this difference has levelled out, with both groups performing within the standard range for their age. This

suggests that the children in these Welsh-medium schools have achieved similar levels of English literacy as their peers in English-medium schools by the beginning of secondary school. However, Figure 5-2 also suggests that this is as much to do with an improvement in the scores of children in Welsh-medium schools as with a decrease in the scores of children in English-medium schools.

It should also be noted that the mean score for younger children in Welsh-medium schools (given in Figure 5-2) is marginally more than 1 standard deviation below the mean. Were a single child to be assessed as scoring so low on a test of reading accuracy, it would be used as an indicator that the child had significant difficulty with reading, such as dyslexia.

Reading comprehension.

A two-way ANOVA with standardised scores of English reading comprehension as the dependent variable was performed on the data. This analysis found a significant main effect of school language ($F(1,102) = 6.06, p = .02$) but no main effect of age or gender. Analysis of the mean scores showed that children in English-medium schools have significantly better levels of English reading comprehension ($M = 93.68$) than children in Welsh-medium schools ($M = 87.43$). However, both these groups performed within the normal range.

A significant interaction was found between school language and age ($F(1,102) = 6.32, p = .01$) but no other significant interactions were found. This was investigated further by using one-way ANOVAs. As was the case with reading accuracy, younger children in English-medium schools significantly outperformed younger children in Welsh-medium schools ($F(1,58) = 13.92, p < .001$). No significant difference between the scores of older children in English-medium and Welsh-medium schools was found. These results are shown in Figure 5-3.

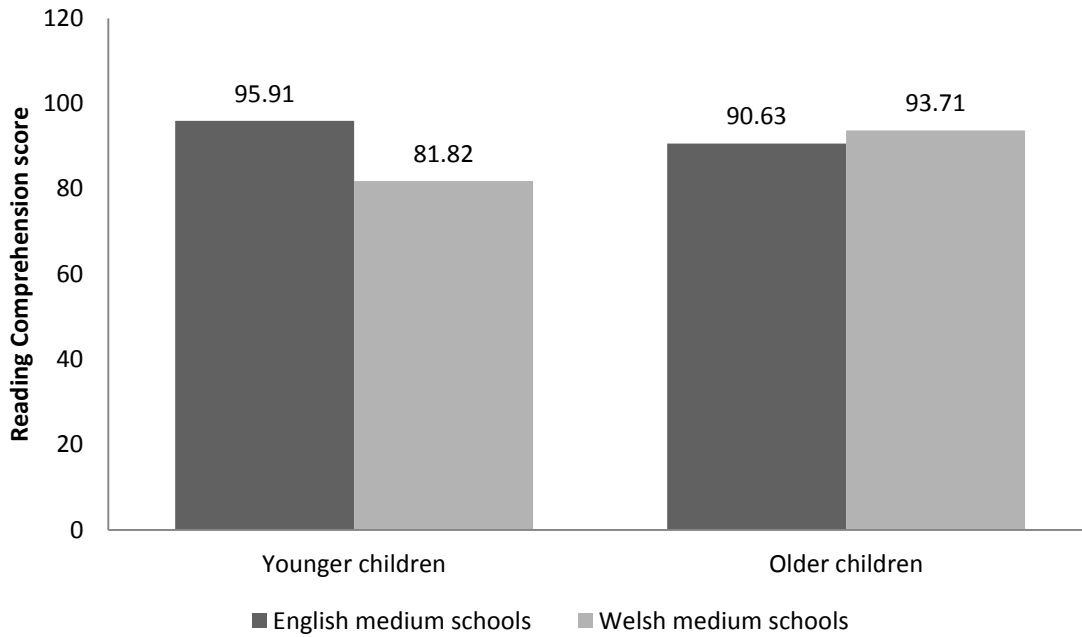


Figure 5-3 Graph showing the mean, standardised English reading comprehension scores of children in English and Welsh medium schools.

Interestingly, Figure 5-3 shows that older children in Welsh-medium schools performed marginally better (in the region of 3 points) than older children in English-medium schools, which also echoes the findings for English reading accuracy. These findings also show that, while older children outperformed younger children in Welsh-medium schools, the standardised scores of older children in English-medium schools are lower than those of younger children, suggesting they are performing less well for their age.

3 minute written task – word count

A two-way ANOVA with the number of words written in the 3 minute English written task as the dependent variable found no significant main effect of school language. However, significant main effects of age ($F(1,94) = 97.73, p < .001$) and gender ($F(1,94) = 4.10, p = .046$) were found. Inspection of the mean scores showed that older children produced more words on the English written task ($M = 21.79$) than younger children ($M =$

51.50). It also revealed that boys wrote significantly fewer words ($M = 29.24$) than girls ($M = 41.33$).

Furthermore, a significant interaction between school language and age ($F(1,94) = 12.44, p = .001$) and between school language and gender ($F(1,94) = 5.27, p = .02$) was found.

This interaction was analysed in more detail using one-way ANOVAs comparing the number of English words written by the children in Welsh-medium and English-medium schools in both age groups. These found that the younger children in English-medium schools wrote significantly more words than the younger children in Welsh-medium schools ($F(1,50) = 16.12, p < .001$) but the older children in Welsh-medium schools wrote significantly more words than the older children in English-medium schools ($F(1,48) = 4.27, p = .044$) as shown in Figure 5-4.

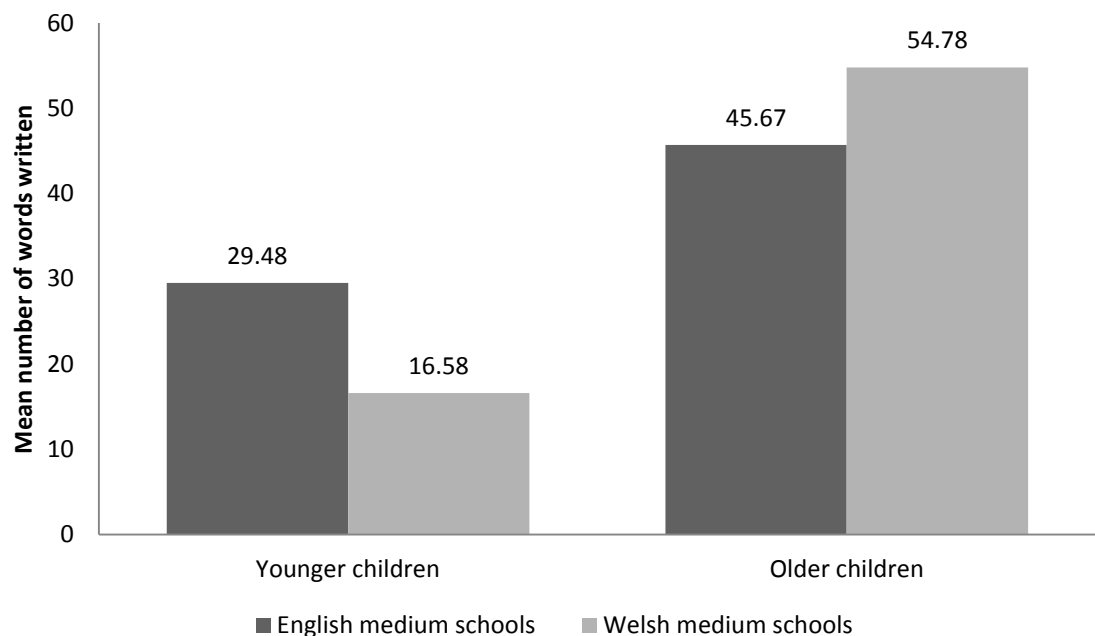


Figure 5-4 Graph showing the mean number of words written by older and younger children in Welsh medium and English medium schools.

These results mirror those for reading accuracy and reading comprehension. While the findings suggest the older children in Welsh-medium schools have outstripped their peers in English-medium schools, it should be noted this finding is not as strongly significant as that of younger children. Even so, the children in Welsh-medium schools have clearly caught up with their English-medium counterparts as is expected of them by the Welsh Government.

3 minute written task – errors

A two-way ANOVA with the number of errors made in the English written task as the dependent variable showed a significant main effect of school language ($F(1,92) = 18.41, p < .001$) and age ($F(1,92) = 28.98, p < .001$) but not of gender. Inspection of the mean number of errors made in the English written task showed that older children made significantly fewer errors ($M = 3.68$) than younger children ($M = 13.50$) as is to be expected given the developing nature of literacy skills. Inspection of these scores also showed that the children in English-medium schools made significantly fewer errors ($M = 4.49$) than their peers in Welsh-medium schools ($M = 11.21$). A significant interaction was found between school language and age ($F(1,92) = 13.38, p < .001$) but no other significant interactions were found. One-way ANOVAs were performed to explore this interaction. These showed that the younger children in English medium schools made significantly fewer errors in the English written task than the younger children in Welsh medium schools ($F(1, 48) = 19.71, p < .001$). No significant difference was found between the scores of the older children in Welsh-medium and English-medium schools. These results are shown in Figure 5-5.

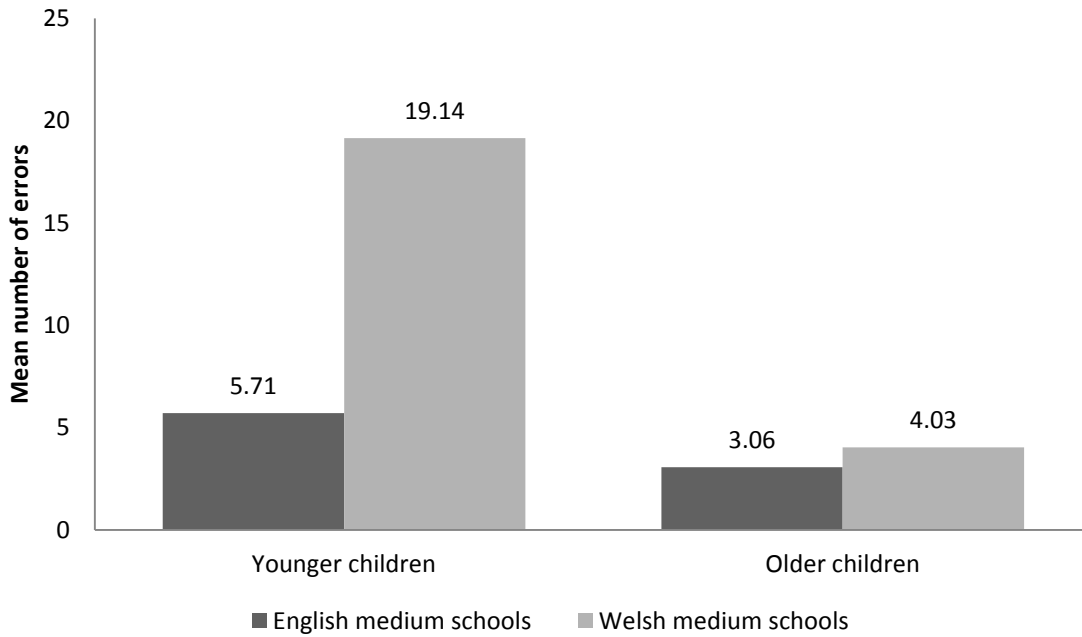


Figure 5-5 Graph showing the mean number of errors made by younger and older children in Welsh and English medium schools in an English written task.

As can be seen, the younger children in these Welsh-medium schools make almost four times as many errors when writing in English as the younger children in the English-medium schools in this study. However, these results suggest that, despite the large initial difference, children in these Welsh-medium schools have caught-up with their peers in English-medium schools by the beginning of secondary school. Again, these findings are in line with those that have already been described for English reading accuracy, reading comprehension and the number of words produced.

English Rapid Automatised Naming (ERAN)

A two-way ANOVA with the time taken to complete the ERAN task as the dependent variable found a significant main effect of age group ($F(1, 86) = 18.02, p < .001$) and school language of instruction ($F(1, 86) = 8.30, p = .005$). No significant interactions were found. Analysis of the mean scores showed that younger children took significantly longer ($M =$

48.83s) to complete the ERAN than older children ($M = 35.44s$) as would be expected. The mean scores also showed that the children in Welsh-medium schools took significantly longer to complete the ERAN ($M = 104.76s$) than the children in English-medium schools ($M = 67.08$).

However, a two-way ANOVA with the number of errors made on the ERAN as the dependent variable and age, gender and school language as the independent variables found a significant main effect of age ($F(1, 86) = 5.44, p = .022$) but no other main effects or interactions. These results indicate that, while younger children make more errors ($M = 1.16$) on the ERAN than older children ($M = 0.20$), there is no difference between the number of errors made by children in these Welsh-medium and English-medium schools.

Research Question 2:

Do factors such as language exposure, SES, gender and birth order affect performance on measures of English literacy?

This experiment examines the impact of several factors on the English literacy performance of children in selected schools in Wales.

Parental SES

i) Parental Income

A multivariate ANOVA with English reading accuracy, reading comprehension, written task word count, error rate and ERAN as the dependent variables and mother's and father's SES, and school language group as the between subjects variables was performed on the data.

No significant main effect of mother's or father's SES was found for any of the measures of English literacy.

A significant interaction of mother's SES and school language was found for English reading accuracy ($F(1, 56) = 4.78, p = .032$). No other significant interactions were found.

The interaction between mother's SES and school language was investigated further using a series of one-way ANOVAs. These revealed a significant difference between the English reading accuracy scores of the children in Welsh-medium and English-medium schools whose mothers were rated as being of high SES. These results are shown in Figure 5-6.

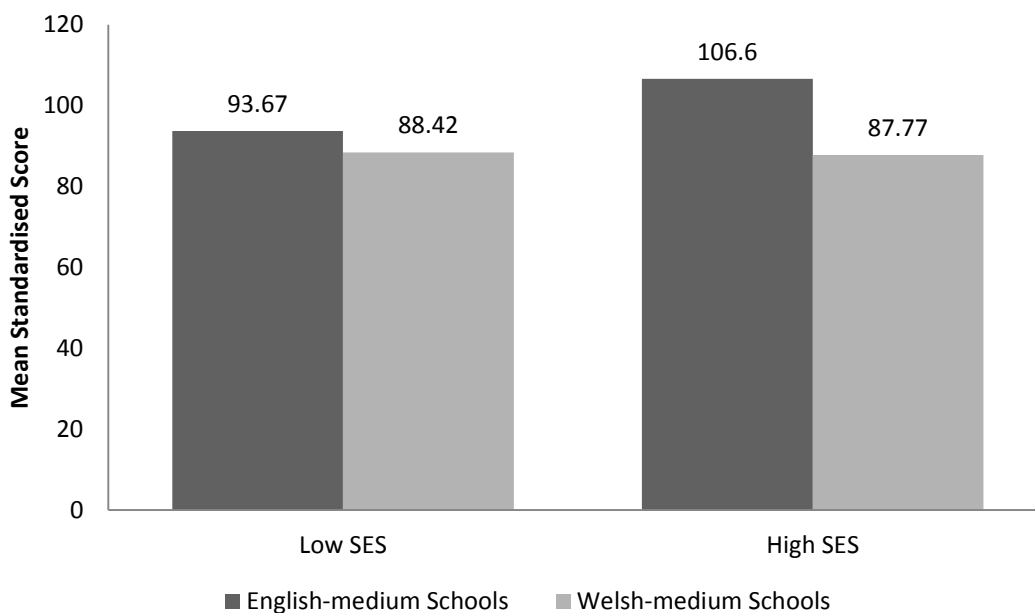


Figure 5-6 Graph showing the mean, standardised English reading accuracy scores of children attending Welsh-medium and English-medium schools according to their mother's SES.

As can be seen, the children of high SES mothers attending English-medium schools significantly outperformed those of high SES mothers attending Welsh-medium schools in

both tasks. However, children of low SES mothers performed to the same level regardless of the language of instruction at their school.

ii) Parental Levels of Education

A multivariate ANOVA with English reading accuracy, reading comprehension, written task word count, error rate and ERAN as the dependent variables and mother's and father's level of education and school language group as the between subjects variables was performed on the data. Three levels of parental education were allocated: Compulsory (up to GCSE), Further (A-Level/GNVQ) and Higher (Undergraduate degree or above).

A significant main effect of mother's level of education was found for the ERAN completion time ($F(2, 57) = 9.27, p < .001$). Similarly, a main effect of father's level of education was found for this same measure ($F(2, 57) = 4.17, p = .02$). However, post-hoc analysis failed to identify where this significant difference lay. Figure 5-7 shows the mean ERAN times of children according to mother's and father's level of education. As can be seen, children whose fathers had undertaken further education were slower than those who had achieved compulsory or higher levels of education. Children whose mothers had completed only the compulsory levels of education were quicker in ERAN tasks than other children.

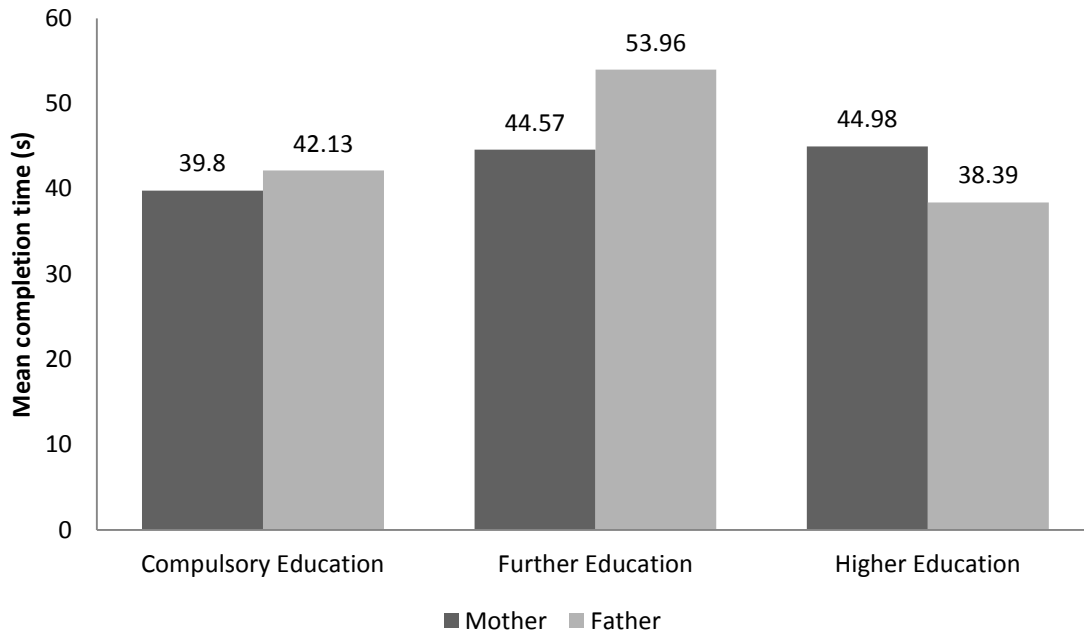


Figure 5-7 Graph showing the mean time taken to complete the ERAN task according to mother's and father's level of Education.

No significant interactions were found between parental levels of education and school language on any measure of literacy. However, a significant interaction between mother's and father's level of education was found for the ERAN completion time ($F(4, 57) = 4.695, p = .002$). This was investigated further using a series of one-way ANOVAs. This found a significant difference between the ERAN completion times of the children according to their father's level of education only when their mother's had achieved an undergraduate degree or higher ($F(2, 32) = 25.14, p < .001$). However, due to the small numbers of children in some of these groups, these results are unlikely to be meaningful.

Non-verbal IQ

A multivariate ANOVA with English reading accuracy, reading comprehension, written task word count, error rate and ERAN as the dependent variables and non-verbal IQ and school language group as the between subjects variables was performed on the data.

Significant main effects of nonverbal IQ were found for the number of words produced in the English written task ($F(1, 67) = 49.85, p < .001$), the number of errors made in the English written task ($F(1, 67) = 15.35, p < .001$), the ERAN completion time ($F(1, 67) = 16.08, p < .001$) and the number of errors made during the ERAN ($F(1, 67) = 6.51, p = .013$). Analysis of the mean scores indicated that lower IQ children produced fewer words ($M = 21.31$) and made more errors ($M = 14.65$) in the English written task than higher IQ children (Word Count: $M = 46.57$, Errors: $M = 4.90$). Lower IQ children also took longer to complete the ERAN task ($M = 51.17s$) than higher IQ children ($M = 35.99s$) and also made more errors (Lower IQ: $M = 1.4$, Higher IQ: $M = 0.21$). These results are as would be expected from previous research concerning IQ and literacy (Plomin, Fulker, Corley, & DeFries, 1997).

A significant interaction of school language group and non-verbal IQ was found for the English written task word count ($F(1, 67) = 7.29, p = .009$) and error count ($F(1, 67) = 7.65, p = .007$). These results are shown in Figure 5-8 and Figure 5-9.

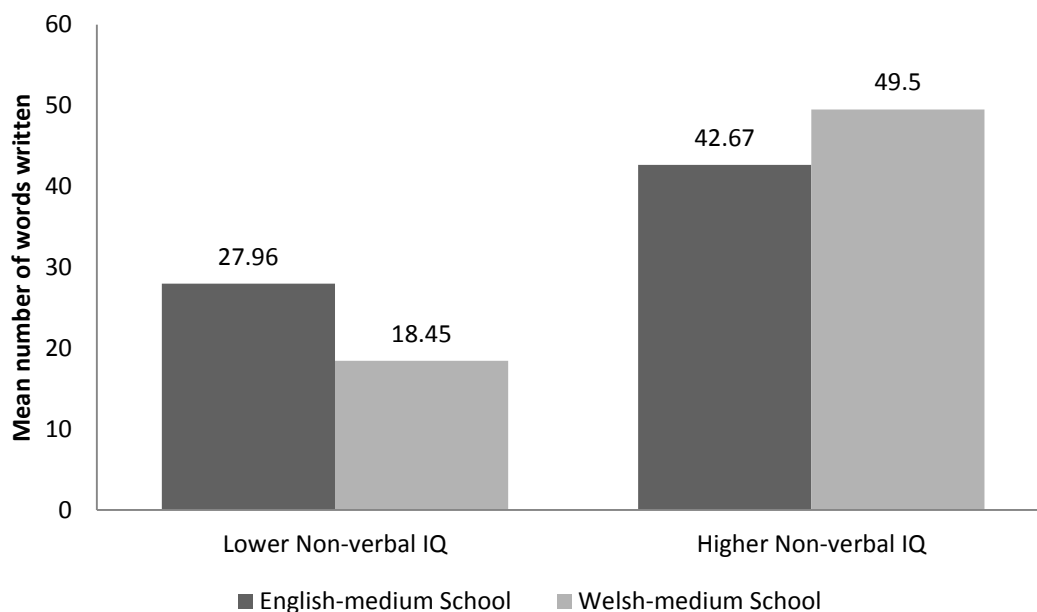


Figure 5-8 Graph showing the mean number of words written in the English written task by children in Welsh-medium and English-medium schools according to their non-verbal IQ.

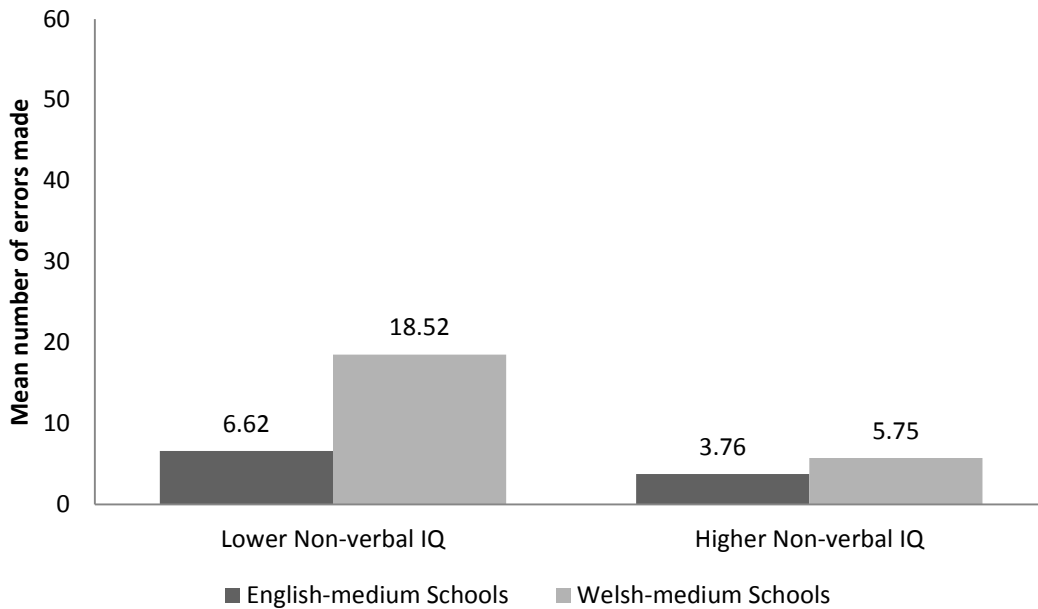


Figure 5-9 Graph showing the mean number of errors made in the English written task by children in Welsh-medium and English-medium schools according to their non-verbal IQ.

Post-hoc analysis indicated that, in both of these cases in this study, the difference between the English-medium and Welsh-medium school children only existed in the lower IQ groups. One-way ANOVAS were used to analyse these results and they found that lower IQ children in Welsh-medium schools produced fewer words ($F(1, 40) = 4.33, p = .044$) and made more errors ($F(1, 38) = 9.297, p = .004$) in the English written task than their counterparts in English-medium schools.

Language Exposure

Previous research has found that greater exposure to a language improves performance in that language (Gathercole & Thomas, 2009; Rhys & Thomas, 2012). Due to the variation in exposure to Welsh and English in the homes of children in Wales, it was

necessary to investigate this further. Children were categorised according to the language of their home and the language of their school (referred to in this study as ‘combined exposure’). Children whose parents reported using Welsh more than 60% of the time were classed as coming from Welsh homes and children whose parents reported using English more than 60% of the time were classed as coming from English speaking homes. This created three groups:

- English home English school (EHES): $N = 42$
- English Home Welsh School (EHWS): $N = 38$
- Welsh Home Welsh School (WHWS): $N = 27$

In each of the ANOVAs detailed below, the independent variables of combined exposure, age and gender were used. Details of the dependent variables are given for each analysis.

English reading tasks.

A multivariate ANOVA with standardised scores of English reading accuracy and English reading comprehension as the dependent variables was performed on the data. This revealed a significant main effect of combined exposure for English reading accuracy ($F(2, 89) = 5.14, p = .008$) and for English reading comprehension ($F(2, 89) = 3.49, p = .035$). This is illustrated in Figure 5-10 below. Post-hoc tests revealed that EHES children and EHWS children performed statistically similarly in both tasks - i.e., there was no difference found between the English reading skills of the children from English speaking homes according to the language of instruction at their schools. However, WHWS children performed significantly less well than EHES children for both English reading accuracy (*Tukey's* $p = .001$) and English reading comprehension (*Tukey's* $p = .014$). That is, children with the least exposure to English performed least well on the task.

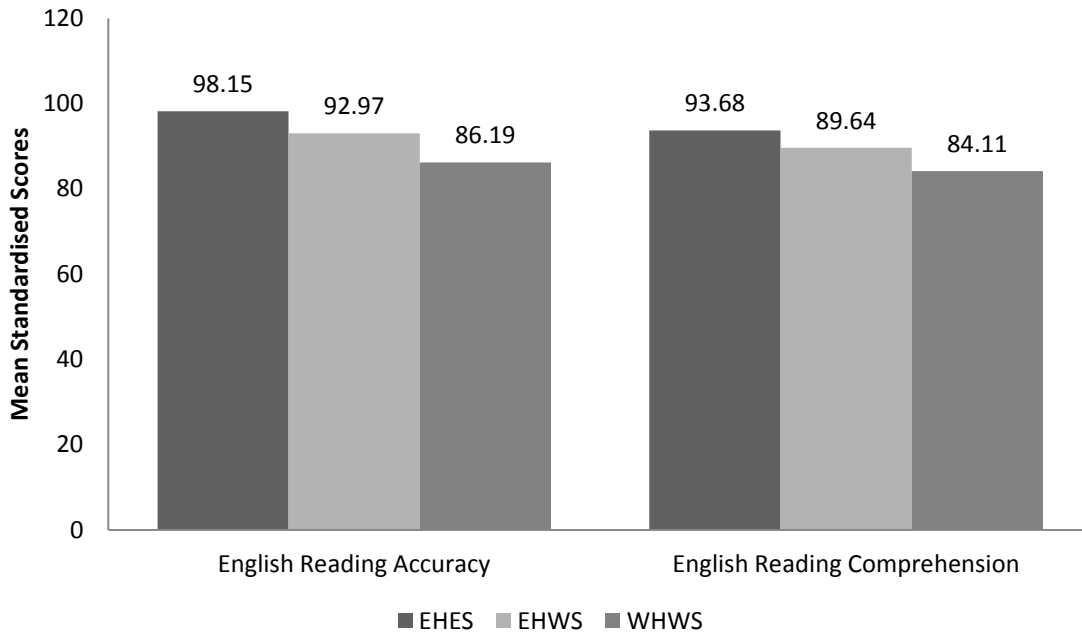


Figure 5-10 Graph showing the mean standardised English reading accuracy and comprehension scores of children according to their combined exposure.

A significant interaction was also found between combined exposure and age group for English reading accuracy ($F(2, 89) = 5.4, p = .006$) but not for English reading comprehension. In order to investigate this further, analysis was performed on the data from younger children and older children separately as detailed below.

1) Younger Children

A one way ANOVA was performed on the data for younger children with standardised English reading accuracy scores as the dependent variable and combined exposure as the independent variable. A significant difference was found between the English reading accuracy scores of children according to combined exposure ($F(2, 57) = 11.59, p < .001$) These results are shown in Figure 5-11 below.

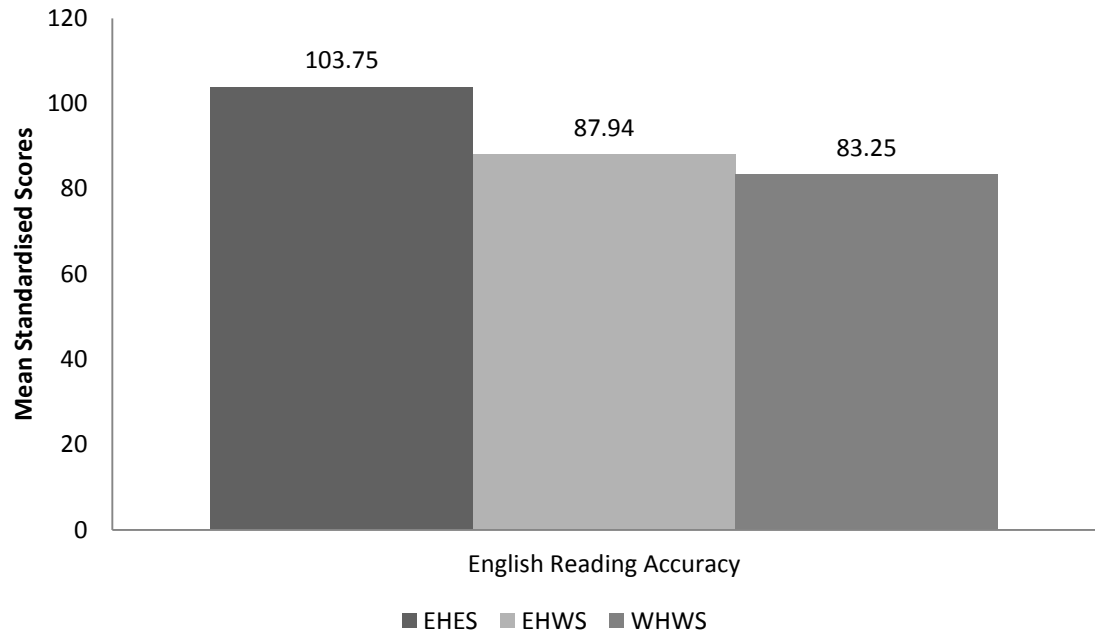


Figure 5-11 Graph showing the mean standardised English reading accuracy of younger children according to their combined exposure.

Post-hoc analyses indicated that significant differences existed between the younger EHES children and both groups of children in Welsh-medium schools. Younger EHES children performed significantly better than the younger EHWS children (*Tukey's* $p = .002$) and the younger WHWS children (*Tukey's* $p < .001$). There was no significant difference between the English reading accuracy of younger EHWS and WHWS children.

2) Older children

A one-way ANOVA was performed on the data for older children. This revealed a significant difference between their standardised scores of English reading accuracy according to combined exposure ($F(2, 44) = 3.94, p = .027$). These results are illustrated in Figure 5-12 below.

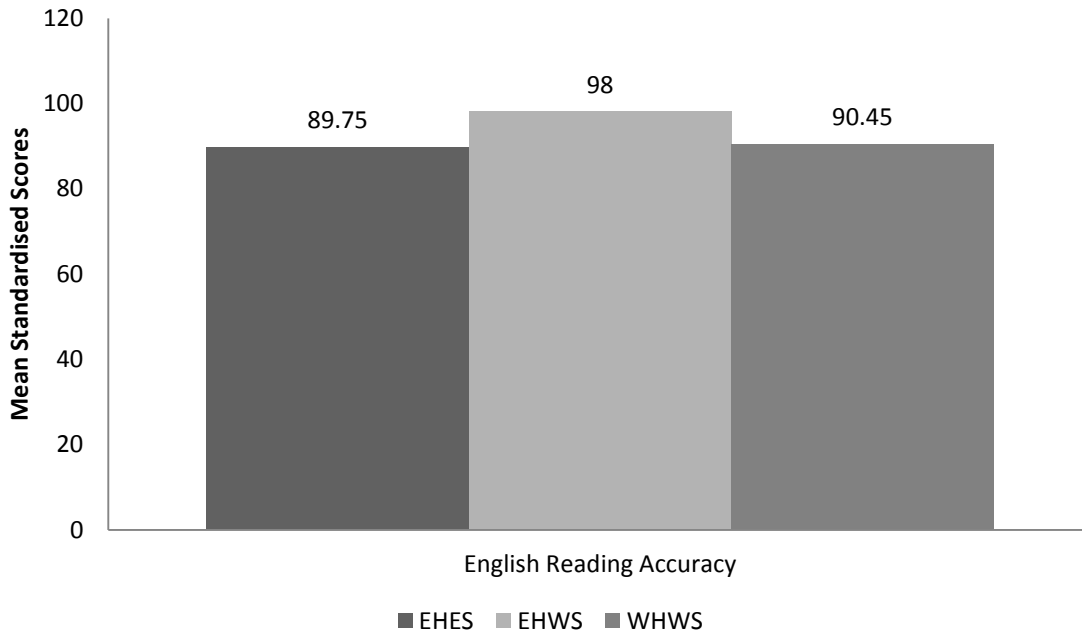


Figure 5-12 Graph showing the mean standardised English reading accuracy of older children according to their combined exposure.

Post-hoc analysis of these results found no significant difference between the standardised English reading scores of older EHES and older WHWS children. However, a significant difference was found between the scores of older EHES and older EHWS children (*Tukey's p* = .036). Interestingly, the older EHWS children outperformed the older EHES children.

Comparing these results with the results of younger children indicates that, while WHWS children are significantly less able to read English accurately than EHES children in these primary schools, in the first year of secondary education there is no difference between these groups. That is, children with greater exposure to English are more able to read English in primary school but there is no difference in secondary school. While this is a reassuring finding and WHWS children should be commended for their ability to match their EHES peers, it should be noted that this is in part due to older EHES children's performance being

much worse in relation to age-matched norms than younger EHES children. Older EHWS children, on the other hand, have much higher age-adjusted scores than their younger counterparts and have outstripped the English performance of their EHES peers.

English RAN tasks.

A multivariate ANOVA with children’s combined exposure, age and gender as the independent variables and completion time and errors made on the ERAN task as the dependent variables was performed on the data.

A significant main effect of combined exposure was found both for the ERAN completion time ($F(2, 74) = 3.68, p = .03$) and number of errors ($F(2, 74) = 4.29, p = .017$). These results are shown in Figure 5-13 and Figure 5-14.

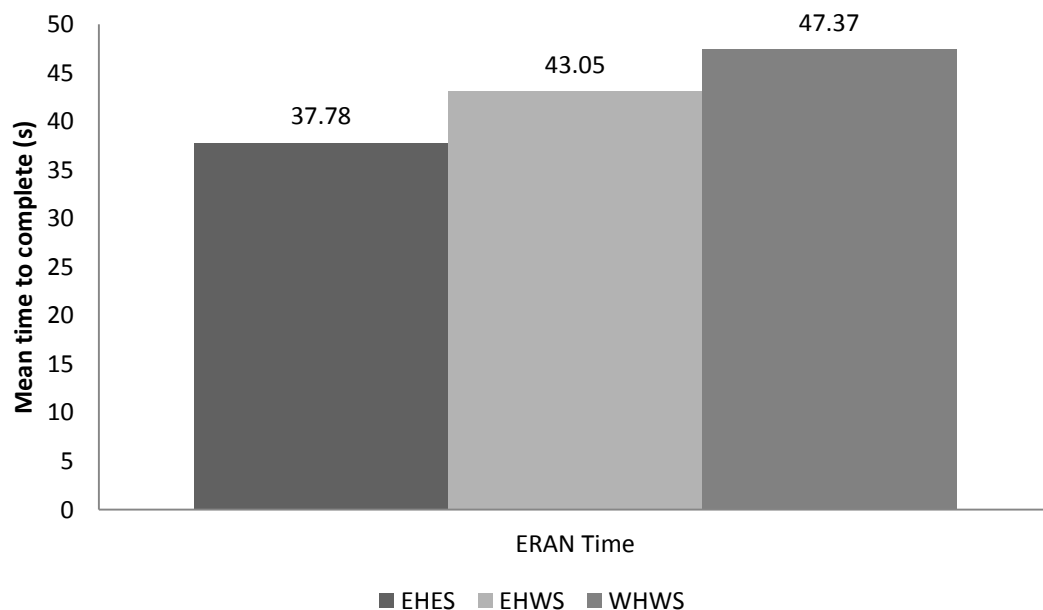


Figure 5-13 Graph showing the mean time taken to complete the English Rapid Automatised Naming task (ERAN) according to combined exposure group.

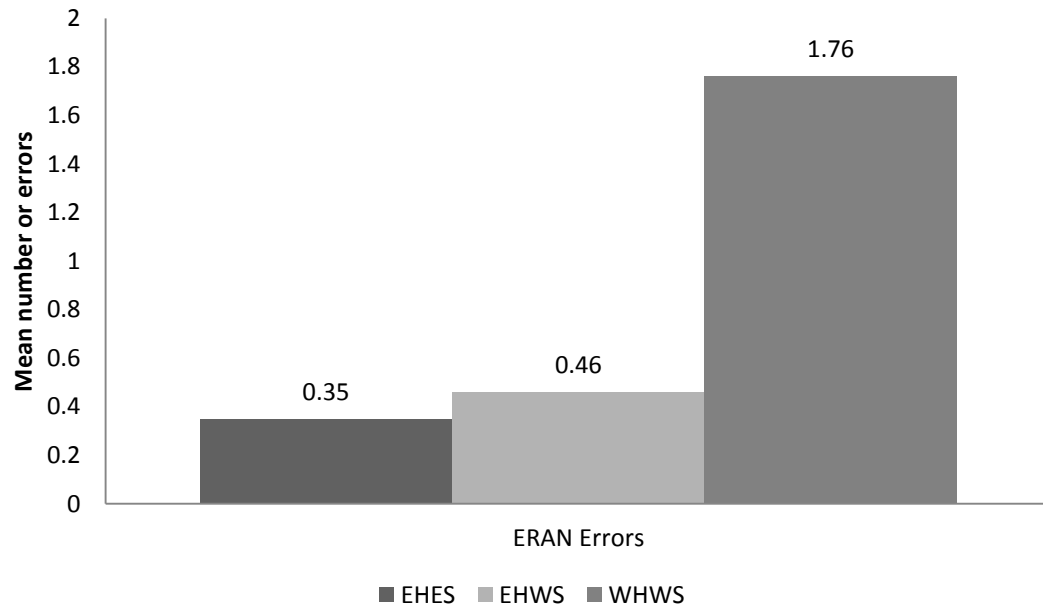


Figure 5-14 Graph showing the mean number of errors made in the English Rapid Automatised Naming task (ERAN) according to combined exposure group.

Post-hoc analysis showed that EHES children took significantly less time to complete the ERAN task than WHWS children (Tukey's $p = .025$). Similarly, WHWS children made significantly more errors in the ERAN task than either EHES children (Tukey's $p = .008$) or EHWS children (Tukey's $p = .023$).

A significant interaction of combined exposure and age group was also found for the number of errors made in the ERAN task ($F(2, 74) = 4.79, p = .011$). This is shown in Figure 5-15.

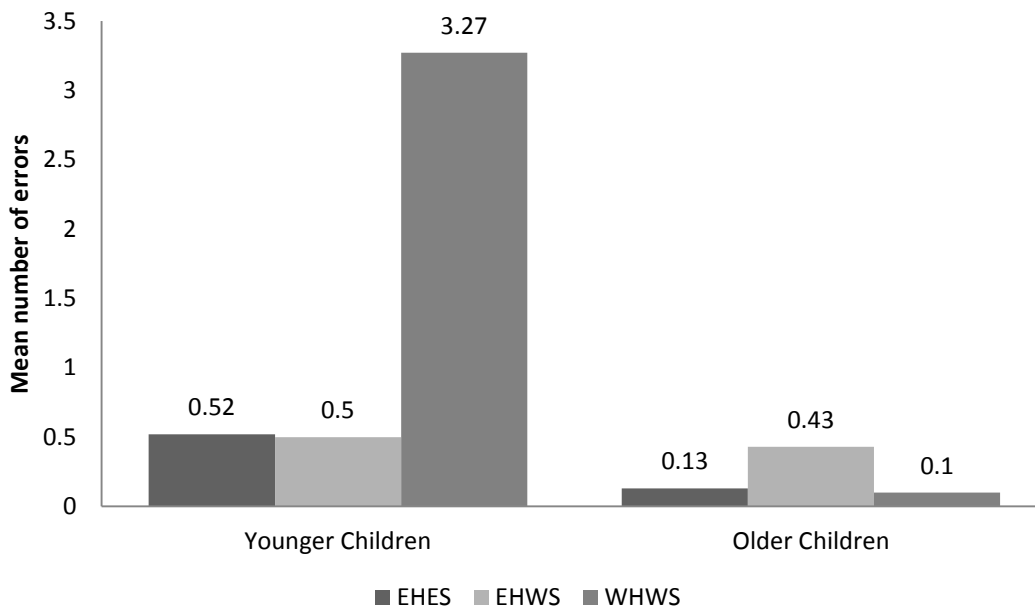


Figure 5-15 Graph showing the mean number of errors made in the ERAN task by younger and older children according to their combined language exposure.

As can be seen in the graph, younger children from Welsh speaking homes who attend Welsh schools make more errors in the ERAN task than any other group in this study. Post-hoc analysis indicated that they made significantly more errors than either younger EHES children (Tukey's $p = .005$) or EHWS children (Tukey's $p = .01$). However, this difference is no longer apparent in secondary school, indicating that these WHWS children have caught up with their peers by that age.

English writing tasks.

A multivariate ANOVA with children's combined exposure, age and gender as the independent variables and Word Count and Error Rate for the English written task as the dependent variables was performed on the data.

A significant main effect of combined exposure was found for the number of errors made in the English written task ($F(2, 80) = 11.99, p < .001$) but not for the word count. Post-hoc analysis indicated that was due to a significant difference between the scores of EHES children and EHWS children (Tukey's $p = .003$) and EHES children and WHWS children (Tukey's $p < .001$). These results are shown in Figure 5-16.

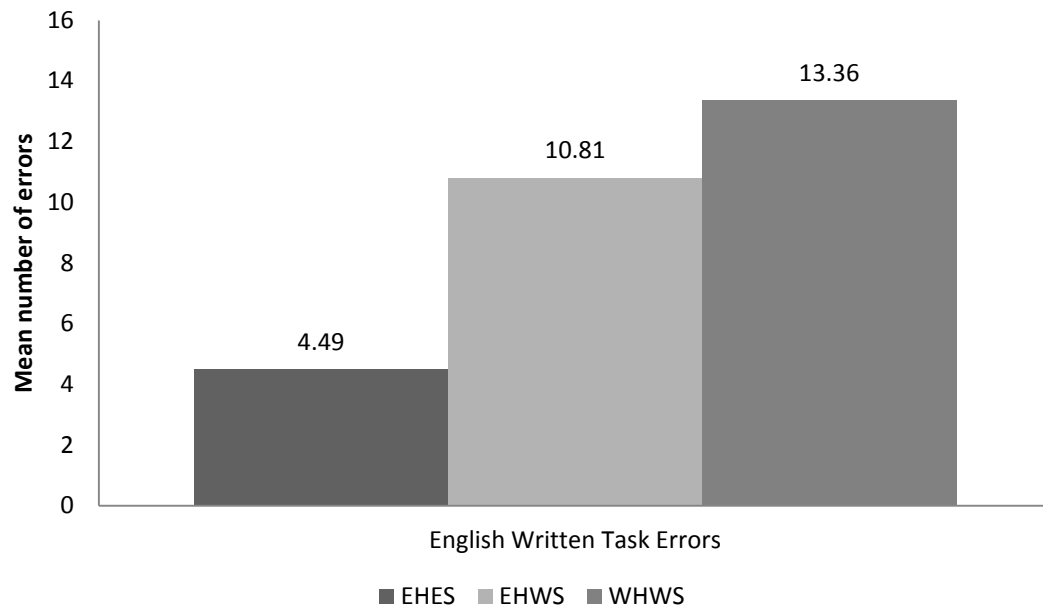


Figure 5-16 Graph showing the mean number of errors made in the English written task by children according to their combined exposure.

As can be seen, children attending English-medium schools from English speaking homes made significantly fewer errors in the English written task than children attending Welsh-medium schools regardless of the language of the home.

A significant interaction was found between combined exposure and age for both the English written task word count ($F(2, 80) = 3.75, p = .028$) and error count ($F(2, 80) = 9.68, p < .001$). One-way ANOVAs indicated that differences in scores existed among younger children for both word count ($F(2, 45) = 7.395, p = .002$) and error count ($F(2, 43) = 11.096,$

$p < .001$) and these were not apparent among older children. These results are shown in Figure 5-17 and Figure 5-18.

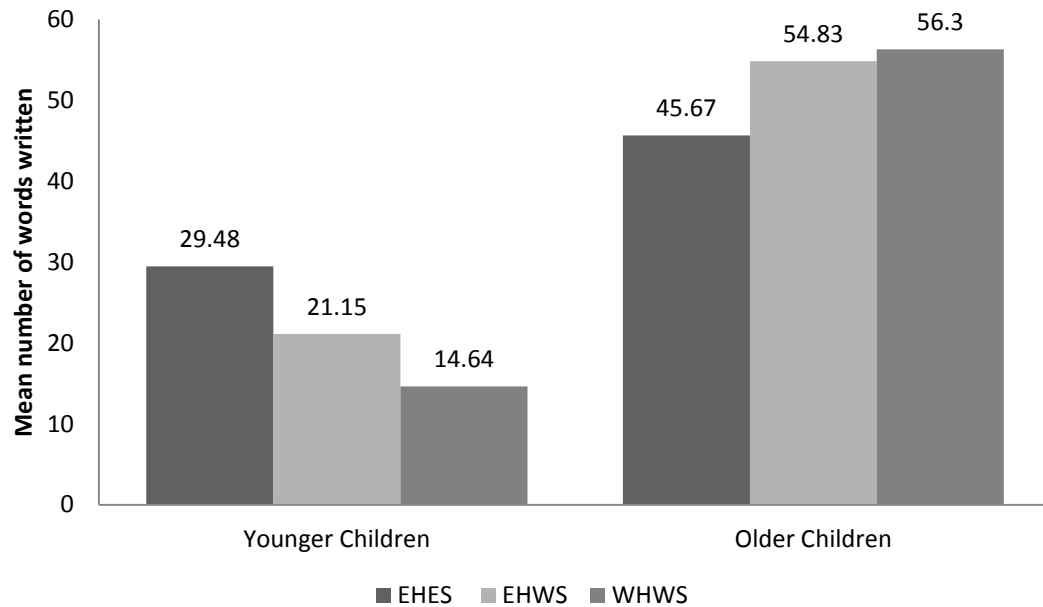


Figure 5-17 Graph showing the mean number of words produced in the English written task by younger and older children according to their combined language exposure.

Post-hoc analysis found no significant differences between the number of words written by older children. However, a significant difference was found between the number of words written by younger EHES children and younger WHWS children (Tukey's $p = .001$). As can be seen from Figure 5-17, younger WHWS children wrote significantly fewer English words than younger EHES children.

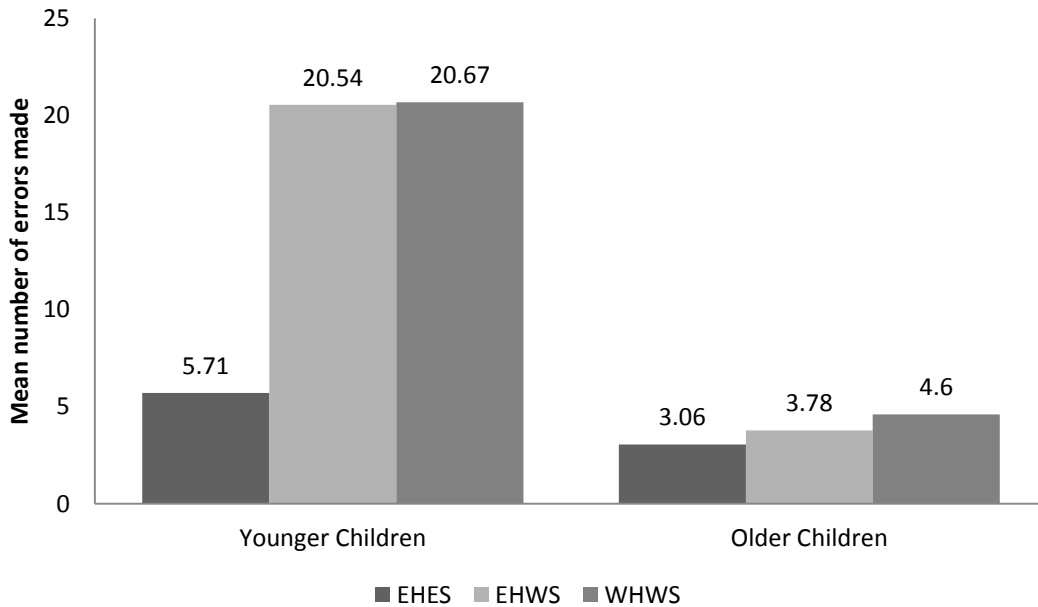


Figure 5-18 Graph showing the mean number of errors made in the English written task by younger and older children according to their combined exposure.

Post-hoc analysis indicated that, while all older children performed to the same level, younger EHES children made significantly fewer errors than both EHWS children (Tukey's $p = .001$) and younger WHWS children (Tukey's $p = .001$).

Impact of each parent.

To investigate these findings further, the relationship between the amount of Welsh and English spoken by each parent to children in Welsh medium schools and the child's performance on measures of English reading was examined using Pearson's r bivariate correlational analysis. While ANOVAs are able to identify whether two groups of data are statistically different from each other, correlations provide information about the nature and strength of any possible relationship between two variables (McQueen & Knussen, 2006).

The amount of Welsh used by the mother was found to be significantly, negatively correlated with English reading comprehension ($r = -.239$, $p = .046$ (two-tailed), $n = 70$) and

the amount of Welsh used by the father was found to be significantly, negatively correlated with English reading accuracy ($r = -.269, p = .024$ (two-tailed), $n = 70$). This indicates that children in this study whose parents used more Welsh at home also tended to perform less well in measures of English reading ability. No correlations were found between parental language use and measures of English writing ability.

Gender

One-Way ANOVAs were used to examine the interaction found in Experiment 1 between school language and gender for the number of words written in the English writing task. In English-medium schools, no significant difference was found between boys and girls for the number of English words produced in the written task. However, in Welsh-medium schools, there was a significant difference ($F(1,61) = 10.27, p = .002$), with girls producing significantly more words on average ($M = 43.11$) than boys ($M = 25.16$). This is an interesting finding in the light of the debate surrounding the influence of gender on the acquisition of literacy abilities (Maynard, 2002; White, 2007).

Siblings

Multivariate ANOVAs with sibling birth order, age and gender as the independent variables and score on measures of English reading, English writing and ERAN tasks were performed on the data. No significant main effects of birth order were found. However, a significant interaction between birth order and age was found for the number of words produced on the English written task ($F(3, 91) = 5.73, p = .001$) and of birth order and gender for English reading accuracy ($F(1, 102) = 6.14, p = .015$).

One-way ANOVAs showed a significant difference between the number of words written in the English written task by older children according to their place in the family

($F(3, 38) = 4.58, p = .008$) but not younger children. Post-hoc analysis indicated that this was due to a significant difference between the number of words written by older, first born children and older middle children. Analysis of the mean scores indicated that older, firstborn children wrote significantly more words ($M = 66.86$) than older, middle children ($M = 42.67$). Further analysis found no significant differences between the English reading accuracy scores of girls and boys according to their place in the family.

The analysis of the data in this study has found that differences exist between the English literacy abilities of children in a selection of English-medium and Welsh-medium schools in North East Wales and North West England. However, the children in these Welsh-medium schools are becoming literate in two languages therefore, in order to provide a full picture of their achievement, their Welsh literacy performance must also be considered. Chapter 6 will examine this issue in more detail.

Summary

This chapter has examined two questions relating to the English literacy skills of children in selected Welsh-medium and English-medium schools. In brief, this chapter has identified the following main points:

1. The children in this study with greater exposure to English performed better in measures of English literacy skills.
2. Children in this study who came from English speaking homes and attended English-medium secondary schools performed at least as well as those in Welsh-medium secondary schools.
3. Children from Welsh speaking homes attending these Welsh-medium primary schools performed less well in measures of English literacy but those in Welsh-medium secondary schools in this study performed as well as their peers.

4. In this study, older children in English-medium schools performed less well for their age than younger children in English-medium schools, which was unexpected.

The results have shown that children in this study attending English-medium schools outperform those children in Welsh-medium schools in measures of English literacy ability. However, these differences appear to be based on discrepancies in performance for younger children. For this age group, the children in Welsh-medium schools have only recently begun to learn to read and write in English, therefore their underperformance is not unexpected. Older children in these Welsh-medium schools have demonstrated their ability to catch-up with their peers. However, it is concerning that standardised scores show the older children in this study attending English-medium schools are underperforming relative to their younger counterparts.

The results have also identified significant differences in children's performance according to a range of other factors. English reading and writing abilities varied according to SES, gender, age, birth order and non-verbal IQ and these findings were modified according to school language. Of particular note is the language of the home. In this study, children attending Welsh-medium schools from English and Welsh speaking homes were found to perform less well in English literacy tasks than those in English-medium schools. Age was found to modify this, however, with children from Welsh speaking homes in Welsh-medium secondary schools performing to the same level as the monolingual children in secondary schools in this study.

This chapter has compared the English-literacy abilities of children in two different types of school. However, children in Welsh-medium schools are learning to use two languages. The next chapter, therefore, will examine how children perform in each of these languages compared with the other.

Chapter 6

Study 2: Bilingualism and Literacy

In Chapter 5, the results of experiments comparing the English literacy abilities of children in Welsh-medium and English-medium schools were presented. However, children in Welsh-medium schools become literate in more than one language. The children that participated in the research detailed in Chapter 5 also participated in these experiments. This chapter aims to answer the questions posed by the literature in Chapter 2. These questions related to differences in the literacy abilities of bilingual children in each of their languages. In order to investigate these issues, the following research questions were set:

1. How do the Welsh and English literacy abilities of children in selected Welsh-medium schools compare?
2. Can English literacy tests predict Welsh literacy abilities?
3. Does learning to read and write in one language first affect acquisition of literacy skills in either or both of the languages learned by children in selected Welsh-medium schools?
4. Do factors such as home language exposure, SES and age affect the development of Welsh literacy abilities of children in selected Welsh-medium schools?

Measures

The same measures were used in this study as were described in Chapter 5. Children were asked to complete the Background Questionnaire, the NARA-II measure of English reading abilities, the English written task and the ERAN measure of English rapid naming

ability. The children who attended Welsh-medium schools were also asked to complete the following tasks in Welsh:

Profion Glannau Menai (Payne, 1998)

To assess Welsh reading ability, the Profion Glannau Menai (PGM) was used. This measure of Welsh reading was devised in 1998, meaning standardised scores were created at a similar time to those used in the NARA-II, strengthening any comparisons made between groups tested on both.

Administration

Children in Welsh medium schools were asked to read each of the stories in the Profion Glannau Menai booklet, beginning with the simplest passage. As with the NARA-II, this test asked children to read a series of 9 short texts that increased both in the number of words used in the story and in how difficult each passage was to understand. Raw and standardised scores of reading accuracy and comprehension were calculated in the same way as for the NARA-II. Standardised scores of Welsh reading accuracy and comprehension are used in all analyses in this research.

Welsh Written Task

Children in Welsh medium schools were asked to complete a three minute written task in Welsh. This task took the same format as the English written task, with children being given a clean sheet of paper and asked to write a story within the space of three minutes in Welsh. The same titles were used in Welsh as were used in the English written task. When children had been asked to write on the topic of ‘What I do in the Morning’ in the English written task, they were given the title ‘Y dyn o’r gofod nad oedd yn gallu brwsio ei ddannedd’ (*The Alien Who Couldn’t Brush His Teeth*) in Welsh and those given *The Alien*

Who Couldn't Brush His Teeth in English were given 'Be 'dw i'n eu wneud yn y bore' ('What I do in the morning') in Welsh. This was to ensure that there were no practice effects of writing on the same topic twice. Half of the children were asked to complete the English written task before the Welsh written task and half were asked to complete the Welsh written task first to ensure any effects of task order were accounted for.

Welsh Rapid Automatized Naming (WRAN)

As the RAN task is a verbal task, it was felt that bilingual children should be asked to complete it in both their languages but no similar test was readily available in Welsh. Therefore, a Welsh RAN (WRAN) task was developed (Appendix D). It was based on the ERAN task (see Chapter 5) and designed to be as comparable as possible. As all except one of the words elicited by the pictures on the ERAN task were only one syllable in length, pictures depicting common objects whose names were only one syllable in length in Welsh were chosen for the WRAN. Twenty pictures were used and these were arranged in the same way as the ERAN and were repeated as in the ERAN. The same procedure was followed in administering this task as was followed for administering the ERAN except that pictures were named in Welsh instead of English.

Pilot

Because bilingual children were asked to complete both the ERAN and the WRAN, issues arose regarding switching between languages. Concerns were raised during the pilot that children were slower the second time they were asked to complete a RAN task regardless of which language they were asked to use first. Therefore, it was decided to alternate the order in which the RAN tasks were presented to bilingual children. To allow for any practice effects, half of the children in Welsh medium schools were asked to complete the ERAN task first and half were asked to complete the WRAN task first. The tasks did not follow each

other but were interspersed with other tasks in the battery. Usually the SPM+ was conducted between RAN tasks but this sometimes varied due to time constraints or the child's preferences and other tasks were used.

Results

Research Question 1:

How do the Welsh and English literacy abilities of children in selected Welsh-medium schools compare?

This question aims to investigate the English and Welsh literacy abilities of the children in this study who attend Welsh-medium schools to discover whether these children perform to the same level in each language.

Analysis 1: English and Welsh Reading

Reading accuracy.

A repeated measures ANOVA was performed on the data with the standardised scores of reading accuracy as the dependent variable, test language (Welsh or English) as the within subjects variables and age and gender as the between subjects variables. The analysis found a significant main effect of test language ($F(1, 64) = 4.97, p = .029$) with children performing reading more accurately in English ($M = 92.85$) than in Welsh ($M = 87.01$). A significant two-way interaction of test language and age group was also found ($F(1, 64) = 72.96, p < .001$). No significant three-way interaction was found.

Investigation of the interaction using paired-samples t-tests shows that a significant difference exists for both age groups. However, the direction of this difference changes with age. The younger children performed significantly better ($t(37) = -5.22, p < .001$) in Welsh

than in English. However, the older children in Welsh-medium schools performed significantly better ($t(29) = 7.80, p < .001$) in English than in Welsh. These results are shown in Figure 6-1.

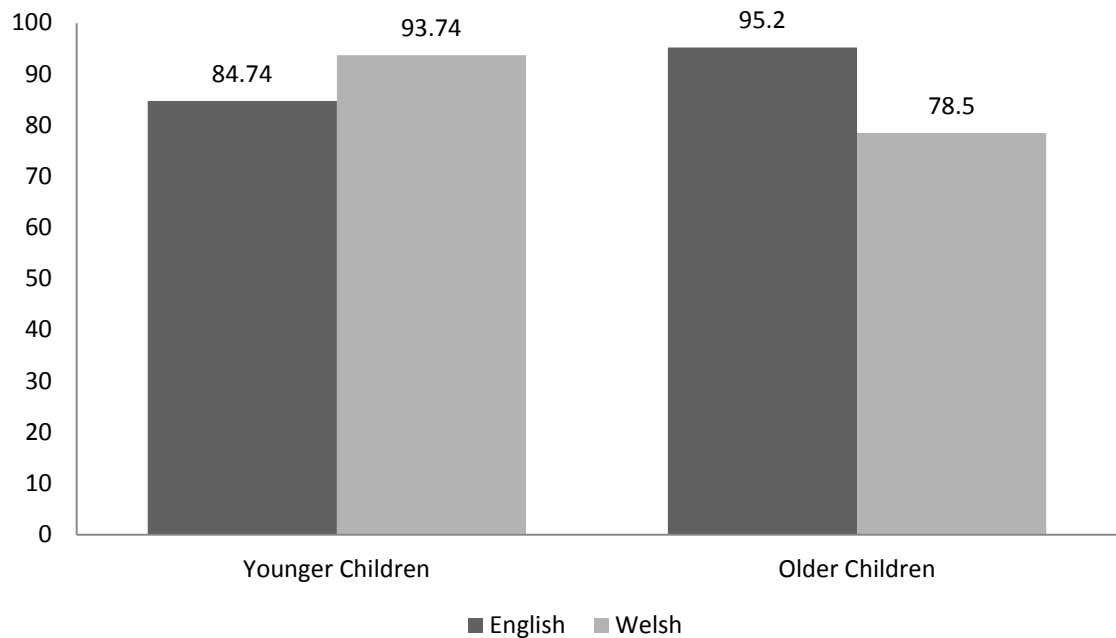


Figure 6-1 Graph showing the mean standardised English and Welsh reading accuracy scores of younger and older children.

Further analysis using t-tests also showed that the older children outperformed the younger children in English reading accuracy ($t(70) = -3.81, p < .001$ (two-tailed) but the younger children outperformed the older children in Welsh reading accuracy ($t(66) = 5.69, p < .001$ (two-tailed)).

Reading comprehension.

A similar repeated measures ANOVA as was used for accuracy was performed on the standardised scores of English and Welsh reading comprehension. No significant main effect of test language was found ($F(1, 63) = 3.59, p = .063$) nor any significant interactions,

suggesting that all the children in this study, regardless of gender or age, comprehended both the Welsh and English passages to the same degree.

Analysis 2: English and Welsh Writing

The results of the three minute written tasks for each language were compared using the same method as above. The results are presented below.

Word count.

No significant effect of test language was found ($F(1, 58) = .005, p = .946$) nor any significant interaction between language and gender ($F(1, 58) = 1.92, p = .171$), language and age group ($F(1, 58) = .170, p = .682$) or between language, gender and age group ($F(1, 58) = .058, p = .810$).

Error count.

A significant main effect of test language ($F(1, 55) = 23.42, p < .001$) and a significant interaction of test language and age group ($F(1,55) = 37.5, p < .001$) was found. No significant interaction involving gender was found. Figure 6-2 shows the mean number of errors made by the older and younger children in this study when writing in English and in Welsh.

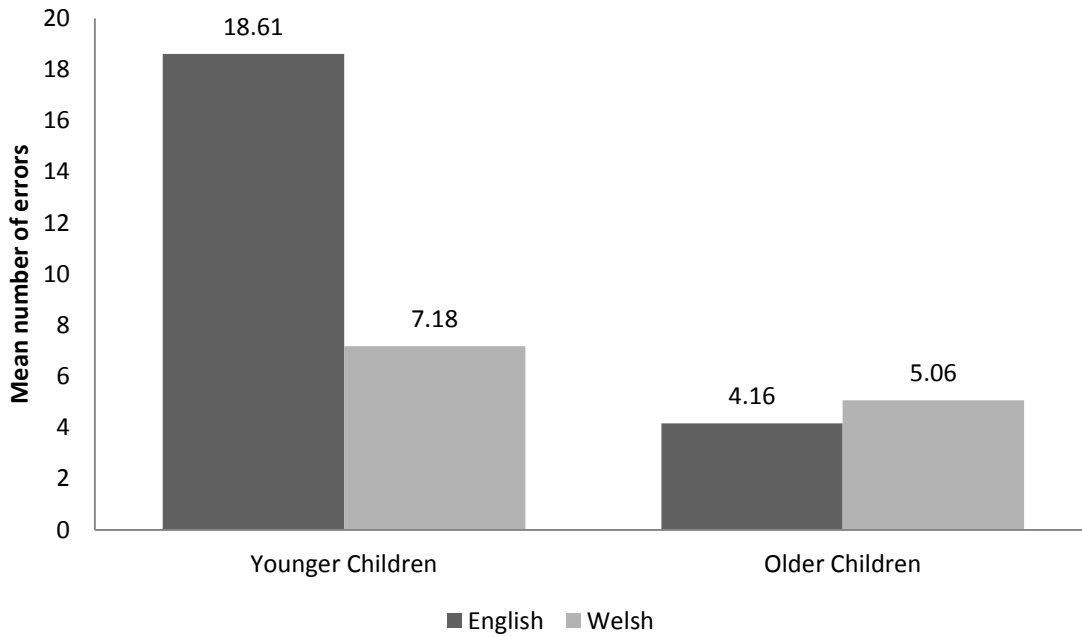


Figure 6-2 Graph showing the mean number of errors made by younger and older children in Welsh medium schools in a 3 minute written task in Welsh and English.

The results of a paired samples t-test confirm what can be seen in the graph. There is a significant difference between the number of errors the younger children made in Welsh and English ($t(27) = -6.04, p < .001$ (two-tailed) with children making more than twice as many errors in English. However, no significant difference was found for the older children.

Analysis 3: Welsh and English Rapid Automatised Naming

A similar repeated measures ANOVA as has been used above was used to compare ERAN and WRAN tasks. No significant main effects were found. However, this analysis identified a significant interaction between age and test language for completion time scores ($F(1, 51) = 17.36, p < .001$). These results are shown in Figure 6-3.

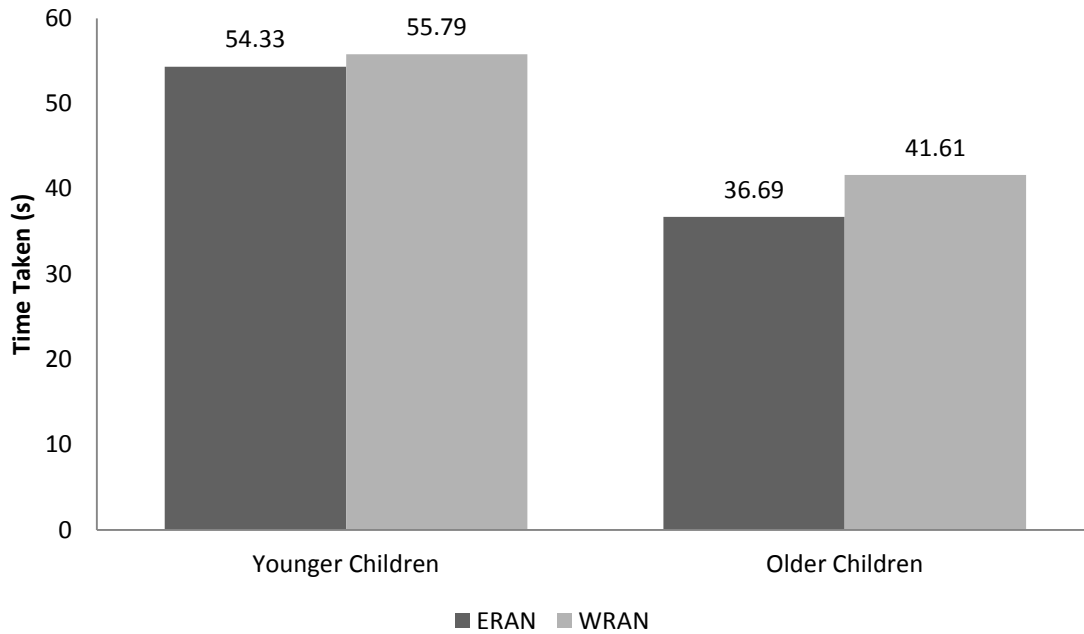


Figure 6-3 Graph showing the mean length of time taken by younger and older children to complete the ERAN and WRAN tasks.

Investigation of this interaction using paired samples t-tests revealed that the older children were significantly quicker in completing the WRAN than the ERAN ($t(26) = 2.42, p = .023$ (two-tailed) but there was no difference in how long it took the younger children to complete these tasks. As can be seen from Figure 6-3, the older children were significantly quicker in rapidly naming pictures in English than in Welsh.

Research Question 2:

Can English literacy tests predict Welsh literacy abilities?

Since significant differences have been found between children's performance in measures of English and Welsh literacy, it follows that performance on one task in one language may not be a good predictor of their performance in the same task in the other language.

In order to investigate this further, the data of children in Welsh-medium schools was analysed using Pearson's r correlations to compare their performance in each of the English and Welsh literacy measures with their performance in each of the others. The results of this are shown in Table 6-1.

The results suggest that English literacy tests provide an unreliable picture of children's Welsh literacy abilities and vice versa. As can be seen in Table 6-1, neither English reading accuracy nor comprehension is found to be correlated with Welsh reading accuracy though both correlate with Welsh reading comprehension and Welsh written ability. The number of words produced in the English written task is strongly correlated with Welsh reading accuracy and Welsh written task word count. Furthermore, the number of errors made in the English written task is strongly correlated with Welsh reading accuracy, Welsh written word count and Welsh written errors. ERAN time was found to be strongly correlated with the Welsh written task word count and both WRAN time and errors; however, the ERAN errors were only correlated with Welsh written task word count.

Table 6-1 Table showing the results of a Pearson's *r* correlational analysis comparing English literacy scores with Welsh literacy scores.

		<i>Welsh Reading Accuracy Standardised Score</i>	<i>Welsh Reading Comprehension Standardised Score</i>	<i>Welsh Written Word Count</i>	<i>Welsh Written Errors</i>	<i>WRAN Time</i>	<i>WRAN Errors</i>
<i>English Reading Accuracy Standardised Score</i>	<i>r</i>	.195	.552**	.399**	-.291*	-.386**	-.114
	<i>p</i>	.110	.000	.001	.026	.004	.410
	N	68	.67	62	59	54	54
<i>English Reading Comprehension Standardised Score</i>	<i>r</i>	.074	.483**	.457**	-.367**	-4.23**	-.285
	<i>p</i>	.548	.000	.000	.004	.001	.033
	N	68	67	62	59	54	56
<i>English Written Word Count</i>	<i>r</i>	-.406**	.244	.914**	-.082	-.597**	.078
	<i>p</i>	.002	.067	.000	.538	.000	.604
	N	57	57	62	59	47	47
<i>English Written Errors</i>	<i>r</i>	.414**	-.176	-.440**	.590**	.233	.048
	<i>p</i>	.002	.198	.000	.000	.119	.753
	N	55	55	60	59	47	46
<i>ERAN Time</i>	<i>r</i>	.070	-.249	-.561**	.069	.698**	.344*
	<i>p</i>	.616	.075	.000	.647	.000	.010
	N	53	52	50	47	55	55
<i>ERAN Errors</i>	<i>r</i>	-.023	-.164	-.359*	.135	.138	.282
	<i>p</i>	.868	.244	.010	.367	.314	.037
	N	53	52	50	47	55	55

* $p < .05$ ** $p < .01$

It is worth noting that, while almost all the English literacy tasks were found to be correlated with each other (see Table 6-2), the Welsh literacy tasks showed less strong correlations (see Table 6-3). In particular, standardised scores of English reading accuracy were found to be correlated with all other measures of English literacy but standardised scores of Welsh reading accuracy were not found to be correlated with either the number of errors in the Welsh written task nor the WRAN time. This perhaps reflects the more transparent nature of the Welsh orthography. It was shown in Research Question 1 of this study that younger children make far fewer errors when writing Welsh than writing English which may make correlations between this and other aspects of Welsh literacy less likely.

Table 6-2 Table showing the results of a Pearson's r correlational analysis comparing Welsh-medium school children's performance on measures of English literacy.

		<i>English Reading Accuracy Standardised Score</i>	<i>English Reading Comprehension Standardised Score</i>	<i>English Written Word Count</i>	<i>English Written Errors</i>	<i>ERAN Time</i>	<i>ERAN Errors</i>
<i>English Reading Accuracy Standardised Score</i>	<i>r</i>	1	.842**	.497**	-.506**	-.471**	-.287*
	<i>p</i>		.000	.000	.000	.000	.032
	N	72	72	61	59	56	56
<i>English Reading Comprehension Standardised Score</i>	<i>r</i>	.842**	1	.464**	-.528	-.515**	-.285*
	<i>p</i>	.000		.000	.000	.000	.033
	N	72	72	61	59	56	56
<i>English Written Word Count</i>	<i>r</i>	.497**	.464**	1	-.414**	-.620**	-.374**
	<i>p</i>	.000	.000		.001	.000	.008
	N	59	61	63	61	49	49
<i>English Written Errors</i>	<i>r</i>	-.506**	-.528**	-.414**	1	.296*	.278
	<i>p</i>	.000	.00	.001		.043	.059
	N	59	59	61	61	47	47
<i>ERAN Time</i>	<i>r</i>	-.471**	-.515**	-.620**	.296*	1	.359**
	<i>p</i>	.000	.000	.000	.043		.006
	N	56	56	49	47	57	57
<i>ERAN Errors</i>	<i>r</i>	-.287*	-.285*	-.374**	.278	.359**	1
	<i>p</i>	.032	.033	.008	.059	.006	
	N	56	56	49	47	57	57

* $p < .05$ ** $p < .01$

Table 6-3 Table showing the results of a Pearson's r correlational analysis comparing Welsh-medium school children's performance on measures of Welsh literacy.

		<i>Welsh Reading Accuracy Standardised Score</i>	<i>Welsh Reading Comprehension Standardised Score</i>	<i>Welsh Written Word Count</i>	<i>Welsh Written Errors</i>	<i>WRAN Time</i>	<i>WRAN Errors</i>
<i>Welsh Reading Accuracy Standardised Score</i>	<i>r</i>	1	.527**	-.364**	.209	.073	-.333*
	<i>p</i>		.000	.005	.122	.605	.016
	N	68	67	59	56	52	52
<i>Welsh Reading Comprehension Standardised Score</i>	<i>r</i>	.527**	1	.272*	-.072	-.385**	-.118
	<i>p</i>	.000		.037	.596	.005	.412
	N	67	67	59	56	51	51
<i>Welsh Written Word Count</i>	<i>r</i>	-.364**	.272*	1	-.069	-.544**	.039
	<i>p</i>	.005	.037		.600	.000	.790
	N	59	59	64	61	49	49
<i>Welsh Written Errors</i>	<i>r</i>	.209	-.072	-.069	1	.162	.133
	<i>p</i>	.122	.596	.600		.276	.373
	N	56	.56	61	61	47	47
<i>WRAN Time</i>	<i>r</i>	.073	-.385**	-.544**	.162	1	.254
	<i>p</i>	.605	.005	.000	.276		.062
	N	52	49	49	47	55	55
<i>WRAN Errors</i>	<i>r</i>	-.333*	-.118	.039	.133	.254	1
	<i>p</i>	.016	.412	.790	.373	.062	
	N	52	51	49	47	55	55

* $p < .05$ ** $p < .01$

Research Question 3:

Does learning to read and write in one language first affect acquisition of literacy skills in either or both of the languages learned by children in selected Welsh-medium schools?

Spearman's *rho* correlations were used to compare the age at which children began to learn to read and write English and Welsh with their performance on measures of English and Welsh literacy. Spearman's *rho* correlations were used instead of Pearson's *r* as the data being examined were ordinal rather than based on interval or ratio measurement scales (Gravetter & Wallnau, 2000). The results of the correlational analysis are shown in Table 6-4.

This question was not limited to the school setting and so children in Welsh-medium schools reported beginning to learn to read in both languages at home with parents and grandparents or at nursery before beginning formal education. Significant negative correlations were found between the age at which children in this study began to learn to read and write English and their measured English reading abilities. A positive correlation was found between the age at which these children began to learn to read and write English and the number of errors they made on both the English and Welsh writing tasks. Surprisingly, the age at which these children began to learn to read and write Welsh was only found to be correlated with the number of errors made in the English written task (this was a positive correlation). It should be remembered that children in Welsh-medium schools in this study were all introduced to Welsh literacy by age 5, making this the oldest age reported. For English literacy, some of these children reported not beginning to learn to read and write in English until they were 8, when English literacy was introduced at school.

Table 6-4 Table showing the results of a Spearman's rho correlation comparing the age at which bilingual children began to learn to read and Welsh and English with their performance on measures of English and Welsh literacy.

		<i>Age began literacy in English</i>	<i>Age began literacy in Welsh</i>
<i>English</i>	r_s	-.382**	.001
<i>Reading</i>	p	.003	.993
<i>Accuracy</i>	N	57	63
<i>Standardised Score</i>			
<i>English</i>	r_s	-.329*	-.051
<i>Reading</i>	p	.013	.692
<i>Comprehension</i>	N	57	63
<i>Standardised Score</i>			
<i>Welsh Reading</i>	r_s	-.038	.207
<i>Accuracy</i>	p	.788	.112
<i>Standardised</i>	N	53	60
<i>Score</i>			
<i>Welsh Reading</i>	r_s	-.142	-.076
<i>Comprehension</i>	p	.312	.568
<i>Standardised</i>	N	53	59
<i>Score</i>			
<i>English</i>	r_s	-.108	-.164
<i>Written Word</i>	p	.446	.228
<i>Count</i>	N	52	56
<i>English</i>	r_s	.314*	.313*
<i>Written Errors</i>	p	.025	.020
	N	51	55
<i>Welsh Written</i>	r_s	-.109	-.204
<i>Word Count</i>	p	.443	.129
	N	52	57
<i>Welsh Written</i>	r_s	.289*	.010
<i>Errors</i>	p	.042	.942
	N	50	55
<i>ERAN Time</i>	r_s	.134	.170
	p	.369	.248
	N	47	48
<i>WRAN Time</i>	r_s	-.061	.095
	p	.689	.522
	N	45	48

* $p < .05$ ** $p < .01$

A multivariate ANOVA with age at introduction to English literacy and age at introduction to Welsh literacy as the independent variables and performance in measures of English and Welsh literacy as the dependent variables found no significant main effect of age of introduction of either language for English or Welsh reading performance. No significant interaction was found. Similar multivariate ANOVAs found no significant main effects or interactions of age of introduction to literacy in either Welsh or English for performance on English or Welsh written tasks or rapid naming tasks (Shown in Table 6-5).

Table 6-5 The results of a multivariate ANOVA comparing scores of English and Welsh literacy ability according to the age children began to learn to read and write in Welsh and English.

Literacy Task	Age of introduction to literacy instruction in:	
	English	Welsh
English reading accuracy*	$F(3, 31) = 2.24, p = .103$	$F(3, 31) = .93, p = .439$
English reading comprehension*	$F(3, 31) = 1.78, p = .171$	$F(3, 31) = 1.06, p = .382$
Welsh reading accuracy*	$F(3, 31) = .83, p = .490$	$F(3, 31) = .34, p = .794$
Welsh reading comprehension*	$F(3, 31) = .17, p = .914$	$F(3, 31) = .96, p = .425$
English written task word count	$F(3, 31) = 1.10, p = .364$	$F(3, 31) = 1.21, p = .322$
English written task errors	$F(3, 31) = .36, p = .782$	$F(3, 31) = 1.02, p = .396$
Welsh written task word count	$F(3, 31) = 1.34, p = .280$	$F(3, 31) = 1.09, p = .368$
Welsh written task errors	$F(3, 31) = .24, p = .869$	$F(3, 31) = .20, p = .898$

* Standardised Scores

Research Question 4:

Do factors such as home language exposure, SES and age affect the development of Welsh literacy abilities of children in selected Welsh-medium schools?

As in the previous chapter, which examined factors that might affect the development of English literacy skills in children in English-medium and Welsh-medium schools, the extent to which several other factors might impact the development of literacy skills must be assessed when considering children learning to read and write in Welsh. These are discussed below. Unless otherwise stated, multivariate ANOVAs were used to analyse these data. The variables are described in Table 6-6. In each case, the dependent variables remained the same. Combined Exposure was used as an independent variable throughout. The subheadings denote which other independent variables were used in the analysis.

Table 6-6 List of independent and dependent variables used in multivariate ANOVAs (Analysis 1 and Analysis 2).

Independent Variables		Dependent Variables
Factor	Levels	
Mother's Employment,	Low ($N = 36$) High ($N = 37$)	Welsh reading accuracy Standardised Score
Father's Employment	Low ($N = 44$) High ($N = 28$)	Welsh reading comprehension Standardised Score
Mother's Education	Compulsory ($N = 26$) Further ($N = 17$) Higher ($N = 29$)	Welsh written task word count
Father's Education	Compulsory ($N = 44$) Further ($N = 8$) Higher ($N = 20$)	Welsh written task errors
Combined exposure	English Home Welsh School (EHWS) ($N = 38$) Welsh Home Welsh School (WHWS) ($N = 27$)	WRAN completion time
Non-verbal IQ	Low ($N = 34$) High ($N = 34$)	WRAN errors
Age	Younger ($N = 38$) Older ($N = 37$)	
Gender	Male ($N = 32$) Female ($N = 43$)	
Place in Family	Only Child ($N = 4$) Youngest Child ($N = 32$) Middle Child ($N = 11$) Oldest Child ($N = 23$)	

Parental SES

- i) Mother's employment, Father's employment

A multivariate ANOVA with the variables described in Table 6-6 was performed on the data. The results are shown in Table 6-7.

Table 6-7 The results of a multivariate ANOVA comparing scores of Welsh literacy ability according to mother's and father's employment SES.

Welsh literacy task	Level of employment SES	
	Mother	Father
Reading accuracy*	$F(1, 29) = .03, p = .865$	$F(1, 29) = .078, p = .783$
Reading comprehension*	$F(1, 29) = .37, p = .548$	$F(1, 29) = .002, p = .966$
Written task word count	$F(1, 29) = 1.53, p = .226$	$F(1, 29) = .96, p = .337$
Written task errors	$F(1, 29) = .49, p = .491$	$F(1, 29) = 3.22, p = .083$
RAN completion time	$F(1, 29) = 2.51, p = .124$	$F(1, 29) = .61, p = .440$
RAN errors	$F(1, 29) = .02, p = .896$	$F(1, 29) = .86, p = .361$

*Standardised Scores

No significant main effect of SES for either parent was found for any of the measures of Welsh literacy. No significant interactions were found.

- ii) Mother's Education, Father's Education

No significant main effects of parental levels of education nor any interactions were found. This is shown in Table 6-8. These findings are interesting when compared with the results of Research Question 2 in Study 1 where significant differences were found for performance on the ERAN task according to parental levels of education.

Table 6-8 The results of a multivariate ANOVA comparing scores of Welsh literacy ability according to mother's and father's level of education

Welsh literacy task	Level of education SES	
	Mother	Father
Reading accuracy*	$F(2, 35) = .16, p = .855$	$F(2, 35) = 1.18, p = .319$
Reading comprehension*	$F(2, 35) = .44, p = .647$	$F(2, 35) = .41, p = .668$
Written task word count	$F(2, 35) = .54, p = .586$	$F(2, 35) = .44, p = .646$
Written task errors	$F(2, 35) = 1.01, p = .374$	$F(2, 35) = .54, p = .588$
RAN completion time	$F(2, 35) = 2.83, p = .072$	$F(2, 35) = 1.85, p = .173$
RAN errors	$F(2, 35) = .41, p = .664$	$F(2, 35) = .82, p = .451$

*Standardised Scores

Non-Verbal IQ

A significant main effect of non-verbal IQ group was found for standardised scores of Welsh reading accuracy ($F(1, 31) = 51.94, p < .001$), Welsh written task word count ($F(1, 31) = 36.66, p < .001$) and WRAN completion time ($F(1, 31) = 25.93, p < .001$). The mean scores for each group on each task is presented in Table 6-9. These show that children in this study with higher non-verbal IQ significantly outperformed children with lower non-verbal IQ in terms of the number of words produced in the Welsh written task and the time needed to complete the WRAN task but, interestingly, children with lower non-verbal IQ were significantly more accurate in their Welsh reading than those with higher non-verbal IQ. It was noticed, during administration of this task, that older readers tended to misread certain words by exchanging the letter printed at the beginning of the word for a plausible (but incorrect) mutation (e.g. turning 'tref' (town) into 'dref' (town)). These instances were noted as errors in reading accuracy but could reflect differences in written and spoken Welsh. More fluent readers may have used whole-word recognition strategies which prompted the use of synonymous but grammatically incorrect word structures which less fluent readers who were making greater use of grapheme-phoneme conversion (GPC) routes might have avoided. This is certainly a possible fault in the test which might account for these unexpected results.

Table 6-9 The mean scores of children with lower and higher non-verbal IQ on measures of Welsh literacy.

Task:		Lower IQ	Higher IQ
Welsh Reading Accuracy*	Mean	92.76	81.23
	<i>N</i>	33	31
Welsh Written Task Word Count	Mean	17.41	47.72
	<i>N</i>	29	29
WRAN Completion Time	Mean	56.97	41.90
	<i>N</i>	22	27

*Standardised Scores

Combined Exposure and Age Group

As only children from Welsh-medium schools are being analysed, the difference in combined exposure reflects differences in the amount of Welsh and English spoken at home. English Home English School (EHES) children have not been included.

A significant main effect of combined exposure for standardised scores of Welsh reading accuracy ($F(1, 37) = 8.59, p = .006$) and comprehension ($F(1, 37) = 9.10, p = .005$) was found. No significant interactions were found. Analysis of the mean scores of accuracy showed that EHWS children in this study performed less well ($M = 85.21$) than WHWS children ($M = 90.00$). Similarly, the EHWS children performed less well in measures of Welsh reading comprehension ($M = 88.38$) than the WHWS children ($M = 95.31$). As there was no significant interaction found with age, this finding implies that such differences persist from primary to secondary school.

This analysis also found a significant main effect of combined exposure for the number of errors made in the WRAN task ($F(1, 37) = 10.54, p = .003$) but no significant interaction. Analysis of the means indicated that EHWS children made significantly more errors in the WRAN task ($M = 1.59$) than WHWS children ($M = 1.25$).

Gender

The analysis found a significant main effect of gender for the number of words produced in the Welsh written task ($F(1, 44) = 6.87, p = .012$). Inspection of the mean number of words written by boys and girls revealed that girls wrote significantly more words ($M = 40.85$) than boys ($M = 25.92$). This is in keeping with previous research concerning a female advantage in language tasks. Furthermore, in Study 1 Research Question 2, it was found that girls in Welsh-medium schools produced significantly more words than boys in the English writing task but no differences were found in English-medium schools. This shows a difference in the relative strength of boys and girls in the Welsh-medium schools included in this study, suggesting that measurement of both reading accuracy and comprehension in both languages is important to assessing bilingual children's actual literacy abilities.

Place in Family

No significant main effects of birth order were found for any of the measures of Welsh literacy ability: Reading accuracy (standardised) ($F(3, 27) = .99, p = .414$), reading comprehension (standardised) ($F(3, 27) = .15, p = .929$), written task word count ($F(3, 27) = .52, p = .671$), written task errors ($F(3, 27) = 1.48, p = .241$), WRAN completion time ($F(3, 27) = .21, p = .888$) or WRAN errors ($F(3, 27) = 1.30, p = .30$).

Summary

This chapter has described the results of research concerning the literacy abilities of children in Welsh-medium schools in North East Wales. It has compared their performance in English and Welsh literacy tasks and it has examined potential factors that might influence

performance in Welsh literacy. The children in this study have all been drawn from Welsh-medium schools as described in Chapter 5. The main findings of this study are listed below:

1. Significant differences were found between the English and Welsh literacy abilities of children in these Welsh-medium schools.
2. Some correlations were found between reading and writing abilities in English and Welsh but these were not consistent.
3. Significant correlations were found between age of introduction to English literacy and English reading and writing abilities. Age of introduction to Welsh literacy was found to be significantly correlated with English writing abilities.
4. A complete set of literacy tests in each language is necessary to fully understand the abilities of children in Welsh-medium schools.
5. Factors such as home language, gender and non-verbal IQ must be taken into account when assessing children in their Welsh literacy abilities.

The findings of this study have suggested that bilingual children's achievement in one of their languages is not necessarily the same as their achievement in their other language. However, these differences appear to change over time. The younger children in Welsh-medium schools performed better in Welsh literacy tasks than in English. However, the older children in Welsh-medium schools had reversed this, performing better in English literacy tasks than Welsh literacy tasks. The Welsh Government's aim is to encourage parity of performance in each of these languages by secondary school (Welsh Government, 2012a). However, these data suggest that, for children in these Welsh-medium schools, English literacy skills begin outstripping Welsh literacy skills in secondary school. This is surprising given the initial strength of Welsh literacy compared with English literacy in primary school. It also raises certain questions. For example, does this finding reflect a cost to the

development of Welsh literacy while children concentrate on bringing their English literacy up to scratch? Or does this betoken a more serious issue concerning the status of Welsh and English? Further research would be needed to answer this and is warranted by the very low standardised scores achieved by the older children in Welsh-medium schools on measures of Welsh reading accuracy. These below average scores are worrying but some issues concerning the scoring of the Welsh reading accuracy test in relation to possible effects of reading fluency have been raised in this chapter that might account for both this and the differences in performance. They do not explain the difference in completion time for the English and Welsh RAN tasks, however.

These results also indicate that, while relationships between ability in Welsh and ability in English exist for these children according to correlational analyses, these are not consistent across task types. In particular, reading accuracy in English was not found to be correlated with reading accuracy in Welsh. These results suggest that while it is likely a child that struggles with literacy in one language may also be more likely to have more trouble with the other language, it would be a mistake to rely on tests of only one language to assess a child's full ability. As was shown in Research Question 1, the older children in this study who were on average performing within normal limits in English were found to be underperforming on average in Welsh and their difficulties might be missed if they were only tested in one language.

However, some of this may be related to factors such as the language of the home. Children from English speaking homes attending Welsh-medium schools in this study performed less well in Welsh literacy measures than those from Welsh speaking homes. Furthermore, the finding of a correlation between age of introduction to English literacy and English reading and writing skills suggests that children in this study who were introduced to

English literacy earlier also tended to have better English reading and writing skills.

Correlations were not limited to language and some correlations were found between the age of introduction to literacy in one language and ability in the other. It has been argued here that Welsh literacy instruction may take the place of the phonics programmes used in many English medium schools (Ehri, Nunes, Stahl, & Willows, 2001) but, since writing is often more orthographically difficult than reading (Brooks & Kempe, 2012; Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001), it is possible that developing the kinds of skills necessary for English literacy facilitates spelling in Welsh also. These findings suggest that early introduction of literacy in both Welsh and English would be beneficial for children in Welsh-medium schools. It could also help reduce the effects of home language exposure on literacy development in each language.

This chapter and the preceding chapter have dealt exclusively with children's performance in literacy tasks. It has not considered how children feel about their abilities or their language. In Chapter 3, it was shown that research has identified feelings about language and literacy as a significant factor in the development of feelings about the self. Therefore, Chapter 7 will examine the way children in selected English-medium and Welsh-medium schools feel about themselves while Chapter 8 will examine how they feel about their literacy abilities in Welsh and English and how these impact their feelings about themselves.

Chapter 7

Study 3: Self-Esteem

In Chapter 3, the importance of self-esteem and its relationship to literacy ability was described. The pilot study also suggested that self-esteem and coping strategies of children in Welsh-medium schools may be affected by their literacy abilities in Welsh and English. This chapter will detail the results of experiments concerning whether any differences existed between the self-esteem of children attending Welsh-medium and English-medium schools. This study measured the self-esteem of younger (7 -8 years) and older (11 – 12 years) school aged children in Welsh-medium and English-medium schools. It aimed to answer the following questions:

1. Is the global self-esteem of children in selected Welsh-medium and English-medium schools the same?
2. Is the self-esteem of children in selected Welsh-medium and English-medium schools the same for specific areas of self-esteem (e.g. academic self-esteem)?
3. Do children in these Welsh-medium and English-medium schools cope with stressful situations by using the same strategies?
4. Is literacy ability related to the self-esteem or choice of coping strategies of children attending a selection of Welsh-medium and English-medium schools?
5. To what extent is self-esteem and coping style related to factors other than literacy such as SES, gender, birth order, age, non-verbal IQ and home language use?

Methodology

The same 117 children that participated in the first study also took part in this study. Each child had already completed background questionnaire, the NARA-II (to measure their English reading ability), the PGM (to measure their Welsh reading ability), the English and Welsh written tasks and the SPM+ (to assess their non-verbal IQ) and the ERAN and WRAN tasks and the results of these tests are detailed in Studies 1 and 2.

For the purpose of this study, children were asked to complete an age appropriate version of the CFSEI-3 (Battle, 2002). This measure provided a standardised score of global self-esteem for each child as detailed in the pilot study (see Chapter 4). However, certain differences exist between the version of the CFSEI-3 designed for adolescents and the versions designed for younger children. While the adolescent form provides a measure of GSEQ (Global Self-Esteem Quotient) and of five subscales of self-esteem, the intermediate form only provides measures of GSEQ and four subscales. These are calculated in the same way as is done for the adolescent form. The primary CFSEI-3 form only provides a measure of GSEQ. Younger children in this study were asked to complete the primary CFSEI-3 form while older children were asked to complete the intermediate form. As standardised scores of GSEQ were calculated for both groups, it was possible to use both older and younger children in these comparisons. For the subscales of self-esteem, however, only older children's data can be analysed.

Children were also asked to complete the CISS (Endler & Parker, 1999) to provide a measure of their use of each of the strategies for coping with stressful situations. As this questionnaire only provided standardised scores for children older than primary school age, it was only administered to older children in this study.

Results

The purpose of these investigations was to identify any differences in the self-esteem of children in schools in Wales according to the language of instruction used in their school. To begin with, therefore, the results of a comparison between the self-esteem of children attending English-medium and Welsh-medium schools are presented.

Research Question 1:

Is the global self-esteem of children in selected Welsh-medium and English-medium schools the same?

A two-way ANOVA with standardised global self-esteem quotient (GSEQ) as the dependent variable and school language (Welsh-medium or English-medium) and age group (younger or older children) as the independent variables was performed on the data. It found no significant main effect of either age or school language. However, it did reveal a significant interaction of school language and age group ($F(1, 113) = 10.08, p = .002$).

Investigation of this interaction using one-way ANOVAs to compare the standardised self-esteem scores of children in Welsh-medium and English-medium schools according to their age revealed an interesting pattern of results. These are shown in Figure 7-1.

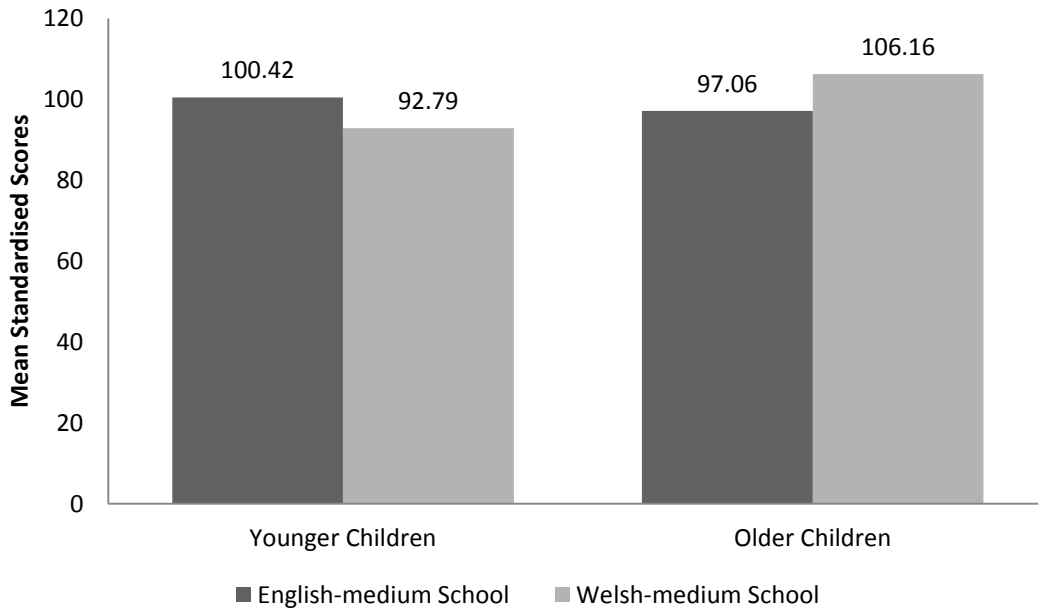


Figure 7-1 Graph showing the mean standardised Global Self-Esteem Quotient scores of younger and older children in Welsh-medium and English-medium schools.

The one-way ANOVAs revealed that younger children in these English-medium schools had significantly higher self-esteem than younger children in these Welsh-medium schools ($F(1, 60) = 4.16, p = .046$). However, older children in English-medium schools had significantly lower self-esteem than older children in Welsh-medium schools ($F(1, 53) = 6.27, p = .015$).

Research Question 2:

Is the self-esteem of children in selected Welsh-medium and English-medium schools the same for specific areas of self-esteem (e.g. academic self-esteem)?

A multivariate ANOVA using school language as the independent variable and standardised scores of subscales of self-esteem as the dependent variables found no significant main effect of school language. However, a main effect of gender was found for social self-esteem ($F(1, 51) = 6.74, p = .012$). Analysis of the mean scores indicated that boys had higher social self-esteem ($M = 11.21$) than girls ($M = 9.83$).

A significant interaction was also found between gender and school language for parental ($F(1, 51) = 4.12, p = .048$) and social ($F(1, 51) = 4.37, p = .042$) self-esteem, although both these were only marginally significant. These results are presented in Table 7-1.

Table 7-1 The mean scores of parental and social self-esteem for boys and girls in Welsh-medium and English-medium schools.

	Gender	Mean Score	
		Parental self-esteem	Social self-esteem
English-medium Schools	Boys	11.83	11.50
	Girls	9.67	8.08
Welsh-medium schools	Boys	11.62	11.08
	Girls	11.71	10.71

Post-hoc analysis using one-way ANOVAs indicated that differences existed for girls in this study according to the language of instruction at their schools but not for boys. Girls in English-medium schools had significantly lower parental ($F(1, 34) = 8.75, p = .006$) and social ($F(1, 34) = 8.37, p = .007$) self-esteem than girls in Welsh-medium schools in this study. Furthermore, boys were found to have higher social self-esteem than girls in English-medium schools in this study ($F(1, 16) = 6.77, p = .019$) but not in Welsh-medium schools in this study.

Research Question 3:

Do children in these Welsh-medium and English-medium schools cope with stressful situations by using the same strategies?

Table 7-2 outlines the factors that were entered into a multivariate ANOVA in order to address this question.

Table 7-2 The independent and dependent variables used in a multivariate ANOVA concerning coping styles and school language.

Independent Variables		Dependent Variables
Name	Levels	Name (Standardised Scores from CISS)
School Language Group	English-medium	Task-oriented coping
	Welsh-medium	Emotion-oriented coping
Self-esteem Group	Low (GSEQ < 90) Average (90 ≤ GSEQ < 110) High (GSEQ ≥ 110)	Avoidance-oriented coping:
		Distraction types of avoidance
		Social types of avoidance

The analysis revealed a marginally significant main effect of school language group for avoidance oriented coping ($F(1, 49) = 4.32, p = .043$) and this appeared to be mainly due to a significant difference between the amount of social avoidance strategies used by children in Welsh-medium and English-medium schools ($F(1, 49) = 5.17, p = .027$). These results are shown in Table 7-3. As can be seen, in this study children used similar amounts of task-oriented and emotion-oriented strategies regardless of the language of instruction in their school but the children in Welsh-medium schools reported using significantly fewer avoidance-oriented strategies than the children in English-medium schools.

Whilst this study found there was a difference in children's reliance on avoidance as a strategy to cope in stressful situations according to the language of instruction at their schools, further studies are needed in order to ascertain exactly what it is that children gain from these two different educational models that seems to encourage this difference.

Table 7-3 The mean standardised scores of coping strategies used by children in English medium and Welsh medium schools when faced with stressful situations.

Coping Style (Standardised Scores)	School Language	
	English-medium	Welsh-medium
Task-oriented	53.08	53.89
Emotion-oriented	50.62	49.68
Avoidance-oriented*	54.85	48.04
(Distraction Types)	54.31	48.64
(Social Types)*	52.23	46.11

*significant differences exist

Research Question 4:

Is literacy ability related to the self-esteem or choice of coping strategies of children attending Welsh-medium and English-medium schools?

This question aims to examine the relationship between literacy abilities and self-esteem and coping strategies in children in selected Welsh-medium and English-medium schools. In order to do this, several measures of literacy were used and each will be examined in relation to self-esteem in turn. To begin with, data from the English language measures will be compared. A list of the variables used in each of these analyses is given in Table 7-4. The dependent variables for each analysis are given in the subheading for each section.

Table 7-4 Table showing the independent and dependent variables used in the analyses in for Study 3, Research Question 4.

Independent Variables		Dependent Variables	
Name	Levels	Measure	Scores provided
School	English-medium	Coping Inventory for Stressful Situations (CISS)	Task-oriented*
Language Group	Welsh-medium		Emotion-oriented*
English Reading Ability	Low (Mean Standardised English reading score < 90)		Avoidance-oriented* (Distraction types)*
	Average (Mean English reading score \geq 90)		(Social types)*
Welsh Reading Ability	Low (Mean Standardised Welsh reading score < 90)		
	Average (Mean Welsh reading score \geq 90)		
English writing ability	Low (Number of errors > mean (8.59)	Culture-Free Self- Esteem Inventory (CFSEI-3)	Global Self-Esteem* Quotient (GSEQ)* (Academic self- esteem)*
	High (Number of errors < mean (8.59)		(General self-esteem)*
Welsh writing ability	Low (Number of errors > mean (6.26)		(Parental self- esteem)*
	High (Number of errors < mean (6.26)		(Social self-esteem)*
English Rapid Naming Ability	Low (Completion time > mean (42.56s)		
	High (Completion time < mean (42.56s)		
Welsh Rapid Naming Ability	Low (Completion time > mean (48.83s)		
	High (Completion time < mean (48.83s)		

*Standardised Scores () denotes subscales

*English-medium vs Welsh-medium schools**GSEQ.*

A series of univariate ANOVAs comparing the standardised GSEQ scores of children in this study according to their English reading, English writing and English RAN abilities and school language was performed on the data. The results are shown in Table 7-5. School language was included as an independent variable in each of these analyses in order to allow for investigation into any possible interactions between English literacy ability and school language. However, while significant main effects will be reported, differences in self-esteem and coping according to school language have already been discussed in Research Question 1 of this chapter and so will not be discussed again here.

Table 7-5 The results of a univariate ANOVA comparing the global self-esteem scores of children in English-medium and Welsh-medium schools according to their English literacy abilities.

Independent Variable	Dependent Variable: GSEQ (Standardised Scores)		
	<i>F</i>	<i>df</i>	<i>p</i>
English reading	.482	1,62	.620
English writing	5.216	1,62	.026*
English RAN	.616	1,62	.436
School Language	.320	1,62	.573

* $p < .05$

As can be seen, a significant main effect was only found for English writing abilities. Post-hoc analysis of the means indicated that children with higher English writing abilities also had higher ($M = 103.03$) self-esteem than those with lower English writing abilities ($M = 92.58$).

This result was modified further by a significant interaction between English writing abilities and school language group ($F(1, 62) = 7.68, p = .007$). Post-hoc analysis of this using one-way ANOVAs for each school language group in turn found that a significant

difference existed between the GSEQ of children with higher and lower English writing abilities in Welsh-medium schools ($F(1, 60) = 26.04, p < .001$) but not in English-medium schools ($F(1, 37) = .137, p = .713$). The analysis found that children in this study who attended Welsh-medium schools and whose English writing ability was lower had lower self-esteem ($M = 90.62$) than those whose English writing abilities were higher ($M = 107.24$).

Subscales of Self-esteem.

The results of a multivariate ANOVA comparing older children's standardised scores of subscales of self-esteem according to English reading, English writing and English RAN abilities and school language are shown in Table 7-6.

Table 7-6 The results of a multivariate ANOVA comparing scores of subscales of self-esteem for children according to English literacy abilities and school language

Independent Variable	Subscales of Self-Esteem (Standardised Scores)							
	Academic		General		Parental		Social	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
English reading (<i>df</i> : 1, 28)	1.901	.179	5.603	.025*	.021	.886	7.064	.013*
English writing (<i>df</i> : 1, 28)	.026	.873	.028	.868	.370	.548	1.059	.312
English RAN (<i>df</i> : 1, 28)	.021	.887	.016	.901	.272	.606	.240	.628
School Language (<i>df</i> : 1, 28)	.722	.403	.330	.570	.935	.342	3.134	.088

* $p < .05$

As can be seen, significant main effects of English reading ability were found for general and social self-esteem. Analysis of the mean scores indicated that children in this study with higher English reading abilities also had higher general ($M = 10.14$) and social ($M = 10.74$) self-esteem than children with lower English reading abilities (General: $M = 9.20$, Social: $M = 8.93$).

A marginally significant interaction between English writing ability and school language group was found for social self-esteem ($F(1, 28) = 4.47, p = .043$). Post-hoc analysis using one-way ANOVAs indicated no differences between the social self-esteem of children with high and low English writing abilities in either school. However, a significant difference was found between schools according to the language of instruction for children in this study whose English writing abilities were high ($F(1, 43) = 4.53, p = .039$). Analysis of the mean scores reflected findings in Research Question 1 of this study. The children in this study who attended English-medium schools had lower social self-esteem ($M = 9.24$) than those children attending Welsh-medium schools ($M = 10.89$) when their English writing abilities were high.

Coping Style.

The results of a multivariate ANOVA comparing the standardised scores of coping style according to English literacy abilities and school language are shown in Table 7-7. As can be seen, a significant main effect of English reading ability was found for emotion-oriented coping. Analysis of the mean scores indicated that children with higher English-reading abilities used fewer emotion-oriented strategies ($M = 48.00$) than those with lower English reading abilities ($M = 52.93$). No significant interactions were found.

Table 7-7 The results of a multivariate ANOVA comparing the use of coping strategies when faced with stressful situations according to English literacy ability and school language.

Independent Variable	Coping Strategy (Standardised Scores)					
	Task-oriented		Emotion-oriented		Avoidance-oriented	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
English reading (<i>df</i> : 1, 28)	.159	.693	8.248	.008*	.023	.881
English writing (<i>df</i> : 1, 28)	.028	.869	.010	.921	.008	.930
English RAN (<i>df</i> : 1, 28)	1.063	.311	.023	.881	1.928	.176
School Language (<i>df</i> : 1, 28)	.238	.629	.4574	.041*	.076	.785

p* < .05*Welsh-medium schools***

The results presented above have focused specifically on comparing children with high and low literacy abilities, as measured by a variety of English-language measures, on various aspects of their self-esteem. It has centred on comparing those children attending English-medium schools with those attending Welsh-medium schools. In order to investigate whether the effects of literacy on self-esteem and coping are dependent in some part on the language being used, this next section will examine the relationship between self-esteem, coping style and literacy abilities in Welsh. The results of these analyses will then be compared with the results already presented for English literacy and self-esteem to describe the similarities and differences in the way in which bilingual literacy affects self-esteem and coping.

GSEQ.

A univariate ANOVA comparing the standardised GSEQ scores of children in Welsh-medium schools according to their Welsh literacy abilities was performed and the results are presented in Table 7-8.

Table 7-8 The results of a univariate ANOVA comparing the GSEQ scores of children in Welsh-medium schools according to their Welsh literacy abilities.

Independent Variable	Dependent Variable: GSEQ (Standardised Scores)		
	<i>F</i>	<i>df</i>	<i>p</i>
Welsh reading	.548	1, 17	.469
Welsh writing	.240	1, 17	.630
Welsh RAN	.082	1, 17	.777

* $p < .05$

As can be seen, no significant main effect of Welsh literacy abilities was found. No significant interactions were found. However, a significant main effect of English writing abilities was found earlier in this section (Table 7-5). Here, a significant interaction with school language group revealed that a difference only existed for children in Welsh-medium schools (see p.250-1). This suggests that, for children in Welsh-medium schools, self-esteem is related to English writing abilities but not to Welsh abilities.

Subscales of self-esteem.

A multivariate ANOVA comparing the standardised scores of self-esteem in each of the subscales for children in Welsh-medium schools according to their Welsh literacy abilities was performed. The results are shown in Table 7-9.

Table 7-9 The results of a multivariate ANOVA comparing scores of subscales of self-esteem for children according to Welsh literacy abilities and school language

Independent Variable	Subscales of Self-Esteem (Standardised Scores)							
	Academic		General		Parental		Social	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Welsh reading (<i>df</i> : 1, 17)	2.589	.126	4.484	.049*	.019	.893	2.226	.154
Welsh writing (<i>df</i> : 1, 17)	.125	.728	3.567	.076	1.545	.231	.088	.771
Welsh RAN (<i>df</i> : 1, 17)	.170	.685	1.225	.284	.048	.830	1.081	.313

* $p < .05$

A significant main effect of Welsh reading ability was found for general self-esteem. Analysis of the mean scores indicates that children with higher Welsh reading abilities also tend to have higher general self-esteem ($M = 12.50$) than those with lower Welsh reading abilities ($M = 9.82$). No significant interactions were found.

Coping Style.

A multivariate ANOVA comparing the standardised scores of the coping strategies used by children in Welsh-medium schools according to their Welsh literacy abilities was performed and the results are shown in Table 7-10.

Table 7-10 The results of a multivariate ANOVA comparing the use of coping strategies when faced with stressful situations according to English literacy ability and school language.

Independent Variable	Coping Strategies (Standardised Scores)					
	Task-oriented		Emotion-oriented		Avoidance-oriented	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Welsh reading (<i>df</i> : 1, 28)	.002	.967	.298	.593	.332	.572
Welsh writing (<i>df</i> : 1, 28)	.575	.459	.015	.905	.144	.709
Welsh RAN (<i>df</i> : 1, 28)	.279	.604	.001	.979	5.754	.028*

* $p < .05$

These results indicate that a main effect of Welsh rapid naming abilities exists for avoidance-oriented strategies. A marginally significant main-effect of WRAN time was also found for social types of avoidance-oriented coping strategy ($F(1, 17) = 4.53, p = .048$). Analysis of the mean scores indicates that children who were quicker in the WRAN task also used fewer avoidance-oriented strategies ($M = 43.71$), especially social types ($M = 41.95$) than children who were slower in the WRAN task ($M = 53.00$, Social-types of avoidance: $M = 50.83$).

Research Question 5:

To what extent is self-esteem and coping style related to factors other than literacy such as SES, gender, birth order, age, non-verbal IQ and home language use?

The results presented so far have described the relationship between literacy ability and self-esteem for children in Welsh-medium and English-medium schools. However, Chapter 3 presented a review of the literature that had identified a relationship between several other factors and self-esteem. Those factors are considered here in order to examine whether the same patterns of effects are seen among the population of this study. The

variables used in these analyses are detailed in Table 7.6 above. Some of these factors have been included for analysis in both research questions (such as age) as they may interact with any of the other factors and such interactions are important to find and address. The title of each section indicates which independent variables were used to analyse scores of GSEQ, subscales of self-esteem and coping styles. Age and school language group were used as additional between-subjects factors in every analysis. A summary of the results is shown in Table 7-11.

Table 7-11 Results of analyses concerning the effects of possibly influential factors on the self-esteem and coping styles of children in schools in Wales.

Independent variable	Significant Main Effects, Interactions or Correlations		
	GSEQ*	Subscales of Self-Esteem*	Coping Style*
Maternal Employment SES	None	None	Avoidance-oriented coping ($F(1, 43) = 5.14, p = .028$), in particular social types of avoidance coping ($F(1, 43) = 4.84, p = .033$). Interaction with school language for avoidance-oriented coping ($F(1, 43) = 7.93, p = .007$) and social types ($F(1, 43) = 10.72, p = .002$).
Paternal Employment SES	None	None	None
Maternal Education	None	None	None
Paternal Education	None	None	None
Birth Order	Main effect ($F(3, 91) = 2.92, p = .038$).	Main effect for General Self-Esteem ($F(3, 38) = 2.98, p = .044$).	None

Independent variable	Significant Main Effects, Interactions or Correlations		
	GSEQ*	Subscales of Self-Esteem*	Coping Style*
Age	Interaction with School Language (See Research Question 1) Correlation ($r = .244, p = .009$ (two-tailed), $n = 115$)	Correlation with General Self-Esteem ($r = -.295, p = .029$ (two-tailed), $n = 55$)	None
Non-verbal IQ	Main effect ($F(1, 101) = 6.99, p = .009$)	None	None
Home Language	Interaction with age ($F(2, 101) = 5.29, p = .007$).	None	None
Maternal use of Welsh	None	None	None
Paternal use of Welsh	None	None	Correlation with avoidance-oriented coping ($r = -.359, p = .031$ (two-tailed), $n = 36$) and with distraction-types of avoidance ($r = -.351, p = .036$ (two-tailed), $n = 36$)

Independent variable	Significant Main Effects, Interactions or Correlations		
	GSEQ*	Subscales of Self-Esteem*	Coping Style*
Age of introduction to Welsh literacy (Welsh-medium schools only).	None	Correlation with parental self-esteem ($r = .381, p = .031$ (two-tailed), $n = 32$).	None
Age of introduction to English literacy (Welsh-medium schools only).	Younger children: Correlation ($r = -.379, p = .039$ (two-tailed), $n = 30$).	None	None
Gender	Main effect ($F(1, 113) = 5.57, p = .020$).	Main effect for social self-esteem ($F(1, 43) = 6.38, p = .015$).	Main effect for social types of avoidance-oriented coping ($F(1, 43) = 4.34, p = .043$).

*Standardised Scores

Parental SES

Children's standardised scores of self-esteem and coping styles were analysed according to levels of parental employment, age and school language. As shown in Table 7-11, paternal employment does not appear to be related to either of these factors nor does the level of education achieved by either parent. However, maternal SES does appear to be related to the amount of avoidance-oriented coping strategies used by children and this variable interacts significantly with school language.

These findings were examined further using post-hoc analysis. Analysis of the means showed that, overall, children whose mothers were of higher SES made less use of avoidance-oriented coping ($M = 46.17$) than those whose mothers were of lower SES.

One-way ANOVAs revealed that a statistically significant difference between the amount of avoidance coping used by children according to their mother's SES existed only for children in English-medium schools in this study ($F(1, 15) = 8.06, p = .012$). These results are shown in Figure 7-2.

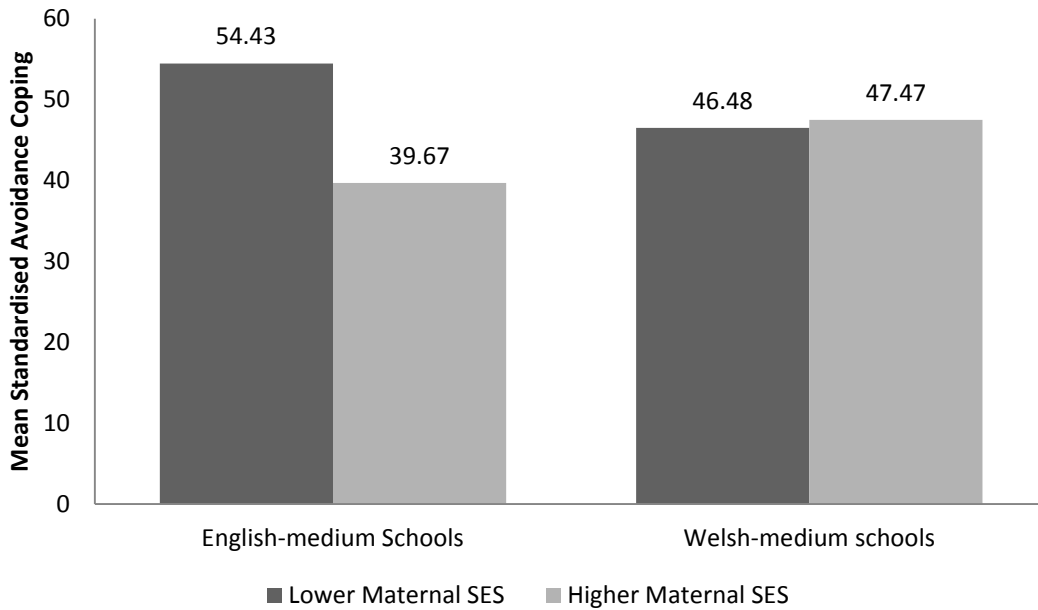


Figure 7-2 Graph showing the amount of avoidance-coping strategies used by children in English-medium and Welsh-medium schools according to their mothers' level of SES.

As can be seen, children in this study attending English-medium schools whose mothers are of higher SES make use of fewer avoidance-oriented strategies than those whose mothers are of lower SES. In Welsh-medium schools in this study, children make use of similar amounts of avoidance coping regardless of maternal SES.

Birth order

A significant main effect of birth order was found for standardised GSEQ ($F(3, 91) = 2.92, p = .038$). Post-hoc analysis found a significant difference between the global self-esteem of only-children and youngest children (Tukey's $p = .013$) and between youngest children and oldest children (Tukey's $p = .006$). These results are shown in Figure 7-3.

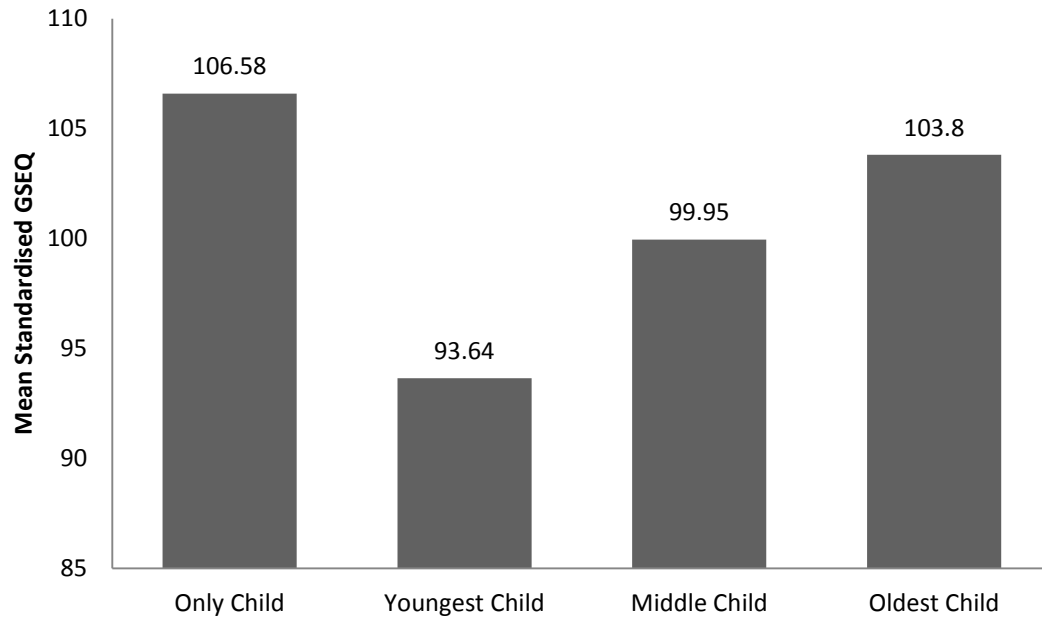


Figure 7-3 Graph showing the mean standardised global self-esteem quotients of children according to their place within their family.

As can be seen, youngest children have the lowest self-esteem although it is well within average limits. Youngest children were found to have significantly lower self-esteem than either only-children or oldest children in this study.

A main effect of birth order for standardised scores of general self-esteem was also found ($F(3, 38) = 2.98, p = .044$). Post-hoc analysis found that this was founded on a significant difference between the general self-esteem of youngest and oldest children in this study (Tukey's $p = .039$). Analysis of the mean scores showed that youngest children had significantly lower general self-esteem ($M = 8.84$) than oldest children ($M = 11.70$). No significant interactions were found.

Age

In Research Question 1 (this chapter), a significant interaction between school language and age for standardised scores of self-esteem was described but no significant main effect of age on global self-esteem was discovered.

A bivariate Pearson's r correlation found a significant, positive correlation between standardised scores of GSEQ and age, indicating that older children also tended to have higher self-esteem. However, a significant, negative correlation was found between levels of general self-esteem and age in months. When considering these results, it should be remembered that children of all ages achieved a GSEQ score but only older children achieved a general self-esteem score. Therefore, while secondary school children tend to have higher GSEQ than primary school children, at the older age group, being older is also associated with lower levels of general self-esteem.

Given this finding, these correlational analyses were repeated using only the data from older children. This found a significant, negative correlation between the age of children in secondary school and their GSEQ ($r = -.292, p = .031$ (two-tailed), $n = 55$). These results suggest that, while children's global self-esteem appears to increase from primary to secondary school it may begin to decrease again as children near the age of puberty.

Non-verbal IQ

A two-way ANOVA found a significant main effect of IQ group ($F(1, 101) = 6.99, p = .009$) for standardised GSEQ but no significant interactions. Analysis of the mean scores showed that children with higher non-verbal IQ also had significantly higher global self-esteem ($M = 102.71$) than children with lower non-verbal IQ ($M = 95.10$).

Home language use

A significant interaction between combined exposure and age was found for children in this study ($F(2, 101) = 5.29, p = .007$). Post-hoc analysis indicated that no significant difference between the standardised global self-esteem of younger children existed but, for older children, a significant difference was found between EHES children and WHWS children (Tukey's $p = .04$). EHWS children were not significantly different from either of the other two groups. These results are shown in Figure 7-4.

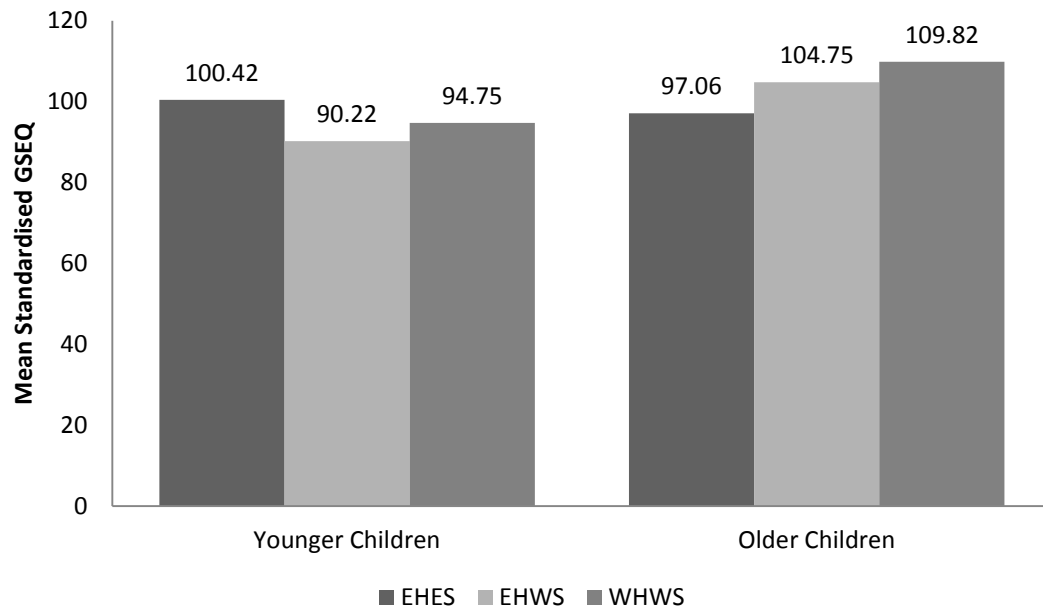


Figure 7-4 Graph showing the mean GSEQ scores of older and younger children according to the languages spoken in the home and at school.

From the graph, it is apparent that older WHWS children in this study had higher global self-esteem than the older EHES children.

A bivariate Pearson's r correlation found that the amount of Welsh spoken by the father was significantly, negatively correlated with the amount of avoidance-oriented coping

strategies used by children ($r = -.359, p = .031$ (two-tailed), and with distraction types of avoidance-oriented coping. ($r = -.351, p = .036$ (two-tailed), $n = 36$).

Introduction to English and Welsh literacy.

A two-way ANOVA with standardised GSEQ as the dependent variable and age of introduction to English literacy (preschool, before year 2, year 3+) and age of introduction to Welsh literacy (preschool, before year 2) as the independent variables found no significant main effect of age of introduction to English or Welsh literacy.

A bivariate correlation found that the age at which children began to learn to read and write in Welsh was significantly, positively correlated with parental self-esteem ($r = .381, p = .031$ (two-tailed), $n = 32$).

Children's data were also analysed according to age group. While no significant correlation between age of introduction to English literacy and GSEQ was found for older children, a significant, negative correlation was found between the age at which younger children began to learn to read and write English and global self-esteem ($r = -.379, p = .039$ (two-tailed), $n = 30$).

Gender

A one-way ANOVA (involving gender, age and school language) found a significant main effect of gender for standardised GSEQ. No significant interaction was found. Analysis of the means indicated that boys had significantly higher global self-esteem ($M = 101.88$) than girls ($M = 97.20$) in this study.

A main effect of gender for standardised scores of social self-esteem was found. Again, the mean scores showed that boys had significantly higher social self-esteem ($M = 11.21$) than girls ($M = 9.83$).

A significant main effect of gender for standardised scores of social types of avoidance-oriented coping was found. Analysis of the means showed that boys made significantly more use of social types of avoidance coping ($M = 49.42$) than girls ($M = 46.25$).

Summary.

This chapter has detailed the results of experiments aimed at examining what differences exist between the self-esteem and coping strategies of children in Welsh-medium and English-medium schools and has investigated how these are related to literacy abilities in each of these languages. The key findings of this study are:

1. The self-esteem of children in selected Welsh-medium and English-medium schools is different.
2. The Welsh-medium school children in this study had lower self-esteem in primary school but higher self-esteem in secondary school than the English-medium school children.
3. A significant correlation was found between English reading ability and social self-esteem for the children who participated in this study.
4. While this study found no difference in the self-esteem of children attending English-medium schools with higher and lower English literacy abilities, some differences were found for the children in Welsh-medium schools who participated.
5. Children in Welsh-medium schools make less use of avoidance-oriented coping strategies than children in English-medium schools which may be related to the transparency of the Welsh orthography.

According to the results of this study, children in Welsh-medium primary schools have significantly lower self-esteem than their peers in English-medium primary schools but, in

secondary school, this has been reversed completely. The experiences children in this study gained by attending Welsh-medium education appear to boost their self-esteem as they leave primary school. It should be remembered, however, that these experiences are not limited only to the language of instruction in these schools and so further investigation would be needed to establish the exact cause of this difference. It is interesting to compare this pattern with the English literacy abilities of children in Welsh-medium and English-medium schools shown in Study 1. The Welsh-medium school children's self-esteem outstrips that of the English-medium school children in this study at the same point as their English literacy abilities reach the same levels or higher.

Children in English-medium schools in this study showed no correlation between their literacy abilities and their global self-esteem but social self-esteem was correlated with English reading abilities for all groups. However, children in Welsh-medium schools appeared to relate their global self-esteem to their English and Welsh literacy abilities almost consistently. These findings are particularly interesting when the finding that literacy ability is related to social self-esteem for this group of children is considered. Girls were found to have significantly lower social self-esteem than boys but only in English-medium schools and not in Welsh-medium schools where global self-esteem is more closely related to literacy abilities. Girls have been shown to excel in literacy skills relative to boys both in Study 1 of this research and in some previous studies (Bradshaw, Ager, Burge, & Wheeler, 2010; Maynard, 2002).

Furthermore, children in Welsh-medium schools in this study made less use of avoidance coping strategies than those in English-medium schools. Further investigation is needed in order to identify why this might be and this should consider the reasonable possibility that the transparent nature of the Welsh orthography may call for less reliance on avoidance as a

coping strategy when learning to read and write as children have less difficulty reading and writing Welsh (Ellis & Hooper, 2001; Paulesu, et al., 2000; Seymour, Aro, & Erskine, 2003; Thorstad, 1991).

This chapter has examined the measured self-esteem and use of coping strategies by children in Welsh-medium and English-medium schools. However, it does not assess the feelings of children about their literacy abilities nor the social comparisons they make with their peers concerning this. In Chapter 3, it was argued that these were both important aspects of the development of the self-concept. Therefore, the next chapter will look at these aspects of children's experiences and their impact on their feelings about themselves and their literacy abilities.

Chapter 8

Study 4: Perceptions of Ability and Peer Comparisons

The previous chapter investigated how self-esteem was impacted by the language of instruction in schools in Wales. It examined the differences between the self-esteem of children in English-medium and Welsh-medium education but it did not consider children's specific beliefs about their language abilities. This chapter aims to investigate how children feel about their ability to speak, read, write and understand the languages they use and how they feel their own abilities compare with those of their peers. This information will be used to provide a more complete picture of the development of the self in relation to literacy in children in Wales. Therefore, this chapter will address the following questions:

1. Do children in selected Welsh-medium and English-medium schools make different estimates of ability and peer comparisons concerning their English literacy abilities?
2. Do children in selected Welsh-medium schools make the same estimates of ability and peer comparisons for their literacy abilities in English and Welsh?
3. Is measured self-esteem related to estimations of ability or peer-comparisons concerning language ability?
4. Do children with lower literacy abilities make different estimations of their abilities and comparisons with their peers?

Method

Participants

The same children were used for this study as were used in Study 2. These were children aged between 7 and 12 years in English medium and Welsh medium primary and secondary schools in North East Wales and North West England.

Measures

In addition to the measures already detailed in Chapters 5, 6 and 7, children were asked to rate their abilities and their place within their class according to two scales provided in the Language Use and Preference Questionnaire (LUPQ).

Language Use and Preference Questionnaire (LUPQ)

This questionnaire is shown in Appendix E. It asked children to rate how well they believed they were able to speak, read, write and understand spoken English and Welsh according to a seven point scale ranging from 'very poorly' to 'very well'. The LUPQ also asked children to rate their position within the primary school and, where applicable, secondary school class in terms of their ability in language tasks. These questions were designed to ask children to compare themselves explicitly with the other children in the class by placing them all in order of ability and then estimating their own position within them. Children were given a visual prompt (Appendix F) that resembled steps and it was explained to them that, in a class full of children, the child who is better than all the others in the class at a subject is said to be top of the class for that subject, those who do better than some but not than others are in the middle of the class and those who do worse than all the other children are at the bottom of the class. As this explanation was given, the corresponding step on the picture prompt was indicated to the child. A practice item was given where children

were asked to estimate their position in their class for mathematics and their response on the picture prompt was discussed briefly to ensure the child had understood the instructions.

Children aged 7 to 8 years were only asked to estimate their position in their current class in primary school. Children aged 11 to 12 years were asked to estimate class positions for their current, secondary school class as well as their position in their class in primary school (a retrospective judgement).

Results

In order to investigate the specific research questions as outlined at the beginning of this chapter, chi-square and correlational analyses were used due to the nature of the data. As the ratings given for self-ratings of ability and peer comparisons are ordinal data, ANOVAs and t-tests were not possible.

Research Question 1:

Do children in selected Welsh-medium and English-medium schools make different estimates of ability and peer comparisons concerning their English literacy abilities?

This question asks whether the children in English-medium and Welsh-medium schools in this study feel the same about their own abilities to read, write, speak and understand English and whether they make similar peer comparisons concerning these abilities. To begin with, self-ratings of ability are discussed followed by peer comparisons both for primary school and secondary school children.

Estimates of ability and school language of instruction.

A chi-square analysis found a significant amount of variation in the self-ratings of ability to understand English according to the language of the schools in this study. The results of this analysis are reported in Table 8-1 below. Figure 8-1 shows the percentage of

responses in each category on the scale given by children in Welsh medium and English medium schools in relation to their self-perceptions of ability to understand English. As the graph shows, more children from Welsh medium schools rated themselves as ‘very well’ able to understand English than children in English medium schools while a higher percentage of children in English medium schools rated themselves as ‘a little above average’ than children in Welsh medium schools.

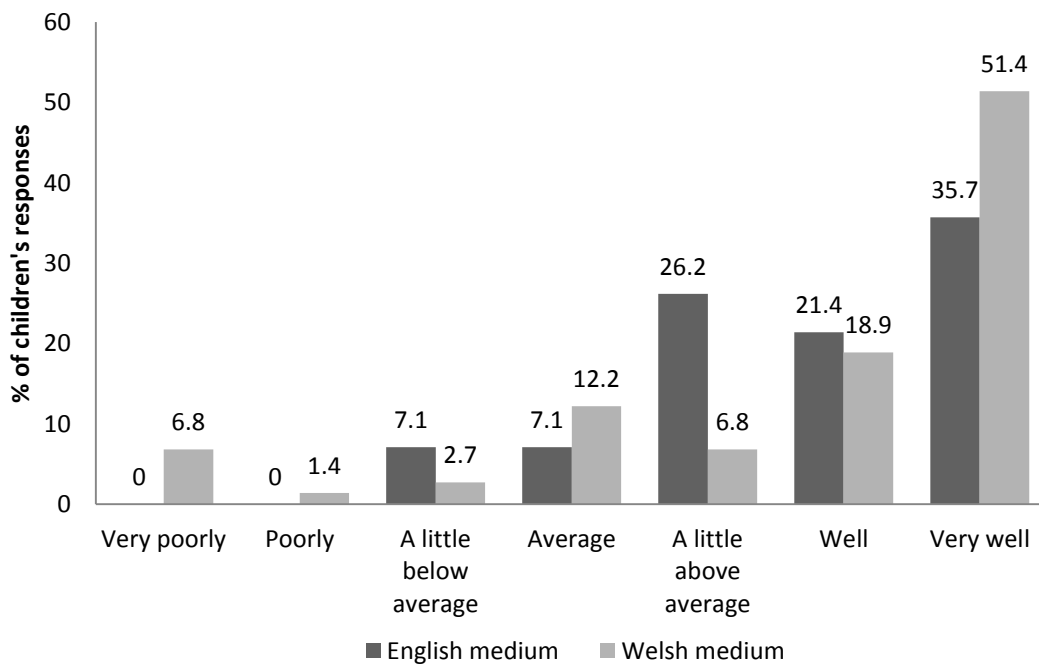


Figure 8-1 Graph showing the percentage of responses at each point on the scale of self-ratings of ability to understand English given by children in Welsh medium and English medium schools.

Examination of the residuals confirmed that ratings of ‘a little above average’ and ‘very well’ were the most significant contributing factors to this result. Children in these Welsh-medium schools, it seems, believe themselves to be more able to understand English than their peers in English-medium schools.

Table 8-1 The results of chi-square analysis of self-ratings of ability to speak, read, write and understand English according to school language of instruction.

Self-ratings of ability to:	Chi-square according to school language of instruction		
	χ^2 ($N = 116$)	df	p
Speak English	6.057	6	.417
Read English	5.5580	6	.474
Write English	7.064	6	.315
Understand English	13.716	6	.033*

* $p < .05$ ***Peer comparisons and school language of instruction***

Figure 8-2 shows the responses given by older children in Welsh-medium and English-medium schools in this study when asked to rate their primary school classroom position for their ability to speak English. As can be seen, a higher percentage of children in these English-medium secondary schools rated themselves as being at the top of their primary school class for speaking English while children in the Welsh-medium secondary schools rated themselves as nearer the middle of their class for English. This suggests that older children in these English-medium schools tend to compare their English speaking abilities more favourably with those of their peers than the older children in Welsh-medium schools. This is particularly interesting in the light of the findings presented in Chapter 5 where it was found that older children in Welsh-medium schools outperformed children in English-medium schools on some measures of English literacy. This suggests that, although the children in Welsh-medium schools in this study are achieving well, their success is not bolstering their beliefs about their abilities. Perhaps the children in English-medium schools are more confident in their abilities as they are only expected to be fluent in one language and so do not compare their abilities in English with their abilities in any other language.

Conversely, children in Welsh-medium schools may compare their English abilities unfavourably with their Welsh abilities, lowering their perceptions of their own aptitudes.

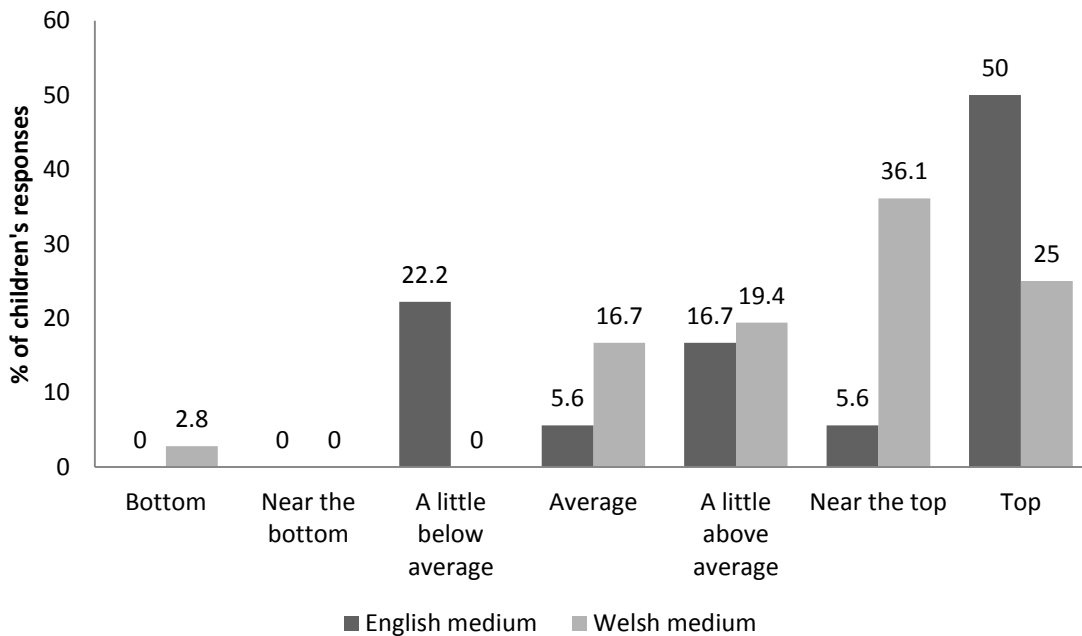


Figure 8-2 Graph showing the percentage of responses at each point on the scale of self-ratings of primary school class position for speaking English given by children in Welsh medium and English medium secondary schools.

A chi-square analysis of the ratings of primary school class position according to school language found that this was the only area where a significant amount of variation was found. The results of this analysis are shown in Table 8-2.

Table 8-2 The results of chi-square analysis of children's peer comparisons of ability to speak, read, write and understand English according to school language of instruction.

Age group	Place in primary school class for:	Chi-square according to school language of instruction		
		χ^2 ($N = 116$)	df	p
Younger Children	Speaking English	9.193	6	.163
	Reading English	7.847	6	.250
	Writing English	11.070	6	.086
	Understanding English	7.477	6	.279
Older Children	Speaking English	16.264	5	.006*
	Reading English	10.709	5	.057
	Writing English	5.540	6	.477
	Understanding English	7.797	5	.168

* $p < .05$

This indicates that there is a significant difference in the peer comparisons older children in this study in Welsh-medium and English-medium schools made in retrospect for their primary school English speaking abilities. Another possible explanation for this is that some of the children in Welsh-medium schools were only exposed to Welsh at home and so were more likely to notice a difference between their own English abilities and those of their peers from English speaking homes. While children may be aware that differences in ability are the likely result of differences in exposure to language at home, they are still able to see that their own performance is weaker than their peers and this may still have an effect on their self-esteem.

Research Question 2:

Do children in selected Welsh-medium schools make the same estimates of ability and peer comparisons for their literacy abilities in English and Welsh?

The first question looked at differences in the self-ratings of ability and peer comparisons of children in selected Welsh-medium and English-medium schools. This question investigates any differences shown by children in Welsh-medium schools when asked to consider their own abilities in Welsh and English. As above, it will begin by comparing how children in selected Welsh-medium schools rate their own language abilities in Welsh and in English. It will then analyse the way children in these Welsh-medium schools compare themselves with their peers concerning their ability in each language.

Estimates of ability and language being used

Table 8-3 shows the results of a chi-square analysis comparing the scores given by the children in Welsh-medium schools for their ability to speak, read, write and understand in Welsh and the same scores for their abilities in English. This shows that a significant amount of variation exists in these children's self-ratings of ability to write according to the language in which they are writing.

Table 8-3 The results of a chi-square analysis comparing the self-ratings of ability to speak, read, write and understand given for English and for Welsh by children in Welsh-medium schools.

Chi-square comparison of ratings of ability given by children for Welsh and for English			
Self-ratings of ability to:	χ^2 ($N = 147$)	df	p
Speak	6.249	6	.396
Read	10.857	6	.093
Write	16.637	6	.011*
Understand	6.231	6	.398

* $p < .05$

The percentages of responses given in each category for Welsh and English writing ability are shown in Figure 3.3. Analysis of the residual scores indicate that the main difference here is located in the numbers rating themselves as very well able to write in Welsh and as very well able to write in English. As can be seen, almost half of the children reported themselves as ‘very well’ able to write Welsh while only a third reported themselves as ‘very well’ able to write English. Children in Welsh medium schools in this study thus perceive themselves as more able to write in Welsh than in English. This is borne out by the pattern of responses at other points in the scale. Qualitative analysis of Figure 8-3 suggests that very few (1.4%) of the children reported feeling their ability to write in Welsh was anywhere below average while a fifth of children (20.4%) rated their ability to write in English as below average.

However, the children in Welsh-medium schools rate their abilities in English higher than those of the children in English-medium schools (see Research Question 1). In the light of this, the finding that they also rate their Welsh language abilities more highly again is interesting. Further research would be needed to establish the cause of this difference but one possibility could be the more transparent nature of the Welsh orthography. Since Welsh is a less difficult language than English to read and write (Ellis & Hooper, 2001; Paulesu, et al., 2000; Seymour, et al., 2003; Thorstad, 1991), children may notice the relative ease with which they are able to use Welsh in comparison with English which may account for this variation in ratings.

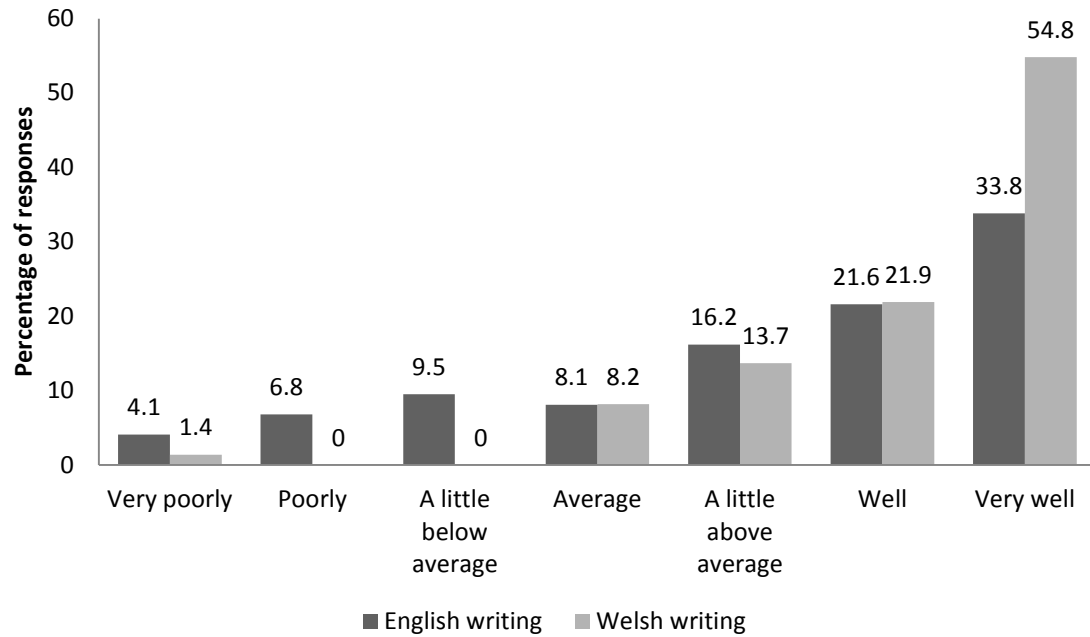


Figure 8-3 Graph showing the percentage of children who rated themselves at each point on the scale for self-ratings of ability to write in English and in Welsh.

Peer comparisons and language being used

Figure 8-4 and Figure 8-5 show the ratings given by children in Welsh-medium primary schools in this study when asked to estimate their position in their class for speaking and writing in English and Welsh. A chi-square analysis (see Table 8-4 below) found a significant amount of variation according to the language being used between ratings of primary school classroom position given by younger children for speaking and writing. No significant amount of variation according to language was found for reading or understanding.

Literacy and Self-Esteem in Schools in Wales.

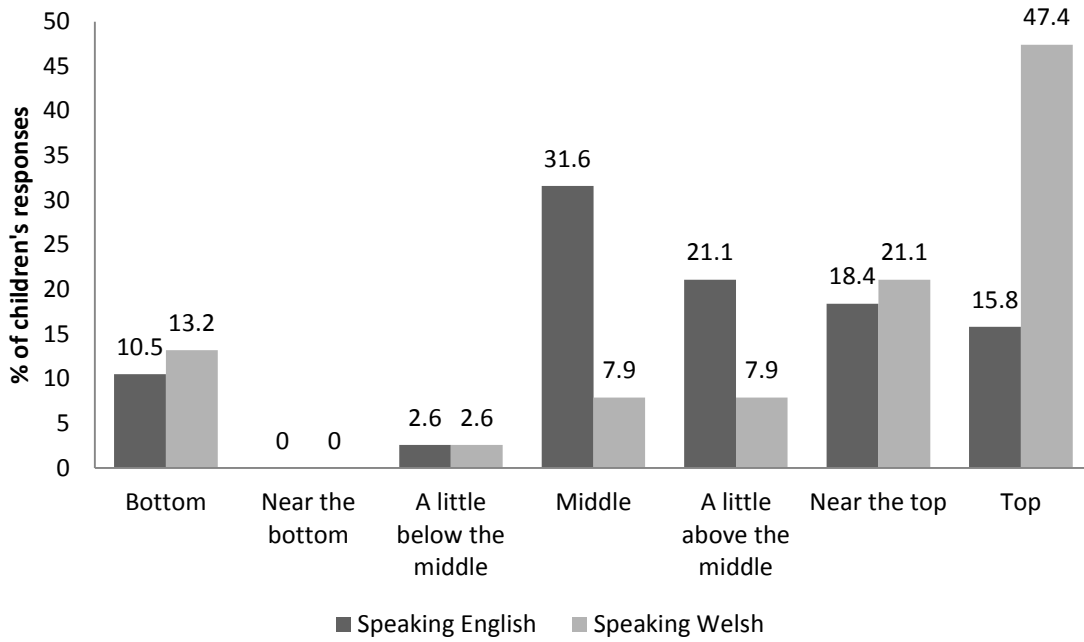


Figure 8-4 Graph showing the percentage of responses at each point on the scale of self-ratings of primary school class position for speaking English and speaking Welsh given by children in Welsh medium primary schools.

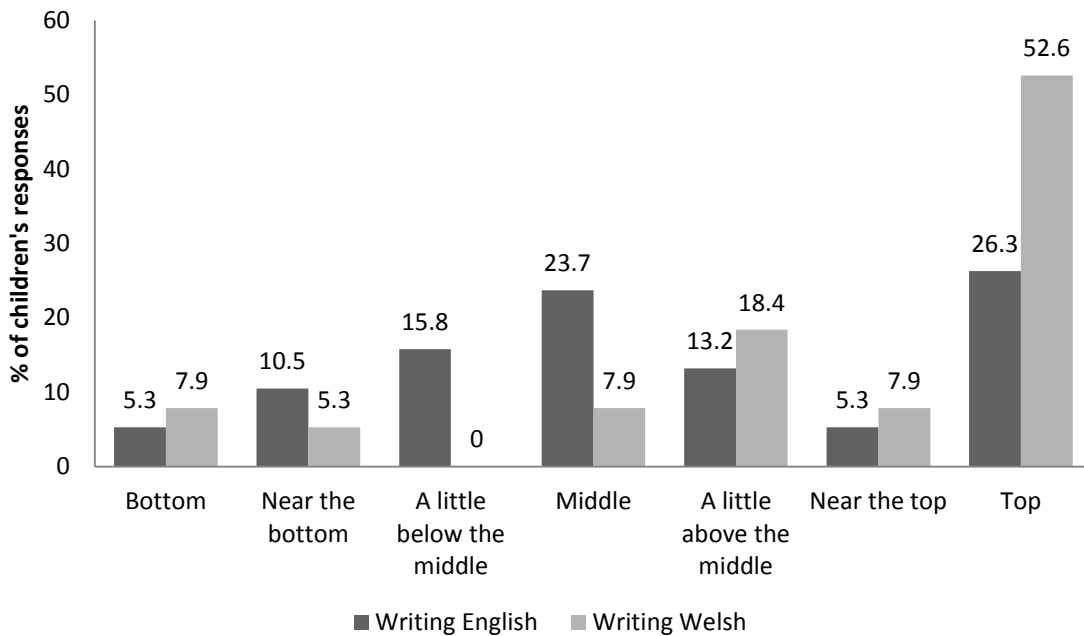


Figure 8-5 Graph showing the percentage of responses at each point on the scale of self-ratings of primary school class position for writing English and writing Welsh given by children in Welsh medium primary schools.

Table 8-4 The results of chi-square analysis of the peer comparisons of ability to speak, read, write and understand according to the language being used given by children in Welsh-medium schools.

Age group	Place in primary school class for:	Chi-square according to language being used		
		χ^2	df	<i>p</i>
Younger Children (<i>N</i> = 76)	Speaking	13.851	5	.017*
	Reading	11.166	6	.083
	Writing	13.733	6	.033*
	Understanding	7.010	5	.220
Older Children (<i>N</i> = 71)	Speaking	2.988	5	.702
	Reading	9.782	4	.044*
	Writing	6.419	6	.378
	Understanding	11.965	5	.035*

* *p* < .05

From the graphs, it can be seen that younger children compared themselves less favourably with their peers when asked to rate their position in class for **speaking** and writing English than for speaking and writing Welsh. This is confirmed by analysis of the residual scores which indicates that the variation found is most significant for the ratings of ‘middle’ and ‘top’ of the class. As Figure 8-4 shows, almost a third of children rated themselves as being ‘middle’ of their class for speaking English while nearly half of the children rated themselves as being ‘top’ of their class for speaking Welsh.

As with speaking, more younger children rated themselves as middle of the class for **writing** English than rated themselves at the same position for writing Welsh while more than half of the children rated themselves as being the best in their class for writing Welsh which was twice as many as those who rated themselves best in the class for writing English (shown in Figure 8-5). Children in Welsh-medium primary schools in this study make more use of the Welsh language in their academic life which may result in more confidence in using Welsh. This could contribute to more favourable peer comparisons in Welsh. Receiving less feedback at school concerning their abilities in English may also result in

lower ratings of English abilities, widening the gap between self-ratings of ability in each language.

For older children, analysis revealed a significant amount of variation according to the language being used for retrospective ratings of class position for **reading** and **understanding** in primary school. No significant variations were found for current ratings of Welsh and English class positions in secondary school. These results are illustrated in Figure 8-6 and Figure 8-7.

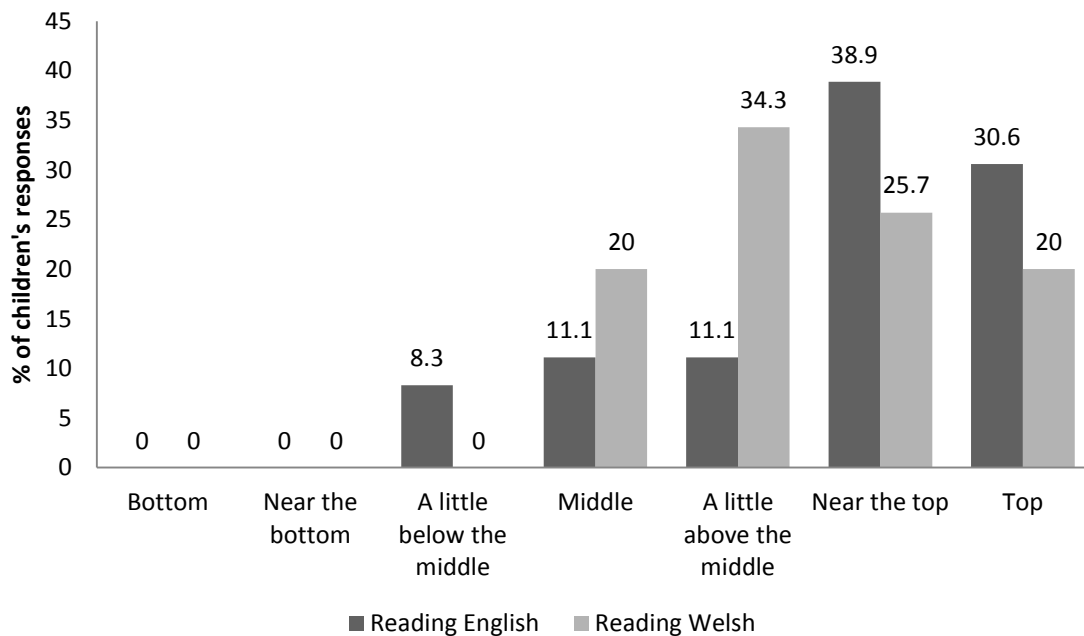


Figure 8-6 Graph showing the percentage of responses at each point on the scale of retrospective self-ratings of primary school class position for reading English and reading Welsh given by children in Welsh medium secondary schools.

Analysis of the chi-square residual scores confirms that the majority of variation occurs in the ‘a little above the middle’ and ‘near the top’ categories. As can be seen in Figure 8-6 and Figure 8-7, more older children in Welsh medium schools retrospectively believed themselves to be ‘near the top’ of their primary school class for their English

reading and understanding than for their Welsh reading and understanding while the opposite was true for ratings of ‘a little above the middle’.

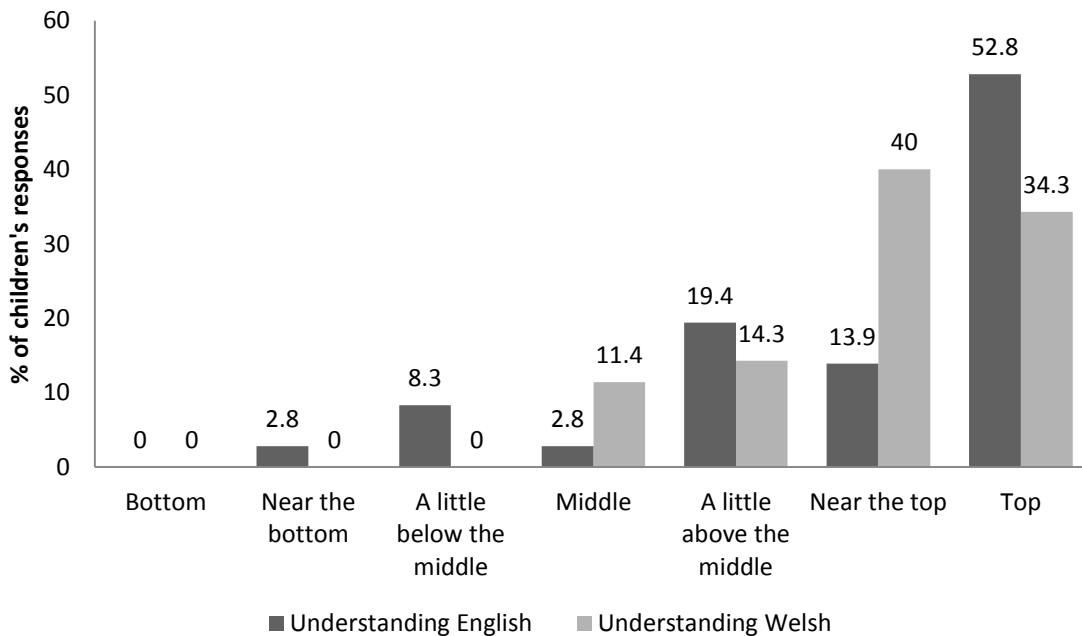


Figure 8-7 Graph showing the percentage of responses at each point on the scale of self-ratings of primary school class position for understanding English and understanding Welsh given by children in Welsh medium secondary schools.

This is surprising given the finding that children in this study currently attending Welsh-medium primary schools feel the opposite about their abilities in each language. Primary school aged children in this study appear to feel very positive about their Welsh abilities but, for the children in Welsh-medium secondary schools, this seems to have decreased while confidence in English abilities has increased. Older children in this study made similar comparisons with their current group of peers for each language. However, their memory for the peer comparisons they made in primary school is very different from those made by children currently attending primary school. Further research would be needed to establish whether this represents a change in the way children in Welsh-medium

schools perceive their abilities relative to their peers or not and what causes this change if it exists

These results could also be linked with the amount of English children in Welsh-medium schools hear at home. To investigate this, correlational analysis was used and the results are shown in Table 8-5.

Table 8-5 The results of a Spearman's rho correlational analysis comparing the amount of English spoken by the parents of children in Welsh-medium schools with their ratings of place in their primary school class for their English abilities.

Age Group	Primary school peer comparisons for:	Amount (%) of Welsh Spoken by:			
		Mother		Father	
		r_s	p	r_s	p
Younger Children ($N = 37$)	Speaking English	-.268	.108	-.387	.018*
	Speaking Welsh	.042	.806	-.048	.776
	Reading English	-.206	.221	-.375	.022*
	Reading Welsh	.091	.591	-.047	.784
	Writing English	.027	.874	-.045	.793
	Writing Welsh	.057	.736	-.118	.489
	Understanding English	-.284	.088	-.391	.017*
	Understanding Welsh	.000	.999	-.142	.403
Older Children ($N = 35$)	Speaking English	-.485	.003*	-.150	.383
	Speaking Welsh	.294	.087	.201	.248
	Reading English	-.351	.036*	-.260	.126
	Reading Welsh	.135	.438	.201	.248
	Writing English	-.099	.572	-.084	.631
	Writing Welsh	.038	.831	-.104	.551
	Understanding English	-.341	.042*	-.356	.033*
	Understanding Welsh	-.031	.859	-.014	.937

According to these results, significant correlations exist between the amount of Welsh spoken at home and peer comparisons for speaking and reading and understanding English both for older and younger children in this study. However, no correlation was found with any of the Welsh literacy abilities.

Research Question 3:

Is measured self-esteem related to estimations of ability or peer-comparisons concerning language ability?

Global self-esteem and self-ratings of ability

For children in Welsh-medium schools in this study, a significant correlation was found between standardised GSEQ and self-ratings of ability to read English and to write English (see Table 8-6). No relationships were found between their GSEQ and their ability to use Welsh.

Table 8-6 Table showing the results of a Spearman's r_s bivariate correlation comparing self-ratings of ability to use English and Welsh with standardised scores of global self-esteem (GSEQ) for children in Welsh-medium schools.

Self-ratings of ability to:	Spearman's r_s Bivariate Correlation		
	r_s	p	n
Speak English	.045	.703	74
Speak Welsh	.099	.405	73
Read English	.392	.001*	74
Read Welsh	.035	.769	73
Write English	.256	.027*	74
Write Welsh	.032	.786	73
Understand English	.157	.181	74
Understand Welsh	.019	.873	73

* $p < .05$

The same correlational analysis was used for the data from children in English-medium schools but no significant correlations were found.

It is interesting that correlations have been found for these factors for the children in Welsh-medium schools but not for those in English-medium schools. This could be due to a number of factors, such as the dominance of English in popular culture in Wales or the later

introduction of English literacy which may affect children's opinions of its importance.

These are questions which would require further research to answer.

Global self-esteem and peer comparisons

No significant correlations were found between the primary school peer comparisons made by children in the English-medium primary or secondary schools who participated in this study and their standardised scores of global self-esteem.

For children in Welsh-medium primary schools, standardised scores of global self-esteem were found to be significantly correlated with peer comparisons for the ability to write English ($r_s = .349, p = .032$ (two-tailed), $n = 38$). No significant correlations were found between the retrospective peer comparisons of children in Welsh-medium secondary schools and global self-esteem. These results indicate that peer comparisons based on **English writing** ability are important to the GSEQ of children in Welsh-medium primary schools.

No significant correlations were found between GSEQ and peer comparisons in secondary school for children in Welsh-medium or English-medium schools in this study.

Subscales of self-esteem and self-ratings of ability

As with global self-esteem, no significant correlations were found between self-rating of ability to use English and any of the standardised scores of subscales of self-esteem for children in English-medium schools in this study. The results of correlational analysis for children in Welsh-medium schools are shown in Table 8-7.

Table 8-7 Results of a Spearman's ρ bivariate correlation comparing standardised scores of subscales of self-esteem with self-ratings of ability to use Welsh and English for older children in Welsh-medium schools.

Self-ratings of ability to:	Academic ($n = 35$)		General ($n = 35$)	
	r_s	p	r_s	p
Speak English	-.125	.466	.087	.615
Speak Welsh	.345	.042*	.367	.030*
Read English	.190	.268	.257	.130
Read Welsh	.359	.034*	.523	.001*
Write English	-.228	.182	.133	.440
Write Welsh	.019	.912	.399	.018*
Understand English	.006	.970	.097	.573
Understand Welsh	.089	.613	.411	.014*

Interestingly, for children in Welsh-medium schools in this study, self-ratings of ability in Welsh were found to be significantly correlated with academic and general self-esteem. No correlations were found for parental and social self-esteem. These findings suggest that, for children in this study attending Welsh-medium schools, beliefs about English reading and writing abilities are correlated with global self-esteem but beliefs about Welsh literacy abilities are correlated with general ideas of self-worth and beliefs about Welsh speaking and reading abilities are correlated with self-esteem in academic situations. Further research would be needed to investigate the possible causes of these relationships. These include the use of Welsh as the language of school instruction. This emphasis on using Welsh in every aspect of the school curriculum is likely to link the Welsh language with school in the minds of children. Therefore, language abilities in Welsh are an essential part of all aspects of academia in Welsh-medium schools and will be an important factor in the development of academic self-esteem. Similarly, children spend a large proportion of their time in school and the majority of their peer relationships are likely to be forged there. In Welsh-medium schools, the Welsh-language is expected to be used both in the classroom and during break times (although this does not always happen in practice) (Thomas, Lewis, & Apolloni, 2012) and so Welsh is the language of many of a child's interactions at school.

Subscales of self-esteem and peer comparisons

A significant correlation was found between the peer-comparisons made by the children in the English-medium secondary schools in this study for their ability to speak English in their current class and standardised scores of academic self-esteem ($r_s = .495, p = .037$ (two-tailed), $n = 18$). No other significant correlations were found between peer comparisons and subscales of self-esteem for either school language group.

Research Question 4:

Do children with lower literacy abilities make different estimations of their abilities and comparisons with their peers?

In this section, the relationship between children's self-ratings of ability and their performance in literacy tasks will be analysed in order to assess how accurately children estimate their own abilities.

Self-ratings of ability

English-medium schools.

As can be seen in Table 8-8, the judgments made by children in English-medium schools in this study about their English reading ability correlate with their standardised scores of English reading accuracy. However, no other correlations were found. This suggests that children in English-medium schools in this study do not always make accurate assessments of their abilities in English.

Table 8-8 Table showing the results of a Spearman's r_s bivariate correlational analysis comparing measured literacy abilities with self-ratings of ability for children in English-medium schools.

Measures of literacy ability:	Self-ratings of ability to:							
	Speak English		Read English		Write English		Understand English	
	r_s	p	r_s	p	r_s	p	r_s	p
English reading accuracy**	-.171	.292	.342	.031*	.287	.072	.000	.998
English reading comprehension**	-.014	.934	.305	.063	.153	.358	-.042	.802
English written task word count	-.017	.919	.061	.714	.183	.264	-.019	.911
English written task errors	.217	.185	.037	.825	-.033	.844	.139	.399
ERAN completion time	-.002	.991	-.135	.426	-.276	.098	-.016	.927
ERAN errors	-.048	.779	-.083	.625	-.221	.189	-.240	.153

* $p < .05$ **standardised scores

Welsh-medium schools.

In contrast with the dearth of correlations found for children in English-medium schools are the results for children in the Welsh-medium schools in this study. As can be seen in Table 8-9, strong correlations have been found between each of the self-ratings of ability for English language skills and performance on measures of English reading and writing ability. However, no correlations were found between their self-ratings of abilities in Welsh and their performance on measures of Welsh literacy. This suggests that children in Welsh-medium schools in this study relate their beliefs about their abilities in English to their actual abilities more than they do in Welsh and more than children in English-medium schools. Again, this may be due to the later introduction of English literacy which may make children more aware of the importance of English literacy skills than Welsh literacy skills which have always been taught.

Table 8-9 Table showing the results of a Spearman's ρ bivariate correlational analysis comparing measured English literacy abilities with self-ratings of English ability for children in Welsh-medium schools.

Measures of literacy ability:	Self-ratings of ability to:							
	Speak English		Read English		Write English		Understand English	
	r_s	p	r_s	p	r_s	p	r_s	p
English reading accuracy**	.273	.020*	.443	.000*	.224	.058	.180	.131
English reading comprehension**	.318	.006*	.495	.000*	.254	.031*	.202	.089
English written task word count	.322	.010*	.424	.001*	.411	.001*	.367	.003*
English written task errors	-.289	.024*	-.503	.000*	-.283	.027*	-.229	.075
ERAN completion time	-.299	.024*	-.497	.000*	-.319	.016*	-.276	.038*
ERAN errors	-.189	.159	-.286	.031*	-.137	.310	-.102	.449

* $p < .05$ **Standardised Scores

Peer-comparisons

English-medium schools.

For younger children in English-medium schools in this study, a marginally significant negative correlation between ERAN completion times and primary school peer comparisons for English reading ability was found ($r_s = -.441$, $p = .046$ (two-tailed), $n = 21$).

Table 8-10 shows that, for children in this study attending English-medium secondary schools, a positive correlation was found between their retrospective peer comparisons for English reading and writing abilities and their measured reading accuracy.

Table 8-10 Table showing the results of a Spearman's ρ bivariate correlational analysis comparing measured literacy abilities with retrospective, primary school peer comparisons made by older children in English-medium schools.

Measures of literacy ability:	Primary school peer comparisons for:							
	Speaking English		Reading English		Writing English		Understanding English	
	r_s	p	r_s	p	r_s	p	r_s	p
English reading accuracy**	.471	.066	.521	.039*	.501	.048*	.212	.430
English reading comprehension**	.371	.157	.448	.082	.342	.194	.155	.566
English written task word count	.025	.921	.210	.403	.292	.239	-.185	.463
English written task errors	.117	.643	.049	.846	.142	.573	-.056	.825
ERAN completion time	.000	1.00	-.126	.643	-.216	.422	.286	.282
ERAN errors	-.519	.039*	-.380	.147	-.463	.071	-.089	.743

* $p < .05$ **Standardised Scores

The peer comparisons made by older children in English-medium schools in this study for their current class showed only one significant correlation. This was a positive correlation between peer comparisons for English reading ability and standardised scores of English reading accuracy ($r_s = .535$, $p = .033$ (two-tailed), $n = 16$).

Welsh-medium schools.

Table 8-11 shows the peer comparisons for English reading made by children in Welsh-medium primary schools in this study were significantly correlated with their measured English reading accuracy and comprehension (as were the peer comparisons made for understanding English), the number of errors made on the English writing task and the ERAN completion time. Furthermore, their peer comparisons for writing English were significantly correlated with the number of errors made on the ERAN.

Table 8-11 Table showing the results of a Spearman's ρ bivariate correlational analysis comparing measured literacy abilities with primary school peer comparisons made by younger children in Welsh-medium schools.

Measures of literacy ability:	Speaking English		Primary school peer comparisons for:					
	r_s	p	Reading English		Writing English		Understanding English	
	r_s	p	r_s	p	r_s	p	r_s	p
English reading accuracy**	.202	.224	.487	.002*	.168	.315	.334	.040*
English reading comprehension**	.202	.224	.533	.001*	.163	.328	.337	.039*
English written task word count	.232	.209	-.037	.845	.002	.993	.233	.208
English written task errors	-.038	.844	-.575	.001*	-.239	.212	-.248	.195
ERAN completion time	-.362	.054	-.392	.035*	-.304	.109	-.216	.259
ERAN errors	-.153	.429	-.182	.345	.423	.008*	-.308	.104

* $p < .05$ **Standardised Scores

For older children, no correlation was found between their measured English reading abilities and their primary school peer comparisons for English reading (as shown in Table 8-12). However, significant, negative correlations were found between retrospective peer-comparisons made by older children in this study for writing and understanding English and how quickly they completed the ERAN task.

Table 8-12 Table showing the results of a Spearman's ρ bivariate correlational analysis comparing measured English literacy abilities with retrospective primary school peer comparisons made by older children in Welsh-medium schools.

Measures of literacy ability:	Primary school peer comparisons for:							
	Speaking English		Reading English		Writing English		Understanding English	
	r_s	p	r_s	p	r_s	p	r_s	p
English reading accuracy ($n = 34$)**	.220	.211	.151	.394	-.045	.802	.147	.406
English reading comprehension ($n = 34$)**	.558	.001*	.325	.060	.119	.510	.247	.158
English written task word count ($n = 32$)	.033	.859	.010	.958	-.018	.924	.104	.571
English written task errors ($n = 32$)	-.156	.394	-.099	.588	-.117	.530	-.223	.219
ERAN completion time ($n = 28$)	-.283	.144	-.217	.268	-.413	.032*	-.520	.005*
ERAN errors ($n = 28$)	.074	.708	.122	.535	-.184	.359	.316	.101

* $p < .05$ **Standardised Scores

For older children in this study, analysis found a significant, negative correlation between ERAN completion times and ratings of secondary school class position for English reading ($r_s = -.455, p = .015$ (two-tailed), $n = 28$) and English writing ($r_s = -.500, p = .007$ (two-tailed), $n = 28$).

No correlations were identified between measured Welsh literacy abilities and peer comparisons for younger children in Welsh-medium schools in this study. However, when older children were asked to make retrospective, primary school peer comparisons for their Welsh abilities, correlations with actual abilities were found (shown in Table 8-13). These included significant correlations between the number of errors made on the Welsh written task and retrospective peer comparisons for the ability to read and write Welsh, between the Welsh written task word count and retrospective peer comparisons for the ability to understand Welsh and between the number of errors made on the WRAN and retrospective peer comparisons for the ability to speak Welsh.

Table 8-13 Table showing the results of a Spearman's ρ bivariate correlational analysis comparing measured Welsh literacy abilities with retrospective primary school peer comparisons made by older children in Welsh-medium schools.

Measures of literacy ability:	Primary school peer comparisons for:							
	Speaking Welsh		Reading Welsh		Writing Welsh		Understanding Welsh	
	r_s	p	r_s	p	r_s	p	r_s	p
Welsh reading accuracy ($n = 30$)**	.106	.579	.058	.760	.214	.256	-.146	.443
Welsh reading comprehension ($n = 30$)**	-.061	.747	-.002	.992	.118	.534	-.220	.242
Welsh written task word count ($n = 32$)	.227	.212	.176	.335	.216	.235	.467	.007*
Welsh written task errors ($n = 32$)	-.277	.125	-.393	.026*	-.437	.012*	-.215	.238
WRAN completion time ($n = 27$)	-.302	.126	-.369	.058	-.120	.552	-.008	.968
WRAN errors ($n = 27$)	-.426	.027*	-.124	.537	-.211	.290	-.143	.478

* $p < .05$ **Standardised Scores

Fewer correlations were found between measured Welsh literacy abilities and current peer comparisons for older children in Welsh-medium schools in this study. These are shown in Table 8-14.

Table 8-14 Table showing the results of a Spearman's ρ bivariate correlational analysis comparing measured Welsh literacy abilities with secondary school peer comparisons made by older children in Welsh-medium schools.

Measures of literacy ability:	Secondary school peer comparisons for:							
	Speaking Welsh		Reading Welsh		Writing Welsh		Understanding Welsh	
	r_s	p	r_s	p	r_s	p	r_s	p
Welsh reading accuracy ($n = 30$)**	.033	.863	-.112	.557	.166	.380	-.077	.687
Welsh reading comprehension ($n = 30$)**	-.019	.919	-.223	.236	.150	.430	-.124	.514
Welsh written task word count ($n = 32$)	.494	.004*	.057	.757	.239	.187	.297	.099
Welsh written task errors ($n = 32$)	-.219	.229	-.190	.297	-.248	.171	-.161	.380
WRAN completion time ($n = 27$)	-.441	.021*	-.402	.038*	-.102	.612	-.276	.163
WRAN errors ($n = 27$)	-.556	.003*	-.556	.003*	-.184	.557*	-.380	.050

* $p < .05$ **Standardised Scores

Summary

This chapter has looked at how children feel about their own literacy abilities and the kinds of comparisons they make between their own abilities and that of their peers. It has found a number of issues surrounding the way children think about their own abilities. These are:

1. Children in Welsh-medium schools in this study rate their English abilities more highly than children in English-medium schools.
2. However, Welsh-medium school children in this study make less favourable peer comparisons concerning their English abilities than English-medium school children.
3. Children in Welsh-medium schools in this study rate their abilities in Welsh more highly than in English.
4. Younger children in Welsh-medium schools in this study make more favourable peer comparisons for Welsh abilities than for English. Older children, however, remember these peer comparisons differently, making more favourable retrospective peer comparisons for English than for Welsh.
5. Self-esteem is related to self-ratings of ability to read and write English for children in Welsh-medium schools but not for children in English-medium schools in this study. GSEQ is also related to peer comparisons for writing English for children in Welsh-medium primary schools.
6. However, the academic and general subscales of self-esteem are related to abilities in Welsh for children in Welsh-medium schools in this study.
7. For children in Welsh-medium schools in this study, more correlations existed between their actual English literacy abilities and their peer comparisons concerning

these than for their Welsh literacy abilities. More correlations were also found for Welsh-medium school children in this study concerning these estimates than for the children attending English-medium schools.

Several interesting points have also been raised. As noted, children in the Welsh-medium schools in this study rate their English abilities more highly than the children in English-medium schools. They also rate their Welsh language abilities more highly than their English abilities suggesting that children in these Welsh-medium schools feel good about their language skills on the whole. Despite this, they appear to make more severe peer comparisons concerning these skills than the children in English-medium schools for their English abilities and this is despite their actual abilities being at least as good according to the results of Study 1. How much this might affect their self-esteem would require more in-depth research to determine but this study has indicated that the peer-comparisons these children make concerning these abilities are correlated with their measured self-esteem.

Furthermore, some evidence was found that while children in Welsh-medium schools in this study make more favourable peer comparisons for their Welsh abilities than for English in primary school, this has reversed by secondary school. While it would be expected that orthography effects and greater exposure would increase younger children's peer comparisons for Welsh (Ellis & Hooper, 2001; Paulesu, et al., 2000; Seymour, et al., 2003; Thorstad, 1991), it would be reasonable to assume these comparisons would become more similar with time. However, in secondary school, children in this study were found to rate themselves higher in relation to their peers for English than for Welsh.

Finally, for children in this study who attended Welsh-medium schools a correlation was found between the amount of Welsh heard at home and the peer comparisons they made for their English language abilities. No correlations were found between the amount of Welsh

spoken at home and peer comparisons for Welsh language abilities. This finding suggests that earlier exposure to English would help encourage healthy peer comparisons in relation to their English language abilities.

This chapter has provided a description of children's feelings concerning their literacy abilities. In conjunction with the findings of the previous three chapters, a picture of the abilities and self-esteem of children in schools in Wales has been built. The next chapter will discuss the findings of these studies together, comparing findings and drawing conclusions concerning the picture as a whole. It also identifies limitations with this work and areas for future development. Finally, it will provide recommendations for policymakers and educational providers in Wales concerning how best to protect the self-esteem of children as they learn to read and write.

Chapter 9

Discussion

The purpose of this study was to create a picture of the literacy and self-esteem of children educated in Wales. This study looked at the literacy abilities of children in English-medium and Welsh-medium schools in an area of North East Wales and North West England. It also compared their self-esteem and coping strategies, investigating possible links between these traits and literacy. As this is the first investigation into the literacy skills and self-esteem of children in Wales, the findings provide insights into a number of important questions. Overall, the results of this study represent a generally positive picture for bilingual education in Wales. Together, the findings provide an interesting picture that reveals complicated relationships between self-esteem and literacy development in both Welsh and English. This chapter will examine what the results presented in the previous chapters mean for education, bilingualism and language use in Wales. In the first three chapters, the research that formed the foundation of this study was described. The study then detailed the results of a pilot investigation with adults, followed by the results of a series of tests given to 7-11 year old children, some of whom were raised as L1 Welsh speakers and some as L1 English speakers attending either Welsh-medium or English-medium schools in Wales measuring their literacy, self-esteem, and use of various coping strategies. Results from these measures were used to answer a series of questions raised by the literature reviewed in the initial chapters. In this chapter, the results of each of these experiments will be used to discuss the situation in Wales in relation to previous research. In the results chapters, the answers to each of the twenty research questions raised by the literature review were

discussed individually. In this chapter, these results are discussed under three broad, overarching themes:

1. Issues concerning the self-esteem of children in selected Welsh-medium (bilingual) schools in Wales.
2. The effects of lower literacy abilities on self-esteem, and the mediating effects of language experience and other SES factors
3. Fair assessment of the literacy abilities of children in Wales.

Each theme is discussed in relation to previous research in related areas, comparing the findings of this study with what other researchers have found. Evidence from this study is used to show how the situation in these schools in Wales differs from the situation in monolingual English-speaking countries and how it is similar. Through these three themes, a picture of how children in Wales perform in literacy tasks and how they feel about themselves and their literacy abilities is drawn. The study's limitations are also described and suggestions for future research are made.

Theme 1: Issues concerning the self-esteem of children in selected Welsh-medium (bilingual) schools in Wales.

This study investigated the literacy skills, levels of self-esteem and choices of coping strategy made by children in a selection of schools in Wales. It focussed specifically on how children feel about their language abilities as this forms a part of the self-concept (Neugebauer, 2011). In broad terms, the results of this study revealed the following:

1. Differences in self-esteem and coping style existed between children in the English-medium and Welsh-medium schools in this study.

2. Differences also existed in how these children felt about their literacy abilities and the peer comparisons they made according to language (in terms of its use at home and school and in terms of children's literacy abilities in these languages).

Finding 1: Differences in self-esteem and coping style

Self-esteem

Children in English-medium primary schools in this study showed significantly higher self-esteem than their peers in Welsh-medium primary schools. However, this pattern was completely reversed in secondary schools where the self-esteem of children attending English-medium schools was significantly lower than for those attending Welsh-medium schools. These findings appear inconclusive as they provide support for research that suggests self-esteem is harmed by bilingual or heritage language school instruction (Garcia, 2001; Limbos & Geva, 2001; Valenzuela, 1999) as well as research that suggests bilingualism improves self-esteem (Wright & Taylor, 1995; Huang, 1995). While further study is required to investigate why this apparent reversal exists, this study has identified some factors which could possibly contribute to this discrepancy. First, transition from primary to secondary school can be a difficult time for children. Since the English-medium secondary schools from which these children were drawn tended to be larger than the Welsh-medium secondary schools, children in English-medium schools were perhaps faced with a more stressful transition than their peers in Welsh-medium schools. Second, there may be differences in the amount of support given to children in this study who attended English-medium primary schools compared with those in Welsh-medium primary schools either in terms of developing their self-esteem through school or preparing them for transition to secondary school. Third, there may also be any number of other differences in the way these

English-medium and Welsh-medium primary schools educate children that have not been investigated by this study. Fourth, it could simply be related to an increase in children's age but, if this were the case, it would be expected that similar patterns of results would be seen in children in English-medium schools too. Fifth, these results could reflect an initial decline in self-esteem among Welsh-medium primary school children at the time of introduction of English literacy (age 7) but a long-term beneficial effect.

For older children in this study, the results showed that Welsh-medium schooling was associated with higher levels of parental and social self-esteem than English-medium schooling. However, no differences were found for academic or general self-esteem according to school type. These findings, therefore, provide no support for the notion that bilingual education affects how children feel about their academic capabilities or about themselves in general, which is a positive finding. However, children in this study attending Welsh-medium schools had more positive attitudes towards their place within their family and within their social group. Knowledge of heritage languages has been found to be associated with a sense of belonging to a certain group (Kramsch & Whiteside, 2007; Wright & Taylor, 1995). This could account for this study's findings. Children attending Welsh-medium schools often form part of a minority group of Welsh speakers among whom the Welsh language is valued. While this is not always the case, the decision to attend a Welsh-medium school has almost invariably been taken by the child's parent or guardian initially, meaning the family is also likely to value Welsh language abilities. For the children attending Welsh-medium schools in this research, therefore, higher social and parental self-esteem is likely to be due in part to a greater sense of belonging and parental approval concerning their language use.

However, these findings were also affected by other aspects of children's experiences. For example, first-born children and only children were found to have significantly higher self-esteem than youngest (last-born) children regardless of the language of the school. Similarly, self-esteem was found to increase with age in primary school but decrease with age in secondary school and boys were found to have significantly higher self-esteem than girls regardless of the language used in the school, particularly for social self-esteem. Gender and age differences have also been found in previous research (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Josephs, Markus, & Tafordi, 1992) but school language of instruction was found to offer no protection against this.

More interestingly, home language use was found to be an important factor for self-esteem. Older children in this study who spoke Welsh at home and attended Welsh-medium schools (WHWS) had significantly higher self-esteem than those who spoke English at home and attended English-medium schools (EHES). Children from English-speaking homes attending Welsh-medium schools (EHWS) were found to have similar levels of self-esteem to both EHES and WHWS children, their self-esteem falling between that of EHES and WHWS children. This finding might add weight to the earlier argument concerning the parental and social aspects of learning Welsh as parents who use Welsh are more likely to express positive views about the Welsh language than those who do not (Baker, 1992). EHWS children are also likely to receive positive messages about the Welsh language at school as are WHWS children. Also, while they may receive less positive feedback from their non-Welsh speaking parents, it can be assumed the parents of EHWS children do not disapprove of Welsh strongly enough to object to Welsh-medium education.

If a skill such as speaking Welsh is perceived to be valued by others, for example by teachers or parents, it is likely to form part of Horney's (1950) idealised image. Matching the

standards of this mental ideal with actual performance serves to increase self-esteem (Humphrey, 2002; James, 1890; Rosenberg, 1979; Schunk, 1990). Bilingualism may add another string to the ideal self's bow which is both prized by the community surrounding children attending these Welsh-medium schools and more easily achievable for them.

Coping

In this study, the children in English-medium schools made more use of social types of avoidance-oriented strategies when faced with a stressful situation than children in the Welsh-medium schools. No other differences were found. This indicates that neither English-medium nor Welsh-medium school children were more or less likely to use the healthier, task-oriented coping strategies. However, children in participating Welsh-medium schools were less likely to avoid their problems. There are several possible reasons for this difference, including the fact that it could be related to the smaller class or school sizes in Welsh-medium schools or due to differences in home language experiences. However, other research has noted that children who find reading and writing English difficult often do what they can to avoid these tasks (Alexander-Passe, 2006; Humphrey, 2002). Given that English has an opaque orthography, which is more difficult to learn than transparent orthographies such as Welsh (Ellis & Hooper, 2001; Paulesu, et al., 2000; Seymour, et al., 2003; Thorstad, 1991), a case could be made that the Welsh language helps children attempt to read and spell new and difficult words that they might avoid in English. As avoiding the risk of making a mistake and feeling humiliated by it has been identified as a strategy for protecting self-esteem (Lawrence, 2006), children in Welsh-medium schools may have less need of avoidance-oriented strategies to maintain self-esteem in literacy tasks while English-medium children may make more use of them to keep their self-esteem at the same level as their peers. Further studies are now needed to explore this potential pattern. If the pattern is

confirmed, strategies should be developed in order to help protect children against learning to rely on avoidance as a coping strategy not only in reading but in more general aspects of their lives.

Finding 2: Language Differences in Self-perceptions of ability and peer comparisons

The results showed that self-perceptions of ability and peer comparisons for English abilities remained mostly similar between children attending the different schools. In particular, no differences in ratings of ability or peer comparisons for English literacy were observed, suggesting that being educated through the medium of a different language (Welsh) does not affect how children feel about their English literacy skills, even though their performance in English may be weaker than in Welsh at various points in their development.

Even so, it is interesting to note that children in Welsh-medium primary schools in this study rated their ability to understand English higher than the children in English-medium primary schools. This, perhaps, reflects differences in the expectations of performance held by children in each of these schools. For children in Welsh-medium primary schools, English is a relatively new ‘subject’. If their teachers expect less of them in English due to its recent introduction, this might bolster their perceptions of their abilities relative to children using only English (Hornstra, Denessen, Bakker, van den Bergh, & Voeten, 2010). In English-medium schools, English may not be perceived so much as a ‘subject’ but as a central tool for life and so expectations may be higher or more emphasis placed on these skills. In this situation, teachers’ expectations of children can be seen as contributing to children’s image of the ‘ideal self’ (Humphrey, 2002) or the denominator in James’ (1890) formula: $\text{Self esteem} = \frac{\text{Successes}}{\text{Pretensions}}$ By increasing or decreasing a child’s pretensions, their self-esteem is altered for better or for worse.

It is also interesting to note that children in Welsh-medium schools in this study appeared to make more favourable peer comparisons concerning their position in secondary school than retrospectively for primary school, suggesting they remembered themselves as less able to use English relative to their peers when they were younger than they currently felt themselves to be. This could be a result of the rapid improvement in their ability in the short time between the introduction of English literacy in Welsh-medium schools and beginning secondary school. It could also reflect the kind of internal, social comparison made by children when they compare their present performance with past performance (Ross & Wilson, 2003; Wilson & Ross, 2003). However, there are several other potential influences on this that have not been measured directly in this study, such as the amount of English used in Welsh-medium secondary school education compared with Welsh-medium primary schools. In particular, it is possible that children in Welsh-medium primary schools are more aware of finding learning to read and write English challenging than they remember when they are older. These are aspects that should be investigated in more detail in future studies.

A possible impact of orthographic opacity is seen in the ratings of ability to write. Children in Welsh-medium schools (both primary and secondary) in this study believe themselves to be better able to write Welsh than English. While this may well be the result of greater exposure to Welsh writing due to its earlier introduction and its more frequent use in lessons in Welsh-medium schools, this finding may also be related to differences in orthographic depth across their two languages. Given previous research indicating that more transparent orthographies are easier to learn (Ellis & Hooper, 2001; Paulesu, et al., 2000; Seymour, et al., 2003; Thorstad, 1991), it stands to reason that bilingual children would feel more confident in their literacy skills in Welsh, due to its relative transparency, rather than the highly opaque English, even for those children for whom English is their home language.

Differences in children's self-perceptions of ability according to the language of the home were found in this study, with those children who heard Welsh at home rating their English abilities less highly and making less favourable peer comparisons concerning them. This suggests higher exposure to Welsh at home is related to how children in Welsh-medium schools felt about their English abilities but not to their feelings about their Welsh abilities. This could be due, again, to the later introduction of English. Children who have heard English at home since birth are likely to be at an advantage when formal English literacy is introduced and so feel more confident in their abilities and perceive themselves as better than their peers who have not heard English at home. These children are more likely to have received instruction in English literacy at home from parents than those living in homes with parents who speak only Welsh. Earlier introduction of English literacy instruction in Welsh-medium schools would help provide similar balance for children who have had less exposure to English literacy at home, helping them to feel more confident in both their languages. It should be noted that this is a recommendation specifically for the introduction of earlier English *literacy instruction* in Welsh-medium schools and not for more incorporation of the English language in other areas of learning in Welsh-medium schools.

Theme 2: The effects of lower literacy abilities on self-esteem, and the mediating effects of language experience and other SES factors

One of the most significant aims of this study was to assess whether or not a shallow orthography could offer any protection to the self-esteem of children who find literacy more challenging. Several studies have noted a link between dyslexia and lower self-esteem in monolingual English children attending English schools (Alexander-Passe, 2006; Humphrey, 2002; Humphrey & Mullins, 2002b; Riddick, Sterling, Farmer, & Morgan, 1999; Rosenthal, 1973). However, research has also shown that shallower orthographies (such as Welsh)

ameliorate the impact of dyslexia on children's literacy abilities (Cooke, 2004; Paulesu, et al., 2001; Tudor-Efans & Cooke, 2000; Wydell & Butterworth, 1999). The question is, does this (presumed) amelioration help to protect the self-esteem of children with lower literacy abilities? Overall, the results of this study suggest that:

1. Global self-esteem is related to English literacy abilities but not to Welsh literacy abilities
2. Sub-scales of self-esteem and coping strategies are related to both English and Welsh abilities.

Finding 1: Global Self-Esteem and Literacy Abilities

Children with lower English literacy abilities were found to have lower global self-esteem across all schools in this study. In comparison, no significant relationship was found between Welsh literacy abilities and the global self-esteem of children in this study. The finding of a relationship with English literacy abilities and not with Welsh-literacy abilities supports the hypothesis that learning to read and write a shallow orthography may offer some protection for the self-esteem of children with lower literacy abilities. It could be the case that the transparency of the Welsh orthography diminishes the gap between higher achieving and lower achieving children, protecting them from making harsh peer comparisons which would lower self-esteem. However, the opacity of the English orthography widens this gap with lower achieving children seeing that their literacy skills are markedly less well developed than higher achieving children, which has a stronger, negative impact on self-esteem. This conclusion is in line with previous findings for English literate children with dyslexia (Riddick, Sterling, Farmer, & Morgan, 1999; Alexander-Passe, 2006; Glazzard, 2010; Humphrey & Mullins, 2002b; Humphrey, 2002) and is supported by evidence from

studies concerning the relative success of children with dyslexia in reading transparent rather than opaque orthographies (Paulesu, et al., 2001; Tudor-Efans & Cooke, 2000; Wydell & Butterworth, 1999).

It was also found that low English literacy abilities were more closely related to self-esteem for children in Welsh-medium schools than in English-medium schools in this study. This suggests that the language of instruction at school may, in some way, affect the way English literacy difficulties interact with children's self-esteem. There are several possible reasons for this difference between schools, including the later introduction of English literacy and the importance of English relative to Welsh in the lives of the children. This study found that children in Welsh-medium schools were achieving good standards of literacy both in English and in Welsh by the beginning of secondary school. These findings, therefore, do not suggest any harmful consequence of attending these Welsh-medium schools, indeed, a case could be made for these children having benefitted in terms of their English literacy. Given the findings of previous research concerning children's literacy abilities and self-esteem (Alexander-Passe, 2006; Glazzard, 2010; Humphrey & Mullins, 2002b; Humphrey, 2002; Riddick, Sterling, Farmer, & Morgan, 1999) it would therefore be expected that children in Welsh-medium schools would have higher self-esteem and this is evidenced in the discussion for Theme 1. For these children, it does not appear to be the case that attending Welsh-medium schools had prevented the acquisition of English literacy skills and thereby harmed their self-esteem. The relationship with self-esteem appears to be more subtle. Children in this study who were educated through the medium of Welsh (and who were therefore introduced to formal English literacy instruction later) were found to have higher self-esteem at secondary school age but their self-esteem was also found to be more closely related to their English literacy abilities. As the age of introduction to English

literacy instruction is an aspect of their experience that could affect this, further investigation is needed to explore these findings in more detail.

However, in *primary* school, relative to the expected norms, this study found children in Welsh-medium schools in North East Wales were underperforming in English literacy. This was, perhaps, to be expected as these children were in year 3 and so had only been exposed to English literacy at school in the last few months prior to testing. Even so, their average ability was more than one standard deviation below the mean, a level which would cause concern for children in English-medium schools. While this is almost certainly due to the later introduction of English literacy, it may still be the case that children are aware that they are underperforming for their age either relative to other children in English-medium schools or relative to children in their class who have been taught English literacy at home or relative to their own literacy abilities in Welsh. It could also be the case that children who are good readers and have learned good skills in Welsh literacy are better able to translate these into English literacy skills than those who are poor readers.

One possible consequence of the later introduction of English literacy is that children who are used to considering themselves to be good readers and writers because of their reading and writing fluency in Welsh are surprised to find they struggle with literacy in English. Children are very unlikely to be aware that differences in orthography may affect their abilities and influence their feelings about the languages they speak. Instead, they are likely to attribute their difficulties to their own failure similar to what has been described in other research concerning children with dyslexia's attributions about their difficulties (Burden, 2005; Glazzard, 2010; Riddick, 1996). Given this previous work, it is reasonable to assume that a child who is aware she is good at reading Welsh but finds English more difficult is more likely to assume she isn't very good at English than to think her difficulty is

due to the English orthography and is experienced by most other children too. For children who already struggle with Welsh, this is likely to be even more difficult. The consequences of this for their self-esteem are likely to be negative rather than positive. So, while Welsh-medium education may offer a range of benefits to self-esteem, the comparisons made between literacy abilities in two orthographies by bilingual children may complicate the picture relative to monolingual children in English-medium schools. This could be ameliorated by the earlier introduction of English literacy instruction and specific instruction as to the similarities and differences between English and Welsh. If reading and writing in English and Welsh were to be introduced at the same time, children would be less likely to notice a large difference between their abilities in one language relative to the other. It is true that children would be likely to find Welsh easier than English due to its orthographic transparency; however, the gap between abilities in each language at this point is still likely to be less noticeable than when English is introduced after children have developed a good degree of literacy in Welsh. Whilst a number of researchers believe that bilinguals can only thrive linguistically once they have reached a certain level of fluency in one language first (usually their home language) (Cummins, 1979, 2000), in the Welsh context, this is difficult to implement since there are many children who are exposed to both English and Welsh from birth, and a larger group of children who are learning English at home but exposed only to Welsh at school. The only children who are exposed to their first language only at home and at school are those who speak Welsh at home. Introducing English literacy earlier would therefore not interfere with the linguistic goals of Welsh-medium education.

Originally, this study intended to assess these attributions using semi-structured interviews but time restrictions made this unfeasible. However, this study's findings suggest that Welsh-medium education offers benefits to children's literacy abilities but that these contrast with potential detriment to their self-esteem caused by delaying the introduction of

English literacy instruction. More research focusing on how children think about their languages and attribute any differences in ability between Welsh and English is necessary to confirm these ideas.

Finding 2: Sub-scales of Self-Esteem and Literacy Abilities

In contrast with global self-esteem, general self-esteem was found to be related to both Welsh and English reading abilities for the children in this study. General self-esteem is a subscale of global self-esteem which describes how an individual thinks of themselves personally (i.e. their opinions of their own appearance, personality, success and acceptance of themselves) (Battle, 2002). This indicates that while Welsh and English literacy abilities are related to self-esteem, this relationship appears to be limited for Welsh to individual areas of the self-esteem which fluctuate with the situation, context or time (Brown & Marshall, 2006; Burden, 2005; Mruk, 1999; Neiss, et al., 2002) and not to global self-esteem which is more stable (Coopersmith, 1967; Crocker & Park, 2004). This suggests that lower literacy abilities that are related to global self-esteem are of more concern than those that affect sub-scales of self-esteem as it is more difficult to alter global self-esteem. Therefore, the patterns observed in the present data set suggest that children attending Welsh-medium schools may require extra care to ensure that any difficulties they might experience with English literacy do not damage their self-esteem. Earlier introduction to English literacy in these schools may help provide children with lower literacy abilities with the opportunity to develop these skills to a higher standard and, thereby, help protect their self-esteem. However, it is interesting that Welsh reading abilities were found to be related to general self-esteem rather than academic self-esteem. Literacy is a significant aspect of academic life, especially for children. However, this study found no evidence that literacy abilities were related to children's academic self-esteem at all, regardless of school language of instruction. Instead, literacy

(both English and Welsh) was found to be more closely related to children's ideas about themselves as a person suggesting literacy abilities are not necessarily perceived as only an academic tool by children but also as an important life skill.

Furthermore, it is interesting to note that the subscale of social self-esteem was found to be associated with English reading abilities but not with any of the Welsh literacy abilities for children in Welsh-medium schools. Social self-esteem is concerned with children's confidence in social situations and their relationship with their peers (Battle, 2002). This suggests that English literacy is more important to how children in this study felt about the quality of their friendships than Welsh. For children in these Welsh-medium schools, therefore, this suggests that English was seen as a more useful tool for socialising by children than Welsh which compares with work by Thomas, Lewis and Apolloni (2012). This could reflect the relative dominance of English compared with Welsh in the communities within which these schools were located. However, it also suggests that helping children to feel more confident in English literacy not only helps them to develop English literacy skills but could also encourage children to feel more positive about their own, personal worth and their ability to make and maintain friendships.

The Culture Free Self-Esteem Inventory (CFSEI-3) (Battle, 2002) is structured in such a way that the scores for subscales of self-esteem add together to form the score for global self-esteem. The findings of this study suggest that the relationship between low Welsh literacy abilities and general self-esteem of children is not enough on its own to translate into a relationship with global levels of self-esteem. However, the combined relationship between low English literacy and general and social sub-scales of self-esteem is reflected in global self-esteem. While this suggests that efforts should be made to support children with lower English literacy abilities, the needs of children with lower Welsh literacy

abilities should not be neglected. The relationship between literacy and general self-esteem (both in Welsh and English) is an important finding as it indicates that children with lower literacy abilities need support not only to improve their literacy skills but to develop positive attitudes towards themselves as a person. Failing to do either of these could potentially leave children to struggle with literacy and think of themselves as less valuable as a person than their peers. This would be a sad plight for any child when it would be easily corrected with good literacy support and positive feedback from teachers and peers. Since it is easier to help increase levels of self-esteem in these subscale areas than to alter global self-esteem, it is important to address these issues early and before difficulties in areas such as social or general self-esteem have deteriorated to such a degree that they are impacting global levels of self-esteem.

Home language was also found to be related to self-esteem for children in this study. Children in Welsh-medium schools who spoke Welsh at home had higher global self-esteem than children in English-medium schools. However, children in Welsh-medium schools who heard more Welsh from their parents also tended to make less favourable peer comparisons for their English literacy abilities in primary schools than those who heard more English at home. This is an important finding as it also reflects the findings detailed above. Children in Welsh-medium primary schools who hear more Welsh at home tended to rate themselves as less able than their peers in English literacy skills which, according to the results presented in Study 4 Research Question 2 (p. 277), is also related to lower global self-esteem. Therefore, helping children from Welsh speaking homes to feel more confident in their English literacy abilities is particularly important. For this group, earlier introduction to English literacy abilities would provide them with a kind of 'head start' in order to help them feel their English literacy skills are 'on par' with those of other children in the class. This is particularly important as this study found that children in Welsh-medium schools were good

at making accurate judgements about their English literacy abilities relative to others in their class so helping to mask these differences can only be beneficial to children's self-esteem. Specifically, this would provide benefits for children with low English literacy abilities from Welsh speaking homes. This study suggests that children in Welsh-medium primary schools who hear more Welsh at home and who struggle with English literacy are likely to be at particular risk. These children struggle with a language that they perceive as most important to their self-esteem while also being the most likely group to make less favourable peer comparisons about their abilities and to perceive their difficulties most clearly. Added together, therefore, their risk of developing lower self-esteem is higher than other children in primary school. It should not be forgotten, however, that this group of children (WHWS) also had the highest global self-esteem in secondary school. This study suggests that children in English-medium schools initially achieve well in English literacy and self-esteem but require more help in maintaining both of these through to secondary school. Meanwhile, WHWS children are in need of initial assistance to improve both their English literacy abilities and their self-esteem but are achieving well in both these areas as they enter secondary school. While this might appear to suggest that WHWS children are not a concern as their long term literacy and self-esteem is unimpaired, the importance of early experiences ought not to be dismissed. Several researchers have, in the past, identified the way in which messages from childhood shape how a person thinks of themselves throughout their lives (Argyle, 1994; Cooley, 1902; Coopersmith, 1967; Mead, 1934; Sinclair, Huntsinger, Skorinko, & Hardin, 2005) and this is supported by the finding that WHWS children in secondary school continue to remember themselves as less able than their peers in primary school for their English literacy abilities. Recall, also, that the methods employed in this thesis involved cross-sectional design, so it is impossible to know for sure how the WHWS children's ratings in primary school would transpire in Secondary school. Only a

longitudinal, single case design study would be able to answer this. Nevertheless, children should be encouraged to view their abilities accurately, rather than be allowed to suffer lower self-esteem initially because it is likely to get better over time by itself. For EHWS children their achievements in both English literacy and self-esteem appear to remain fairly stable over time. This group, perhaps, has the best of both worlds in terms of their development in these areas but this study showed that they have significantly lower levels of Welsh literacy abilities. It was also found that this underperformance in Welsh literacy relative to WHWS children persists into secondary school. This indicates that, for EHWS children, more focussed instruction in Welsh literacy is necessary throughout their education. This study, therefore, has found a wealth of evidence that children in each of these language groups (EHES, EHWS and WHWS) and of varying literacy abilities need to be taught literacy and to have their self-esteem protected in school at different times and in different ways. These findings indicate that tailoring of provision for these children is not only helpful but essential.

Children who are better at reading were found to make less use of unhelpful coping strategies in this study. Higher English reading abilities were associated with less use of emotion-oriented coping strategies while quicker rapid naming in Welsh was associated with less use of avoidance-oriented strategies. While the measures of reading and writing Welsh found no relationships with coping strategies, the more subtle RAN task has shown evidence that coping is related to literacy ability regardless of language. This supports previous findings that children who have difficulty with literacy are more likely to use less helpful coping strategies than children with higher literacy abilities (Alexander-Passe, 2006; Burden, 2005; Butkowsky & Willows, 1980). This indicates the importance of helping children to deal with any difficulties with literacy in constructive ways.

Theme 3: Fair assessment of the literacy abilities of children in Wales

Several research questions were set concerning the literacy abilities of children in Welsh-medium and English-medium schools. These questions were addressed in Chapters 5 and 6 and found a generally positive picture of results for the Welsh-medium schools in this research. These studies provided evidence for three key findings:

1. In terms of English literacy abilities, children in Welsh-medium schools in this study were able to ‘catch-up’ with their peers in English-medium schools despite the later introduction to English literacy instruction.
2. Children in the Welsh-medium schools in this study did not develop English literacy at the same rate as the children in English-medium schools
3. Assessment in only one language according to one set of expected standards is not sensitive enough to meet the needs of bilingual children in Wales.

Finding 1: ‘Catching-up’

On the whole, English-medium school children in this study were found to be more accurate English readers, to understand more of what was read and to be more accurate in spelling English than those in Welsh-medium schools. This could be the result of frequency of exposure to words in English which affects the acquisition of literacy skills from the earliest stages (Marsh & Desberg, 1983; Marsh, Friedman, Welch, & Desberg, 1981). After all, children in English-medium schools have, of necessity, had more opportunities to read English words than those in Welsh-medium schools. However, these differences were found to be age dependent, as outlined below.

In this study, children in Welsh-medium primary schools were found to perform consistently less well in every measure than those in English-medium schools. Where standardised scores were available, the performance of younger children in Welsh-medium schools was below the normal range which is a likely consequence of their more recent introduction to English literacy (at age 7 at the earliest in terms of formal teaching). However, the results also showed that, by the first year of secondary school, differences in English reading abilities were no longer to be seen between Welsh-medium and English-medium school children. These results support the Welsh Government's expectation that Welsh-medium school children's English literacy abilities should be on a par with those of English-medium school children by this age (Welsh Government, 2013). Indeed, in the case of English writing ability, children in Welsh-medium secondary schools outstripped their peers in English-medium secondary schools reflecting Cheng *et al.*'s (2010) finding that children who had been initially immersed in a second language outperformed monolingual children in measures of their shared language.

These results provide further evidence that initial immersion in one language at school has no significant, long-term, negative impacts on the development of literacy skills in bilingual children (see similar findings in Collier & Thomas, 2004; Rossell & Baker, 1996; Swain & Lapkin, 1982). The Welsh-medium schools in this study used a system of initial immersion in Welsh language which is similar to those used in schools in other studies detailed in Chapters 1 and 2.

Other factors are at play in these findings, however. First, significant differences in abilities were found for these children according to the languages used in the home. Children in Welsh-medium primary schools from English-speaking (WHES) and Welsh-speaking (WHWS) homes underperformed relative to their peers in English-medium primary schools

(EHES) on measures of English language abilities but caught-up by secondary school. These findings suggest that home language is not of particular importance to the development of English literacy skills in children in Wales, although one would, perhaps, have expected accelerated abilities among those for whom English was their L1 (Cf. the findings of Rhys and Thomas (2012) who found no differences in English reading abilities among 7- to 11-year-old Welsh-English bilinguals and English monolinguals, but the more Welsh-dominant bilinguals lagged behind the monolinguals on English vocabulary). However, in secondary school EHES children performed to the same level in English reading as WHWS children and were outperformed by EHWS children. This pattern of results suggest that the best English literacy development was seen in children whose parents spoke English at home but who were initially taught Welsh at school. This suggests a significant benefit of bilingualism in which children who speak Welsh at school and English at home may perform better in their first language (English) than monolingual English children as has been found in other research (Yelland, Pollard, & Mercuri, 1993). However, this study's findings for other English literacy abilities suggest that children in Welsh-medium schools are able to catch-up with their peers regardless of the language of the home.

Second, both non-verbal IQ and gender were found to be significantly related to literacy abilities. Non-verbal IQ was found to be significantly related to children's English writing abilities across both school language groups. This is not a surprising finding as a relationship between children's performance on measures of literacy and their measured intelligence has been found by previous researchers (e.g. Plomin, Fulker, Corley, & DeFries, 1997). However, deeper analysis of the results in this study also showed that children with lower IQ in Welsh-medium schools had more difficulty in the English written task than children with lower IQ in English-medium schools while school language had no impact on the abilities of children with higher IQ. This finding has clear implications for the education

of children who may already struggle intellectually whilst dealing concurrently with two mediums of linguistic instruction (i.e. bilinguals with lower non-verbal intelligence), and this is discussed further under *Implications* below. Similarly, boys in Welsh-medium schools wrote fewer English words in the written task than girls but no differences were found in English-medium schools. Previous research has found a significant difference between the abilities of boys and girls (Maynard, 2002) in monolingual settings. However, since this study suggests that the difference only exists in bilingual education, it is unlikely to be the case that boys are generally less able than girls (White, 2007). Rather, it may well be that their natural language abilities are different enough to mean that delaying introduction to English literacy instruction may have a more harmful impact on them than on girls, particularly given the orthographic depth of English. Several researchers have argued that earlier introduction to a language facilitates better development of abilities in that language (Flege, Yeni-Komshian, & Liu, 1999; Krashen, Long, & Scarcella, 1979; Singleton, 2001). According to the results of this research, earlier exposure is likely to be particularly important for groups who have been shown to perform less well in literacy tasks.

Third, parental SES was found to be significantly related to the literacy abilities of children in Wales as predicted by previous research (Chaney, 1994; Duncan & Seymour, 2000). In contrast with gender and IQ, however, these results suggest SES was only a significant factor for those children who were attending English-medium schools. The relationship here was more complicated with children with lower maternal SES performing best in Welsh-medium schools but children with higher maternal SES performing best in English-medium schools. The impact of SES on literacy activities in the home has been noted in previous research (Chaney, 1994; Foertsch, 1992; Sénéchal & LeFevre, 2002). The present study did not include measures of the amount of reading children engaged in either academically (in school) or recreationally (at home). However, the amount of reading

children engage in is likely to affect these results and future research should investigate this issue in more depth.

In summary, therefore, this study has found no evidence to suggest Welsh-medium education had any significant, long-term impact on the development of literacy skills in either language spoken by the children who participated. In fact, it has provided some evidence that Welsh-medium education actually improved the development of English literacy. Even so, in this study, certain groups of children displayed less well developed English literacy abilities in Welsh-medium schools than in English-medium schools. In particular, groups that have been traditionally expected to struggle more with literacy (such as boys and children with lower IQ) seemed most at risk. For these children, careful consideration must be given to the kind of literacy instruction Welsh-medium schools provide in order to ensure all children have access to success in English and Welsh reading and writing as well as all the benefits that Welsh-medium education can provide to self-esteem.

Finding 2: The Development of English Literacy in Welsh-Medium and English-Medium Schools

The stages through which children learn to read and write were detailed in Chapter 2. The research suggests that typically developing children learning to read and write in one language learn these skills at roughly the same rate (Cain, 2010; Ehri, 2005, 1995; Marsh & Desberg, 1983). However, previous research has also shown that the development of literacy skills in each of the languages of a bilingual child is dependent on their vocabularies in these languages (Droop & Verhoeven, 2003; Lervåg & Aukrust, 2010). This suggests that bilingual children may develop literacy skills in one or both of their languages differently from monolingual children.

In this study, children in Welsh-medium *primary* schools were shown to have stronger Welsh literacy abilities than English literacy abilities. This is as might be expected of children who have been receiving Welsh literacy instruction for several years while they have only recently been introduced to formal English literacy instruction. However, by *secondary* school age, children in Welsh-medium secondary schools were found to perform better in English than in Welsh. These findings were also influenced by the language of the children's home. In primary school, it was found that children in Welsh-medium primary schools were outperformed by those in English-medium primary schools regardless of the home language. However, in secondary school, children from English speaking homes in Welsh-medium schools outperformed those in English-medium schools on measures of English literacy. Children in Welsh-medium schools from Welsh speaking homes performed similarly to children in English-medium schools. These findings suggests two things: first, since children in Welsh-medium schools are still performing to dissimilar levels in Welsh and English according to standardised measures in primary and secondary school, the Welsh Government's (2012a) hope that the Welsh and English literacy abilities of children in Welsh-medium schools will become increasingly similar throughout Key Stage 2 is not being achieved in these schools. The change in the direction of these differences is interesting and should be investigated further. Second, it would suggest that children in these Welsh-medium schools achieve good literacy abilities in English by secondary school, but not necessarily in Welsh. Even though English is introduced later, the children in Welsh-medium schools in this study achieved better skills in English literacy in four years (between year 3 and year 7) than they achieved in Welsh literacy in 7 years (between reception class and year 7). There are several possible explanations for this but two of the most likely are:

1. Children in Wales usually have some amount of exposure to English before it is introduced in schools and this is likely to strengthen children's abilities. This is

particularly apparent for children attending Welsh-medium schools who come from English speaking homes. Their relative success in English indicates the value of exposure to each language while learning literacy skills. However, children in Welsh-medium schools from Welsh-speaking homes were found to match their peers in English-medium schools indicating that greater exposure to Welsh does not harm English literacy learning.

2. There is evidence that developing skills in one language helps the development of skills in a second language (Berube & Marinove-Todd, 2012; Sun-Alperin & Wang, 2011). This would suggest that initial immersion in Welsh would facilitate the acquisition of English for all children. However, it is those children that have received more balanced exposure to Welsh and English at home and at school that appear to be achieving literacy best.

One interpretation of these findings is that the development of English is aided by initial immersion in Welsh. Indeed, it could be argued that the transparent nature of the Welsh orthography, and its similar alphabetic structure to English, makes it a good substitute for the kinds of phonetic instruction, for example the Jolly Phonics method (Lloyd, 2001), used by teachers to aid the initial instruction of English literacy in monolingual schools. Such phonetic instruction strategies rely on teaching children the most common relationships between letters or letter combinations and the sounds they make in English. This helps children to construct the pronunciations or spellings of English words while reading or writing. The Welsh alphabet and the English alphabet are very similar (as described in Chapter 2) and the sounds with which these letters are associated are also similar in each language. The more transparent Welsh orthography, however, facilitates the learning of these relationships between sounds and letters but these rules, though learned for Welsh, can be

applied to English words as well with some degree of success. For example, words such as *cat*, *dog* or *trigonometric* can be pronounced accurately in English by applying the rules that govern the Welsh orthography when reading them. In this way, learning Welsh first can provide some of the scaffolding that phonetic methods were designed to give to the literacy development of children learning to read and write English.

However, as discussed above, children who are from English-speaking homes in Welsh-medium schools in this study were better at English literacy than those from Welsh-speaking homes. This finding, therefore, suggests that earlier exposure to more English from birth improves long-term English literacy achievement. This was supported by correlations between age of introduction to English literacy and measured English abilities. Such findings are to be expected, given the results of previous research (Rhys & Thomas, 2012; Gathercole & Thomas, 2005; Sun-Alperin & Wang, 2011). It therefore stands to reason that the earlier introduction of English literacy instruction in Welsh-medium schools would help children develop English-literacy skills whilst, at the same time, the early Welsh-literacy instruction helps develop English spelling abilities, according to this study's findings, by providing a more phonetic approach to the alphabet. These results indicate that simultaneous introduction of literacy in each of these languages may provide the most benefit for children in Welsh-medium schools. The implication of these findings is clear: providing children with a more balanced bilingual experience leads to the best bilingual outcomes.

Finding 3: Bilingual Assessment

This study found that English reading accuracy is closely related to all other areas of English literacy but it is not such a good indicator of Welsh literacy abilities. Therefore, assessing the literacy abilities of children who attend Welsh-medium schools using tests in only one language (as is often the practice in many regions of the UK when dealing with a

bilingual child) will not provide a complete picture of children's abilities. As children who struggle with literacy find transparent orthographies easier to read (Ellis & Hooper, 2001; Paulesu, et al., 2000; Seymour, et al., 2003; Thorstad, 1991; Ziegler & Goswami, 2005), the lack of a correlation for Welsh and English reading accuracy could be due to children finding Welsh much easier to read than English, thus performing better on the Welsh task. However, as already noted, children in Welsh-medium schools in this study performed well in both English and Welsh literacy measures in secondary school. Even so, the polar differences in the orthographic depth of English and Welsh makes it difficult to assume knowledge of a child's level of literacy abilities in one language based on their performance in measures of literacy in the other.

What is clear is that literacy measures that are based on only one language are not suitable for assessing the ability of bilingual children. Children in Welsh-medium schools who struggle with one language may succeed in the other, an opportunity which is not offered to monolingual children. These findings support the need, therefore, to develop language specific assessments of literacy ability for children as suggested in previous work (Cline, 2000; Cotton, Crewther, & Crewther, 2005) as well as specific measures for bilingual children in Wales that reflect the idiosyncrasies of their development as opposed to their monolingual peers (Gathercole, Thomas, & Hughes, 2008).

Summary of Findings

What is the impact of Welsh-medium education on the self-esteem of children in Wales?

This study found that children in Welsh-medium primary schools in North East Wales had lower self-esteem than those in English-medium primary schools but this pattern was reversed for children as they enter secondary school. This suggests that children in Welsh-medium schools experience a boost to their self-esteem that those in English-medium schools

do not receive. Perhaps, if learning to read and write one language boosts self-esteem, successfully learning to read and write in two languages boosts self-esteem further.

Do children in Wales who have lower literacy abilities also have lower self-esteem?

Yes, where English literacy abilities are in question. English writing ability is related to the global self-esteem of all groups of children in this study but most closely related to the self-esteem of those in Welsh-medium schools. Welsh reading abilities were found to be related to one subscale of self-esteem, which is less concerning as subscales of self-esteem are less stable than global self-esteem. Home language also plays a part in this, with children who hear more Welsh at home tending to make less favourable peer comparisons for their English literacy abilities. Given the importance of peer comparisons and English literacy ability to self-esteem, this suggests children who speak Welsh at home *and* attend Welsh-medium schools *and* have lower English literacy abilities need more support to ensure their self-esteem is maintained.

Should the literacy of children in Wales be assessed according to one set of criteria?

No. While children in Welsh-medium schools were found to catch-up with those in English-medium schools where their English literacy was in question, home language use was found to be significantly related to these abilities. Measuring the English literacy abilities of children from Welsh-speaking homes in Welsh-medium schools according to the same scale as children from English-speaking homes in English-speaking schools is likely to produce an inaccurate assessment of their actual achievement.

Implications of the findings

Overall, the findings of this research suggest that bilingual education can provide several significant benefits for children in Wales. These include better literacy development

and higher self-esteem in the long term. However, there are areas which could benefit from re-evaluation. The results of this research indicate several recommendations for the provision of English-medium and Welsh-medium education for children in Wales which should be considered by policy makers, parents and educational professionals alike. These are discussed below.

The Literacy and Numeracy Framework (LNF)

The government is in the process of introducing new assessment schemes for the literacy ability of children in Wales in response to troublingly low scores in the international PISA assessments (National Assembly for Wales, 2013). This concern for the literacy abilities of children in Wales makes this research both timely and essential. No previous research has considered the impact of bilingual literacy instruction on how children feel about themselves and, therefore, little consideration has been given to the impact of these assessments on bilingual children's mental health. The findings of this study have indicated that the standards against which children in Wales are assessed in the LNF are unlikely to be sensitive enough to consider children's language circumstances, and the consequences of this can be very serious both for the children and for the school.

This research suggests that tailored guidance for the LNF should be made available for children according to a number of factors. The findings detailed above suggest that it is unreasonable to expect children attending Welsh-medium and English-medium schools to achieve literacy skills at the same rates and in the same ways. The results also indicate that children who have been raised in predominantly English-speaking and predominantly Welsh-speaking homes are unlikely to develop literacy skills in each of these languages at the same rate or in the same way. Furthermore, factors such as gender, SES and non-verbal IQ all play a part in the development of such skills and should be taken into account.

The LNF intends to provide a measure of children's abilities relative to national averages in a nation where the vast majority of children attend English-medium schools and are from English-speaking homes. This study suggests that such a comparison is likely to inaccurately reflect the literacy abilities of certain groups. For example, children from Welsh speaking homes attending Welsh-medium primary schools who are tested for English literacy abilities are more likely to appear as if they are underachieving relative to their peers on standardised tests. The same is likely to be true of children speaking a language other than English at home attending English-medium schools. Traditional measures of literacy may not be sufficient to show the full range of abilities in more transparent orthographies. Therefore, the incorporation of measures such as the Rapid Automatised Naming task (Denckla, 1972; Denckla & Rudel, 1974, 1976) in all assessments of literacy ability should be considered. Furthermore, tailored averages for children in different school-language and home-language groups is necessary to ensure children and their parents are given an accurate appraisal of their literacy development as others have also recommended (Gathercole, et al., 2008; Pearson, et al., 1993; Thordardottir, 2011). Bilingual children must also be tested in both of their languages. Previous research has already underlined the importance of using bilingual measures to assess bilingual children's linguistic abilities (Cline & Shamsi, 2000; Durgunoğlu, 2002; Elbro, Daugaard, & Gellert, 2012; Everatt, et al., 2010; Harrison & Krol, 2007). However, this study adds to the argument by showing that inaccurate or incomplete assessments of bilingual children's literacy abilities could have significant consequences for their feelings of self-esteem which could, in turn, impact their future mental health and happiness.

Early Initial English and Welsh Literacy Instruction

Currently in many Welsh-medium schools, children are introduced exclusively to Welsh literacy until they are 7 or 8 years old. This approach is based on a historic belief that children may be confused by simultaneous, bilingual literacy instruction and require a firm grounding in the country's minority language (Welsh) before the introduction of dominant language (English) literacy instruction. Anecdotally, the aim was to ensure children's acquisition of Welsh was protected as introducing English was considered likely to overpower Welsh literacy development during this early, critical period. However, this study has found that delaying the introduction of English may have some negative effects for some children.

This study recommends earlier introduction of English literacy instruction in Welsh-medium schools as a means to help ensure the stronger development of bilingual children.

This recommendation is supported by two key findings:

- i) Children who had received a more balanced amount of exposure to Welsh and English in general performed best on English literacy measures in the long-term, suggesting more balanced exposure results in better development of these skills over time. Earlier introduction of English literacy would help to provide more balanced exposure to bilingual literacy for children from Welsh-speaking homes.
- ii) Groups that had previously been shown to have more difficulty than their peers with English literacy (i.e. boys and those with lower non-verbal IQ) were found to perform less well only in Welsh-medium schools where English literacy instruction is delayed. Earlier introduction of English literacy,

therefore, may increase exposure for these groups and help develop their skills in the long run.

Lower English literacy abilities were found to have a more significant and negative impact on the enduring, global self-esteem of children in Welsh-medium schools. In order to help avoid this, earlier introduction to English literacy would give children in Welsh-medium schools more time to develop and improve their skills thereby reducing any differences these children may observe between their own abilities and those of their peers and so protecting their self-esteem. Furthermore, children's perceptions of their abilities in each of their languages were related to their self-esteem. The earlier introduction of English literacy to children in Welsh-medium schools would help to develop their confidence in their bilingual skills. This is particularly important for children from Welsh speaking homes who were found to judge their English literacy abilities more harshly in comparison with that of their peers. Increasing children's confidence in their abilities, in turn, may help increase self-esteem by increasing their perception of their successes, the numerator in James' (1890) equation: $\text{Self esteem} = \frac{\text{Successes}}{\text{Pretensions}}$. Helping children to develop a clear and positive picture of their bilingual literacy abilities could also help encourage children to use Welsh and English in the future. As people are unlikely to act in ways that do not agree with their beliefs about themselves (Aronson, Wilson, & Akert, 2007; Gross, 2005; Roberts, 2005), allowing children to create inaccurate pictures of their Welsh or English language skills could lead to their avoiding using these languages or literacy in the future. This can persist through adult life and is a particular cause of concern in Wales in relation to teenage children's reluctance to use Welsh, particularly if they are L1 English (Thomas, Lewis & Apolloni, 2012)

It is important to stress that the suggestion to introduce English literacy instruction earlier in Welsh-medium schools does not imply any alteration to the language ethos of any other aspect of Welsh-medium schools. This study has clearly found that Welsh-medium education has no long-term, negative effect on English literacy abilities. However, earlier introduction of English literacy instruction would help to create optimal conditions for the best development of bilingual literacy abilities. Importantly, earlier English literacy instruction will only provide the very best conditions for the bilingual literacy and self-esteem development of children when it is used **in conjunction** with tailored provision for children according to their home language use, their SES, their age, their gender and their IQ. Similarly, the early introduction of Welsh literacy instruction must be maintained in order to continue to provide children in Welsh-medium schools from all home language backgrounds with the opportunity to develop good bilingual literacy abilities and to protect self-esteem.

Welsh-medium Education for Children who may Struggle

Certain groups of children require more assistance to develop literacy skills regardless of the language of instruction of their school. This study has indicated that some groups of children need more help to develop literacy skills in Welsh-medium schools than in English-medium schools. For example, boys and children with lower IQ in Welsh-medium schools were found to have less well developed literacy abilities in English. Bilingual education has been shown to provide benefits to the self-esteem of children and this is particularly important for children that may be at risk of lower self-esteem, such as those with lower IQ. However, these groups (boys and those with lower IQ) appear to need more assistance in learning to read and write in two languages. Traditionally, Welsh-medium schools have held that a good foundation in the country's minority language (Welsh) is essential to keep them from confusing their two languages. However, delaying the introduction of English literacy

lessons in Welsh-medium schools risks children missing the opportunity to capitalise on the full use of the critical period for developing their bi-literacy skills (Birdsong, 1999). Earlier introduction of English literacy instruction in Welsh-medium schools would help children who have more difficulty with literacy, as detailed above. However, this alone is unlikely to be enough. For these children, additional support is necessary to ensure they are able to clearly separate the orthographies of Welsh and English and develop confident literacy skills in each language. In this way, not only would children who may find literacy more difficult be helped to read and write more fluently but their access to bilingual education and all its benefits would be ensured.

Raising Awareness for Teachers and Parents

Teachers in Wales can learn from the issues raised in this study, but these issues need to be translated into practice. Training for teachers, particularly those who teach in Welsh-medium schools, should provide information on the differences between the development of literacy abilities in children from English speaking and Welsh speaking homes and the impact of literacy learning on the self-esteem of children. Work needs to be done to develop and verify strategies for the instruction of bilingual literacy in Wales that teachers could use to help enhance literacy development and protect self-esteem. This work could begin with the recommendations made in this study. Furthermore, it is important to address the finding that children in Welsh-medium schools achieve literacy in both English and Welsh to the expected standards but their success is not always translated into a belief in their own abilities. Teachers must be aware of this and help children in Welsh-medium schools to see their achievements in a positive way in order to protect their self-concept.

Similarly, parents should be made aware of the findings of this study in order to help with the decisions they make concerning their children's education. Parents ought to be

given the opportunity to make an informed decision about the best education for their children that will ensure their language development as well as protecting their self-esteem.

Implications Outside Wales

Bilingualism (or children learning more than one language) is not limited to Wales. Schools in England, Scotland and Northern Ireland also include children who speak more than one language. However, in many of these schools, their bilingualism is not utilised within the class. In monolingual English schools, children who have English as an additional language (EAL) or who have been raised bilingually from birth are incorporated into English-medium education. The results of this study suggest that more attention should be paid to the impact of a purely monolingual education on the self-esteem of bilingual children. Furthermore, findings that children with more balanced exposure to two languages achieved more in their English literacy than monolingual children suggest that there are benefits to literacy abilities from the early introduction of bilingualism. The earlier introduction of English literacy is in line with recent studies that suggest a critical role for ‘translanguaging’ in bilingual teaching pedagogies (Lewis, Jones, & Baker, 2012) – the concurrent use of two languages within the classroom that is carefully organised in order to deepen the child’s learning experience. García (2009) suggests that this translanguaging happens naturally in many classrooms and argues that stricter, dual language styles of teaching may not fit the experiences of modern bilingual pupils. In comparison, pedagogies that make use of translanguaging are aimed to enrich the bilingual child’s experience, and are seen to be more useful than more ‘monolingual’ teaching methodologies.

As with children in Welsh-medium schools, EAL children’s literacy abilities should not be assessed according to the same standards as monolingual English children. Bilingual

children's literacy development is likely to be dissimilar to that of monolingual children in ways that may inaccurately portray them as underachieving, especially in primary school.

More importantly, these results suggest that there is a need to investigate the impact of monolingual English education on the self-esteem and coping strategies of EAL children. In Wales, bilingualism is required as a part of education in all schools but in England this is not the case. The situation of EAL children in English schools is not like that of children in Welsh-medium schools but their self-esteem is still likely to be impacted just as their English literacy development is likely to be affected by their lower exposure to English language (Goff, Pratt, & Ong, 2005; Nation & Cocksey, 2009; Ricketts, Nation, & Bishop, 2007).

Furthermore, teachers outside Wales should also be made aware of the impact their teaching choices can have on the self-esteem of children in their class. While this study provides some findings that inform the way teaching might impact self-esteem in Welsh and English speaking children in Wales, it does not pretend to provide information that would apply to EAL children. Further research should seek to investigate the best ways to teach EAL children to read and write in order to protect their self-esteem.

Limitations and Further Research

The original intent of this study was to provide a complete picture of the experiences of children learning to read and write in schools in Wales and how this affected their feelings about themselves. In particular, it aimed to compare the experiences of children with dyslexia attending English-medium and Welsh-medium schools. In order to do this, it intended to make use of both quantitative measures of ability and self-esteem as well as qualitative analysis of semi-structured interviews with children ranging in ages from 5 to adult.

Early on in the development of this study, it became clear that 3 years was not sufficient time in which to complete research on such a large scale. Several factors made the task unmanageable. In particular, the number of children required would have been difficult to recruit and collecting their data would involve more time than was available. Therefore, the study's focus was narrowed to encompass quantitative data from children at two key stages of education (at the point of introduction to English in Welsh-medium schools and at the age by which they were expected to match their peers in English-medium schools). Given that research into the self-esteem of children learning to read and write in English and Welsh has not been conducted before, it was reasonable to begin exploring the area in this way. Quantitative data provided valuable information about whether differences between measured abilities and feelings existed or not. This study established that differences do exist in self-esteem according to the language of the school and according to the language being assessed which has clearly indicated the necessity of further investigation. In future work, interviews with children and observations of their behaviours would provide evidence for how children's feelings about themselves in relation to their literacy abilities affect their confidence and their behaviours. Discussion with children would give insight into children's awareness of the differences between their languages and how they explain any difference in ability. This would help provide guidance for teachers concerning how best to protect children from making unhelpful attributions about the cause of their abilities.

The original intention of comparing the self-esteem of bilingual children with dyslexia with that of children without dyslexia was also unachievable. Finding enough children with dyslexia in Welsh-medium schools to make statistical analysis meaningful was not possible in the time frame provided. Attempts were made to do so; the researcher spoke with professionals in the area of dyslexia in North Wales, specifically Anne Cooke and Liz Du Pre employed by the Miles Dyslexia Centre at Bangor University. They gave it as their

considered opinion that finding enough children with dyslexia who spoke Welsh and English from homes that spoke varying amounts of Welsh and English would be a challenge. Also, given the ameliorating impact of orthographic transparency on the effects of dyslexia, it was also likely that a number of children with dyslexia in Welsh-medium schools would not have been identified. Furthermore, those that had been identified were likely to only have received an assessment in English and so no information concerning their Welsh literacy would be available. This could have confounded results and so, to ensure the results were reliable, the present study explored potential differences across children with high and low literacy scores.

The results of this study indicated that there is cause for concern both regarding the impact of literacy abilities on the self-esteem of children in Welsh-medium schools and a worrying slowing down of literacy abilities for those in English-medium schools. Both of these findings warrant further investigation. The apparent decline in the English literacy abilities of children in English-medium secondary schools for their age relative to those in English-medium primary schools is difficult to explain. This is particularly true when compared with the sharp increase in the English literacy abilities of those in Welsh-medium schools. While it is possible to guess at causes, none can be deemed conclusive until investigated further. However, as this study was cross-sectional in nature rather than longitudinal, it is impossible to be certain that these findings represent a trend in the development of children rather than a snapshot of children at different stages of their education today. Time constraints made a longitudinal study impossible but future research should consider tracking the progress of children in Welsh-medium and English-medium schools from reception to adulthood, measuring their self-esteem and literacy abilities at regular intervals. This would provide a thorough picture of the changes in both literacy and self-esteem that occur for children in Wales.

As for the relationship between literacy on self-esteem, this study has focused on a narrow age range. While the link between English literacy abilities and global self-esteem is clearly shown here, how lasting this effect is has not been explored. Global self-esteem is considered stable in nature (Coopersmith, 1967; Crocker & Park, 2004) but adolescence can impact self-esteem profoundly as peer relationships become more important (Mruk, 1999). It could be the case that, by adulthood, these differences are no longer apparent. However, they could be permanent. Further research should extend the age range of this research to analyse how self-esteem develops throughout bilingual education.

This study has identified an important link between home language use and literacy achievement among bilingual children in Wales, supporting the findings of previous studies (Gathercole & Thomas, 2005; Rhys & Thomas, 2012). More work is needed to understand the full extent of the impact of exposure on children's literacy achievement making use of a greater variety of measures. Future investigations should consider using measures such as the Rapid Automatised Naming task to ensure a complete picture of the situation as was done in this study, revealing differences that might otherwise have been missed.

While this study did not achieve what it initially intended, the timeliness of its findings are significant. It has identified the existence of quantitative differences in the relationship between literacy and self-esteem in bilingual and monolingual children in Wales. This is a finding which has important implications for the way in which children are taught to read and write bilingually in Wales as well as for the government when designing measures of literacy abilities and informing language policies at school. Current concerns about the literacy abilities of children in Wales have led to the introduction of new targets and assessments, putting pressure on teachers to make their pupils achieve adequate literacy standards. Heritage language maintenance is often complicated by political and social

tensions. Nonetheless, it should be remembered that the discussions in this study centre on the experiences of children. The issues raised are meant to raise awareness of the need to protect the experiences of *children as individuals* which means it is essential to provide carefully planned provision of literacy education for each child. While ensuring the quality and efficacy of the literacy instruction given to children is, clearly, very important to helping children achieve good literacy skills this study suggests that something is missing from an approach that only addresses literacy needs. Developing and protecting children's feelings of self-esteem in the areas of literacy they are learning, and encouraging them to feel confident in their reading and writing abilities in each language is likely to have beneficial consequences for children's abilities. After all, when we feel like we can do something well, we are much more likely to engage with it. A child who lacks confidence in their abilities is much more likely to avoid reading and writing. This child limits their own opportunities for improvement and their literacy is likely to suffer. As a consequence, their beliefs about their literacy abilities are confirmed and a vicious circle is created which can only result in a child with lower self-esteem and lower literacy abilities than might otherwise be the case. To paraphrase the old saying about money: take care of the child's love of literacy and the literacy will take care of itself. As this study has shown, there is unlikely to be any single answer to ensuring a love of literacy for all children but literacy has the power to give children access to all areas of the curriculum and beyond it and so finding tailored ways to help children access reading and writing is essential.

Conclusion

This study has shown that aspects of literacy are a significant factor in the development of self-esteem for children in schools in Wales. In particular, children with lower English literacy abilities attending Welsh-medium schools are in need of more support.

This research has indicated that earlier introduction of English literacy education in Welsh-medium schools would help to support these children. Across the board, however, tailored literacy provision and encouragement of healthy self-esteem is essential for children in all schools in Wales. At the beginning of Chapter 3, this quote was used:

“Children... wear their self-confidence like a shining suit of armor that attracts others to them because of its beauty and shields them from harm because of its strength.”

(Dickman, 2011, p. 15)

The results of this study suggest that literacy difficulties combined with mismatches between literacy instruction provided for children and their language experiences have the power to muddy and fracture this armour. However, with the correct, tailored provision of literacy skills and a supportive ethos; schools really do hold the key to giving children armour of unquestionable brilliance and strength.

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Appendices

Appendix A Letter Requesting Consent for Adult to Participate

English

Dear Sir/Madam,

I am looking for participants for research into how people feel about themselves and the languages they use to read and write. This research will form the basis of a PhD and will be conducted in the School of Education, Bangor University. Participants are asked to complete questionnaires, brief reading, writing and puzzle tasks and talk a little about their memories of learning to read and write. This should take each participant about an hour. All the information collected for this will be kept completely anonymous.

If you want more information, a description of the research is attached to this letter along with contact details. Please feel free to contact me with any questions you may have.

If you are willing to take part, please complete the consent form below and the brief questionnaire overleaf and return it to me at Bangor University.

Yours sincerely,

Mrs. N. E. Young.

Name: _____ Date of Birth: _____

Telephone number: _____

- I **agree** to participate in this study
- I **do not** give agree to participate in this study

May we contact you again if we require more information? Yes No

Signature: _____ Date: _____

P.T.O.

Does learning different languages affect how children feel about themselves?

This study aims to examine how learning more than one language in school may affect how people feel about themselves as they learn to read and write. One unique thing about Wales is that two languages are available to be used throughout the education system. Some bilingual Welsh-English schools teach children to read and write first in English, others in Welsh and others teach both at the same time. Aspects of different languages are learned at different speeds and in different ways. This research aims to look at how this affects the way people feel about themselves at different times in their lives. We will be talking to children in the early years of primary school, those who have recently started secondary school, young adults who are about to sit their GCSEs and students who have recently started at college or university about their thoughts on these matters. We are particularly interested in looking at the effects of school language experiences on people with dyslexia as well as people who have not been diagnosed with dyslexia.

The research involves asking participants a series of questions about their education and how they have felt at different times in it. You will then be asked to rate your agreement with statements on three short questionnaires related to how you feel about yourself and your strategies for coping with stressful situations. You will be asked to complete a brief picture task and a reading task. To finish, you will be asked to complete a short, computer based task. You will be free to work at your own pace and can withdraw from the study at any point. All the information gathered for this study will be kept completely anonymous.

It is the aim of this study to publish the results in well-respected journals and at appropriate conferences. The data will be used as the basis of a PhD thesis supervised by Dr Enlli Thomas (Lecturer in Education) and Dr. Jean Ware (Reader in Education) of the School of Education, Bangor University. This research is particularly important because its findings could influence national education policy. At present, there are many different schools in Wales teaching English and Welsh in many different ways. This research could provide valuable information about how best to present these languages to help children feel good about themselves and to maintain that feeling into adulthood. In particular, it could offer advice on how these differences can be used to help dyslexic children feel good about themselves. This is important because the better people feel about themselves, the more likely they are to do well at exams, feel confident in their own abilities and be happy.

Thank you for your time. If you have any questions or concerns, please feel free to contact me by email: nia.young@bangor.ac.uk or by telephone on: 01248 383593

Welsh

Annwyl Syr/Fadam,

Rydw i'n chwilio am rai i gymryd rhan mewn ymchwil i sut mae pobl yn teimlo amdanynt eu hunain, a'r ieithoedd a ddefnyddiant i ddarllen ac ysgrifennu. Bydd yr ymchwil hon yn ffurfio sylfaen PhD ac fe'i cynhelir yn yr Ysgol Addysg, Prifysgol Bangor. Gofynnir i'r rhai sy'n cymryd rhan lenwi holiaduron, darllen ychydig, ysgrifennu a gwneud tasgau posau a siarad ychydig am eu hatgofion o ddysgu darllen ac ysgrifennu. Dylai hyn gymryd tuag awr. Bydd yr holl wybodaeth a gesglir ar gyfer hyn yn cael ei chadw'n ddienw.

Os oes arnoch angen mwy o wybodaeth, mae disgrifiad o'r ymchwil ynghlwm â'r llythyr hwn ynghyd â manylion cyswllt. Croeso i chi gysylltu â ni i holi unrhyw gwestiynau.

Os penderfynwch gymryd rhan, a fyddechystal â llenwi'r ffurflen gydsynio isod a'r holiadur byr trosodd â'u dychwelyd ataf i, i Brifysgol Bangor.

Yn gywir,

Mrs. N. E. Young.

Enw: _____ Dyddiad Geni: _____

Rhif Ffôn: _____

- Rwy'n cytuno** i gymryd rhan yn yr astudiaeth hon.
- Nid wyf** yn cytuno i gymryd rhan yn yr astudiaeth hon.

Allwn ni gysylltu â chi eto os oes arnom angen rhagor o wybodaeth?

- Gellwch
- Na ellwch

Llofnod: _____ Dyddiad: _____

Drosodd

A yw dysgu gwahanol ieithoedd yn effeithio ar sut mae plant yn teimlo amdanynt eu hunain?

Mae'r astudiaeth hon yn ceisio edrych ar sut gall dysgu mwy nag un iaith yn yr ysgol effeithio ar sut mae pobl yn teimlo amdanynt eu hunain fel maent yn dysgu darllen ac ysgrifennu. Un peth unigryw am Gymru yw bod dwy iaith ar gael i'w defnyddio drwy gydol y system addysg. Mae rhai ysgolion dwyieithog Cymraeg-Saesneg yn dysgu plant i ddarllen ac ysgrifennu yn Saesneg yn gyntaf, eraill yn Gymraeg, ac eraill yn dysgu'r ddwy yr un pryd. Dysgir elfennau o wahanol ieithoedd ar wahanol gyflymder ac mewn gwahanol ffyrdd. Bydd yr ymchwiler hon yn ceisio edrych ar sut mae hyn yn effeithio ar y ffordd mae pobl yn teimlo amdanynt eu hunain ar wahanol adegau yn eu bywyd. Byddwn yn siarad â phlant ym mlynnyddoedd cynnar yr ysgol gynradd, y rhai sydd newydd ddechrau yn yr ysgol uwchradd, oedolion ifanc sydd ar fin sefyll eu arholiadau TGAU, a myfyrwyr sydd newydd gychwyn yn y coleg neu'r brifysgol, am eu barn ar y materion hyn. Mae gennym ddiddordeb penodol mewn edrych ar effeithiau profiadau iaith ysgol ar bobl gyda dyslecsia yn ogystal â phobl sydd heb gael diagnosis o ddyslecsia.

Mae'r ymchwiler yn cynnwys gofyn cyfres o gwestiynau i'r rhai sy'n cymryd rhan am eu haddysg a sut maent wedi teimlo ar wahanol adegau mewn addysg. Gofynnir i chi wedyn ddisgrifio sut ydych yn teimlo ynghylch datganiadau ar dri holiadur byr yn ymwneud â sut yr ydych yn teimlo amdanoch eich hun a'ch strategaethau ar gyfer ymdopi â sefyllfaoedd sy'n peri straen. Gofynnir i chi gwblhau tasg lluniau fer a thasg darllen. Yn olaf, gofynnir i chi gwblhau tasg fer ar y cyfrifiadur. Cewch weithio yn ôl eich cyflymder eich hun, a gellwch adael yr astudiaeth unrhyw bryd. Bydd yr holl wybodaeth a gesglir ar gyfer yr astudiaeth yn cael ei chadw'n ddienw.

Nod yr astudiaeth yw cyhoeddi'r canlyniadau mewn cyfnodolion pwysig ac mewn cynadleddau priodol. Defnyddir y data fel sylfaen thesis PhD a oruchwylir gan Dr Enlli Thomas (Darlithydd mewn Addysg) a Dr. Jean Ware (Darllenydd mewn Addysg) yr Ysgol Addysg, Prifysgol Bangor. Mae'r ymchwiler hon yn arbennig o bwysig oherwydd gallai ei chanfyddiadau ddylanwadu ar bolisi addysg cenedlaethol. Ar hyn o bryd, mae yna nifer o wahanol ysgolion yng Nghymru yn dysgu Cymraeg a Saesneg mewn nifer o wahanol ffyrdd. Gallai'r ymchwiler hon ddarparu gwybodaeth werthfawr ynghylch sut i gyflwyno'r ieithoedd hyn orau i helpu plant i deimlo'n dda amdanynt eu hunain, a chadw'r teimlad hynny pan fyddant yn oedolyn. Yn benodol, gallai gynnig cyngor ynghylch sut y gellir defnyddio'r gwahaniaethau hyn i helpu plant dyslecsig deimlo'n dda amdanynt eu hunain. Mae hyn yn bwysig oherwydd po orau mae pobl yn teimlo amdanynt eu hunain, y mwyaf tebygol ydynt o wneud yn dda mewn arholiadau, teimlo'n hyderus yn eu gallu eu hunain, a bod yn hapus.

Diolch i chi am eich amser Os oes gennych unrhyw gwestiynau neu bryderon, croeso i chi gysylltu â mi drwy e-bost: nia.young@bangor.ac.uk neu drwy ffonio: 01248383593

Appendix B Letter Requesting Consent for Child to Participate

English

Dear Sir/Madam,

I am currently looking for children to take part in research which looks at how children feel about themselves and the languages they use. This research will form the basis of a PhD with the School of Education, Bangor University. If you are willing for your child to take part, the research will be conducted in your child's school. It will involve asking your child to answer some questions about themselves and to play some reading, writing and picture games. This should take about an hour for each child. All the information collected for this will be kept completely anonymous.

If you want more information, a description of the research is attached to this letter along with contact details. Please feel free to contact me with any questions you may have.

If you are willing for your child to take part, please complete the consent form below and the brief questionnaire overleaf and return it to the school.

Yours sincerely,

Mrs N. E. Young.

Child's name: _____ Date of Birth: _____

Parent/Guardian Name: _____

Child's School: _____

Telephone number: _____

- I **give** consent for my child to participate in this study
- I **do not** give consent for my child to participate in this study

May we contact you again if we require more information? Yes No

Parent/Guardian Signature: _____ Date: _____

P.T.O.

Thank you for agreeing to participate in this study. Please could you answer the following questions to help us understand a little of your child's background:

Which of the following languages are used when speaking to your child:

Mother: Welsh? Yes No
How much of the time: _____ %
English? Yes No
How much of the time: _____ %
Other? Yes No
How much of the time: _____ %

Father: Welsh? Yes No
How much of the time: _____ %
English? Yes No
How much of the time: _____ %
Other? Yes No
How much of the time: _____ %

Please tell us:

How old was the child when he/she began speaking English? _____

How old was the child when he/she began speaking Welsh? _____

Has your child been diagnosed with dyslexia?

Yes No If Yes, please specify: _____

Has your child been diagnosed with any learning difficulty?

Yes No If Yes, please specify: _____

Occupation:

Mother's occupation: _____

Father's occupation: _____

What is the highest level of education obtained by:

Mother: (please circle)

Primary School Secondary School GCSE A-Level University Post-graduate

Father: (please circle)

Primary School Secondary School GCSE A-Level University Post-graduate

May we have access to your child's GCSE/SATs examination results?

Yes No

Does learning different languages affect how children feel about themselves?

This study aims to examine how learning more than one language in school may affect how children feel about themselves as they learn to read and write. One unique thing

about Wales is that two languages are available to be used throughout the education system. Some bilingual Welsh-English children are taught to read and write first in English, others in Welsh and others learn both at the same time. Aspects of different languages are learned at different speeds and in different ways. This research aims to look at how this affects the way children feel about themselves at different times in their school lives. We will be talking to children in the early years of primary school, those who have recently started secondary school, young adults who are about to sit their GCSEs and students who have recently started at college or university about their thoughts on these matters. We are particularly interested in looking at the effects of school language experiences on children with dyslexia as well as children who have not been diagnosed with dyslexia.

The research involves asking children a series of questions about their education and how they have felt at different times in it. Children will then be asked to rate their agreement with statements on three short questionnaires related to how they feel about themselves, their strategies for coping with stressful situations and feelings of unhappiness. They will be asked to complete a brief picture task and a reading task. To finish, each child will be asked to take part in a short, fun game. Every child will be free to work at his/her own pace and can withdraw from the study at any point. All the information gathered for this study will be kept completely anonymous.

It is the aim of this study to publish the results in well-respected journals and at appropriate conferences. The data will be used as the basis of a PhD thesis supervised by Dr Enlli Thomas (Lecturer in Education) and Dr. Jean Ware (Reader in Education) of the School of Education, Bangor University. This research is particularly important because its findings could influence national education policy. At present, there are many different schools teaching English and Welsh in many different ways. This research could provide valuable information about how best to present these languages to help children feel good about themselves. In particular, it could offer advice on how these differences can be used to help dyslexic children feel good about themselves. This is important because the better children feel about themselves, the more likely they are to do well at exams, feel confident in their own abilities and be happy.

Thank you for your time. If you have any questions or concerns, please feel free to contact me by email: nia.young@bangor.ac.uk or by telephone on: 01248 383593

Welsh

Annwyl Syr/Fadam,

Ar hyn o bryd rydw i'n chwilio am blant i gymryd rhan mewn ymchwil sy'n edrych ar sut mae plant yn teimlo amdanynt eu hunain a'r ieithoedd y maent yn eu defnyddio. Bydd yr ymchwil hon yn sail i PhD gyda'r Ysgol Addysg, Prifysgol Bangor. Os ydych yn fodlon i'ch plentyn gymryd rhan, caiff yr ymchwil ei wneud yn ysgol eich plentyn. Bydd eich plentyn yn gorfod ateb rhai cwestiynau amdanynt eu hunain a chwarae rhai gemau darllen, ysgrifennu a lluniau. Dylai hyn gymryd tua awr i bob plentyn. Bydd yr holl wybodaeth sy'n cael ei chasglu yn yr astudiaeth hon yn cael ei chadw'n gwbl gyfrinachol.

Os ydych am gael rhagor o wybodaeth, anfonaf ddisgrifiad o'r ymchwil ynghyd â manylion cyswllt gyda'r llythyr hwn. Os oes gennych unrhyw gwestiynau croeso i chi gysylltu â mi.

Os ydych yn fodlon i'ch plentyn gymryd rhan, a fyddech cystal â llenwi'r ffurflen ganiatâd isod a'r holiadur byr drosodd a'u hanfon yn ôl i'r ysgol.

Yn gywir,

Mrs N. E. Young.

Enw'r plentyn _____ Dyddiad Geni: _____

Enw Rhiant/gwarcheidwad _____

Ysgol y Plentyn: _____

Rhif ffôn: _____

Rhoddaf fy nghaniatâd i'm plentyn gymryd rhan yn yr astudiaeth hon.

Ni roddaf fy nghaniatâd i'm plentyn gymryd rhan yn yr astudiaeth hon.

A gawn ni gysylltu â chi eto os bydd angen mwy o wybodaeth arnom? Cewch Na
chewch

Llofnod Y Rhiant/Gwarcheidwad: _____ Dyddiad: _____

TROSODD

Diolch i chi am gytuno i gymryd rhan yn yr astudiaeth hon. A fyddech cystal ag ateb y cwestiynau canlynol i'n helpu i ddeall ychydig am gefndir eich plentyn:

Pa rai o'r ieithoedd canlynol a ddefnyddir wrth siarad â'r plentyn:

Gan y fam: Cymraeg? Ie Na
Faint o'r amser: _____ %
Saesneg? Ie Na
Faint o'r amser: _____ %
Arall? Ie Na
Faint o'r amser: _____ %

Gan y tad: Cymraeg? Ie Na
Faint o'r amser: _____ %
Saesneg? Ie Na
Faint o'r amser: _____ %
Arall? Ie Na
Faint o'r amser: _____ %

Dywedwch wrthym:

Faint oedd oed y plentyn pan ddechreuodd siarad Saesneg? _____

Faint oedd oed y plentyn pan ddechreuodd siarad Cymraeg? _____

Ydy eich plentyn wedi cael diagnosis o ddyslecsia?

Ydy Nac ydy Os ydy, rhowch fanylion: _____

Ydy eich plentyn wedi cael diagnosis o anhawster dysgu?

Ydy Nac ydy Os ydy, rhowch fanylion: _____

Swydd:

Swydd y fam: _____

Swydd y tad: _____

Beth yw'r lefel addysg uchaf a gyrhaeddwyd gan :

Y Fam: (rhowch gylch)

Ysgol Gynradd Ysgol Uwchradd TGAU Lefel A Prifysgol Ôl-raddedig

Y Tad: (rhowch gylch)

Ysgol Gynradd Ysgol Uwchradd TGAU Lefel A Prifysgol Ôl-raddedig

A gawn ni weld canlyniadau arholiadau TGAU/TASau eich plentyn?

Cewch Na chewch

Ydy dysgu ieithoedd gwahanol yn effeithio ar sut mae plant yn teimlo amdanynt eu hunain?

Bwriad yr astudiaeth hon yw edrych ar sut y gall dysgu mwy nag un iaith yn yr ysgol effeithio ar sut mae plant yn teimlo amdanynt eu hunain wrth iddynt ddysgu darllen ac ysgrifennu. Un peth unigryw am Gymru yw bod dwy iaith ar gael i'w defnyddio trwy gydol y system addysg. Caiff rhai plant sy'n medru'r ddwy iaith eu dysgu i ysgrifennu a darllen Saesneg yn gyntaf, eraill Cymraeg yn gyntaf, ac mae eraill yn dysgu'r ddwy iaith yr un pryd. Dysgir agweddau ar wahanol ieithoedd ar wahanol gyflymder ac mewn ffyrdd gwahanol. Bwriad yr ymchwil hwn yw edrych ar sut mae hyn yn effeithio ar y ffordd mae plant yn teimlo amdanynt eu hunain ar adegau gwahanol yn eu bywydau ysgol. Byddwn yn siarad gyda phlant ym mlynnyddoedd cynnar yr ysgol gynradd, rhai sydd wedi dechrau yn yr ysgol uwchradd yn ddiweddar, oedolion ifanc sydd ar fin sefyll eu harholiadau TGAU a myfyrwyr sydd wedi dechrau yn y coleg neu'r brifysgol yn ddiweddar am eu barn am y pethau hyn. Mae gennym ddi-ddordeb arbennig mewn edrych ar effeithiau profiadau iaith ysgol ar blant â dyslecsia yn ogystal â phlant nad ydynt wedi cael diagnosis o ddyslecsia.

Byddwn yn gofyn nifer o gwestiynau i'r plant sy'n cymryd rhan yn yr ymchwil am eu haddysg a sut maent wedi teimlo ar wahanol adegau am eu haddysg. Yna gofynnir i blant ateb un o dri holiadur byr gan ddangos i ba raddau maent yn cytuno â gosodiadau ynghylch sut maent yn teimlo amdanynt eu hunain, eu strategaethau i ymdopi â sefyllfaoedd straenus, a theimladau o anhapusrwydd. Gofynnir iddynt gyflawni tasg fer yn defnyddio lluniau a thasg ddarllen. I gloi gofynnir i bob plentyn gymryd rhan mewn gem fach hwyliog. Bydd pob plentyn yn rhydd i weithio ar ei gyflymder ei hun a gall dynnu allan o'r astudiaeth ar unrhyw adeg. Bydd yr holl wybodaeth sy'n cael ei chasglu yn yr astudiaeth hon yn cael ei chadw'n gwbl gyfrinachol.

Bwriedir cyhoeddi'r canlyniadau mewn cyfnodolion safonol ac mewn cynadleddau priodol. Defnyddir y data fel sail i thesis PhD dan oruchwyliaeth Dr Enlli Thomas (Darlithydd Addysg) a Dr Jean Ware (Darllenydd mewn Addysg) o'r Ysgol Addysg, Prifysgol Bangor. Mae'r ymchwil hwn yn arbennig o bwysig oherwydd gallai ei ganfyddiadau ddylanwadu ar bolisi addysg cenedlaethol. Ar hyn o bryd, mae sawl ysgol wahanol sy'n dysgu Cymraeg a Saesneg mewn sawl ffordd wahanol. Gallai'r ymchwil hon roi gwybodaeth werthfawr ynghylch y ffordd orau o gyflwyno'r ieithoedd hynny er mwyn helpu plant i deimlo'n dda amdanynt eu hunain. Yn arbennig, gallai gynnig cyngor ar sut y gellir defnyddio'r gwahaniaethau hyn i helpu plant dyslecsig i deimlo'n dda amdanynt eu hunain. Mae hyn yn bwysig oherwydd os yw plant yn teimlo'n dda amdanynt eu hunain, maent yn fwy tebygol o wneud yn dda mewn arholiadau, teimlo'n hyderus yn eu galluoedd eu hunain a bod yn hapus.

Diolch i chi am eich amser. Os oes gennych unrhyw gwestiynau neu bryderon, croeso i chi gysylltu â mi ar e-bost: nia.young@bangor.ac.uk neu dros y ffôn ar: 01248 383593

Appendix C Adult Language Use and Preference Questionnaires (LUPQ)

English

Language Use and Preference Questionnaire

Code: _____

Date: _____

Please rate your ability to do each of the following:

Statement:	Very well	Well	A little above average	Average	A little below average	Poorly	Very poorly
Speak English							
Speak Welsh							
Read English							
Read Welsh							
Write English							
Write Welsh							
Understand English							
Understand Welsh							

Please rate your agreement with the following statements:

Statement:	Strongly agree	Agree	Mostly agree	Neither agree nor disagree	Mostly disagree	Disagree	Strongly disagree
I am confident using English with friends and family							
I am confident using Welsh with friends and family							
I am confident using English at work							
I am confident using Welsh at work							
I am confident using English in new situations (e.g. in shops, at restaurants)							
I am confident using Welsh in new situations (e.g. in shops, at restaurants)							
I am confident spelling new words in English							
I am confident spelling new words in Welsh							
I am confident reading instructions/information in English							
I am confident reading instructions/information in Welsh							

On a scale of 1 (English is easier) – 10 (Welsh is easier), where would you put the following?:

	1 (English is easiest)	2	3	4	5 (Both the same)	6	7	8	9	10 (Welsh is easier)
Reading in general										
Reading new words										
Reading known words										
Writing in general										
Spelling new words										
Spelling known words										
Writing in informal settings (e.g. facebook)										
Writing in formal settings (e.g. essays/letters to organisations)										
Understanding written instructions										
Understanding spoken instructions										
Holding an informal conversation (e.g. with friends)										
Speaking in public (e.g. to a group of people/with authority figures)										

In primary school, where in your class would you place your ability to do the following:

Statement:	Bottom	Near the bottom	A little below average	Average	A little above average	Near the top	Top
Speak English							
Speak Welsh							
Read English							
Read Welsh							
Write English							
Write Welsh							
Understand English							
Understand Welsh							

In secondary school, where in your class would you place your ability to do the following:

Statement:	Bottom	Near the bottom	A little below average	Average	A little above average	Near the top	Top
Speak English							
Speak Welsh							
Read English							
Read Welsh							
Write English							
Write Welsh							
Understand English							
Understand Welsh							

Which of the following languages did your parents use when speaking to you as a child:

Mother: Welsh? Yes No
 How much of the time: ____%
 English? Yes No
 How much of the time: ____%
 Other? Yes No
 How much of the time: ____%

Father: Welsh? Yes No
 How much of the time: ____%
 English? Yes No
 How much of the time: ____%
 Other? Yes No
 How much of the time: ____%

Please tell us:

How old were you when you began speaking English? _____

How old were you when you began speaking Welsh? _____

Have you been diagnosed with dyslexia?

Yes No

If Yes, please specify: _____

Have you been diagnosed with any learning difficulty?

Yes No

If Yes, please specify: _____

Your occupation: _____

Mother's occupation: _____

Father's occupation: _____

What is the highest level of education obtained by:

	Primary School	Secondary School	GCSE	A-Level /GNVQ	University	Post-graduate
You						
Your mother						
Your father						

In which language do you think?

Welsh	English	Both	Depends on the situation	Depends which language I am using

When did you begin learning to read and write English? _____

Who taught you? _____

When did you begin learning to read and write Welsh? _____

Who taught you? _____

Which language do you use most at present? _____

About how much of the time do you use this language? _____%

Holiadur Cefndir Ieithyddol

Welsh

Cod: _____

Dyddiad: _____

A fyddech cystal â disgrifio'ch gallu i wneud bob un o'r canlynol:

Datganiad:	Da iawn	Da	Ychydig uwch na chanolig	Canolig	Ychydig is na chanolig	Gwael	Gwael iawn
Siarad Saesneg							
Siarad Cymraeg							
Darllen Saesneg							
Darllen Cymraeg							
Ysgrifennu yn Saesneg							
Ysgrifennu yn Gymraeg							
Deall Saesneg							
Deall Cymraeg							

Nodwch i ba raddau yr ydych yn cytuno â'r datganiadau canlynol:

Datganiad:	Cytuno'n gryf	Cytuno	Cytuno gan fwyaf	Ddim yn cytuno na'n anghytuno	Anghytuno gan fwyaf	Anghytuno	Anghytuno'n gryf
Rwy'n hyderus wrth ddefnyddio'r Saesneg gyda ffrindiau a theulu							
Rwy'n hyderus wrth ddefnyddio'r Gymraeg gyda ffrindiau a theulu							
Rwy'n hyderus wrth ddefnyddio'r Saesneg yn y gwaith							
Rwy'n hyderus wrth ddefnyddio'r Gymraeg yn y gwaith							
Rwy'n hyderus wrth ddefnyddio Saesneg mewn sefyllfaoedd newydd (e.e. mewn siopau, bwytai)							
Rwy'n hyderus wrth ddefnyddio Cymraeg mewn sefyllfaoedd newydd (e.e. mewn siopau, bwytai)							
Rwy'n hyderus sillafu geiriau newydd yn y Saesneg							
Rwy'n hyderus sillafu geiriau newydd yn y Gymraeg							
Rwy'n hyderus wrth ddarllen cyfarwyddiadau / gwybodaeth yn y Saesneg							
Rwy'n hyderus wrth ddarllen cyfarwyddiadau / gwybodaeth yn y Gymraeg							

Ar raddfa o 1 (y Saesneg yn haws) – 10 (y Gymraeg yn haws), ymhle fyddech chi'n rhoi'r canlynol?:

	1 (y Saesneg hawsaf)	2	3	4	5 (y ddwy'r un fath)	6	7	8	9	10 (y Gymraeg hawsaf)
Darllen yn gyffredinol										
Darllen geiriau newydd										
Darllen geiriau a wyddoch										
Ysgrifennu yn gyffredinol										
Sillafu geiriau newydd										
Sillafu geiriau a wyddoch										
Ysgrifennu mewn sefyllfaoedd anffurfiol (e.e. Facebook)										
Ysgrifennu mewn sefyllfaoedd ffurfiol (e.e. traethodau / llythyrau i sefydliadau)										
Deall cyfarwyddiadau ysgrifenedig										
Deall cyfarwyddiadau llafar										
Cynnal sgwrs anffurfiol (e.e. gyda ffrindiau)										
Siarad yn gyhoeddus (e.e. gyda grŵp o bobl / gyda phobl mewn awdurdod)										

Yn yr ysgol gynradd, ymhle yn eich dosbarth fydddech chi'n rhoi'ch gallu i wneud y canlynol:

Datganiad:	Ar y gwaelod	Wrth ymyl y gwaelod	Ychydig is na chanolig	Canolig	Ychydig uwch na chanolig	Wrth ymyl y top	Ar y top
Siarad Saesneg							
Siarad Cymraeg							
Darllen Saesneg							
Darllen Cymraeg							
Ysgrifennu yn Saesneg							
Ysgrifennu yn Gymraeg							
Deall Saesneg							
Deall Cymraeg							

Yn yr ysgol uwchradd, sut fydddech chi'n disgrifio'ch gallu i wneud y canlynol:

Datganiad:	Ar y gwaelod	Wrth ymyl y gwaelod	Ychydig is na chanolig	Canolig	Ychydig uwch na chanolig	Wrth ymyl y top	Ar y top
Siarad Saesneg							
Siarad Cymraeg							
Darllen Saesneg							
Darllen Cymraeg							
Ysgrifennu yn Saesneg							
Ysgrifennu yn Gymraeg							
Deall Saesneg							
Deall Cymraeg							

Pa rai o'r ieithoedd canlynol oedd eich rhieni'n eu defnyddio wrth siarad â chi pan oeddech yn blentyn?

Mam: Cymraeg? Oedd Nac oedd

Faint o'r amser: _____%

Saesneg? Oedd Nac oedd

Faint o'r amser: _____%

Arall? Oedd Nac oedd

Faint o'r amser: _____%

Tad: Cymraeg? Oedd Nac oedd

Faint o'r amser: _____%

Saesneg? Oedd Nac oedd

Faint o'r amser: _____%

Arall? Oedd Nac oedd

Faint o'r amser: _____%

A fyddech cystal â dweud wrthym:

Faint oed oeddech chi pan ddechreuoch chi siarad Saesneg?

Faint oed oeddech chi pan ddechreuoch chi siarad Cymraeg?

Ydych chi wedi cael diagnosis o dyslecsia?

Ydw Nac ydw

Os Ydych, rhowch fanylion: _____

Ydych chi wedi cael diagnosis o anhawster dysgu?

Ydw Nac ydw Os Ydych, rhowch

fanylion: _____

Swydd:

Eich swydd:

Swydd eich mam: _____

Swydd eich tad: _____

Beth yw'r lefel uchaf o addysg a gafwyd gan y canlynol?

	Ysgol gynradd	Ysgol uwchradd	TGAU	Lefel A /GNVQ	Prifysgol	Ôl-radd
Chi						
Eich mam						
Eich tad						

Ym mha iaith ydych chi'n meddwl?

Cymraeg	Saesneg	Y ddwy	Dibynnu ar y sefyllfa	Dibynnu pa iaith yr ydw i'n ei defnyddio

Pryd gwnaethoch chi ddechrau dysgu darllen ac ysgrifennu yn Saesneg?

Pwy wnaeth eich dysgu?

Pryd gwnaethoch chi ddechrau dysgu darllen ac ysgrifennu yn Gymraeg?

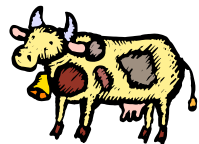
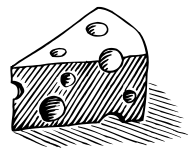
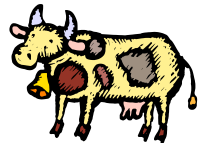
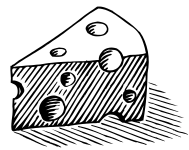
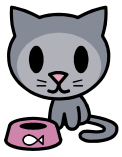
Pwy wnaeth eich dysgu?

Pa iaith ydych chi'n ei defnyddio fwyaf ar hyn o bryd?

Tua faint o'r amser ydych chi'n defnyddio'r iaith hon?

_____%

Appendix D Welsh Rapid Automatised Naming (WRAN) Task sheet



WRAN Word Key:

Cath



Cwch



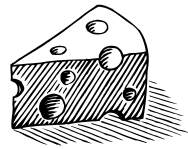
Pêl



Ci



Caws



Trên



Merch



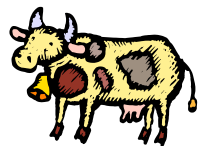
Ceg



Glaw



Buwch



Wy



Llaw



Car



Bwyd



Dyn



Traed



Fforc



Paent



Llun



Het



Appendix E Child Language Use and Preference Questionnaires (LUPQ)

English

Code: _____

Date: _____

Please rate your ability to do each of the following:

Statement:	Very well	Well	A little above average	Average	A little below average	Poorly	Very poorly
Speak English							
Speak Welsh							
Read English							
Read Welsh							
Write English							
Write Welsh							
Understand English							
Understand Welsh							

In primary school, where in your class would you place your ability to do the following:

Statement:	Bottom	Near the bottom	A little below average	Average	A little above average	Near the top	Top
Speak English							
Speak Welsh							
Read English							
Read Welsh							
Write English							
Write Welsh							
Understand English							
Understand Welsh							

In secondary school, where in your class would you place your ability to do the following:

Statement:	Bottom	Near the bottom	A little below average	Average	A little above average	Near the top	Top
Speak English							
Speak Welsh							
Read English							
Read Welsh							
Write English							
Write Welsh							
Understand English							
Understand Welsh							

In which language do you think?

Welsh	English	Both	Depends on the situation	Depends which language I am using

When did you begin learning to read and write English? _____

Who taught you? _____

When did you begin learning to read and write Welsh? _____

Who taught you? _____

Which language do you use most at present? _____

About how much of the time do you use this language? _____%

Welsh

Holiadur Cefndir Iaith

Cod: _____

Dyddiad: _____

Nodwch ba mor dda y gallwch wneud pob un o'r canlynol:

Gosodiad:	Da iawn	Da	Ychydig yn uwch na'r canol	Canolig	Ychydig yn is na'r canol	Gwael	Gwael iawn
Siarad Saesneg							
Siarad Cymraeg							
Darllen Saesneg							
Darllen Cymraeg							
Ysgrifennu Saesneg							
Ysgrifennu Cymraeg							
Deall Saesneg							
Deall Cymraeg							

Yn yr ysgol gynradd, ym mha safle byddech chi yn eich dosbarth o ran eich gallu i wneud y canlynol:

Gosodiad:	Gwaelod	Yn agos i'r gwaelod	Ychydig yn is na'r canol	Canolig	Ychydig yn uwch na'r canol	Yn agos i'r brig	Brig
Siarad Saesneg							
Siarad Cymraeg							
Darllen Saesneg							
Darllen Cymraeg							
Ysgrifennu Saesneg							
Ysgrifennu Cymraeg							
Deall Saesneg							
Deall Cymraeg							

Yn yr ysgol uwchradd, ym mha safle byddech chi yn eich dosbarth o ran eich gallu i wneud y canlynol:

Gosodiad:	Gwaelod	Yn agos i'r gwaelod	Ychydig yn is na'r canol	Canolig	Ychydig yn uwch na'r canol	Yn agos i'r brig	Brig
Siarad Saesneg							
Siarad Cymraeg							
Darllen Saesneg							
Darllen Cymraeg							
Ysgrifennu Saesneg							
Ysgrifennu Cymraeg							
Deall Saesneg							
Deall Cymraeg							

Ym mha iaith ydych chi'n meddwl?

Cymraeg	Saesneg	Y ddwy	Yn dibynnu ar y sefyllfa	Yn dibynnu ar ba iaith rydw i'n defnyddio

Pryd wnaethoch chi ddechrau dysgu darllen ac ysgrifennu Saesneg?

Pwy wnaeth eich dysgu chi?

Pryd wnaethoch chi ddechrau dysgu darllen ac ysgrifennu Cymraeg?

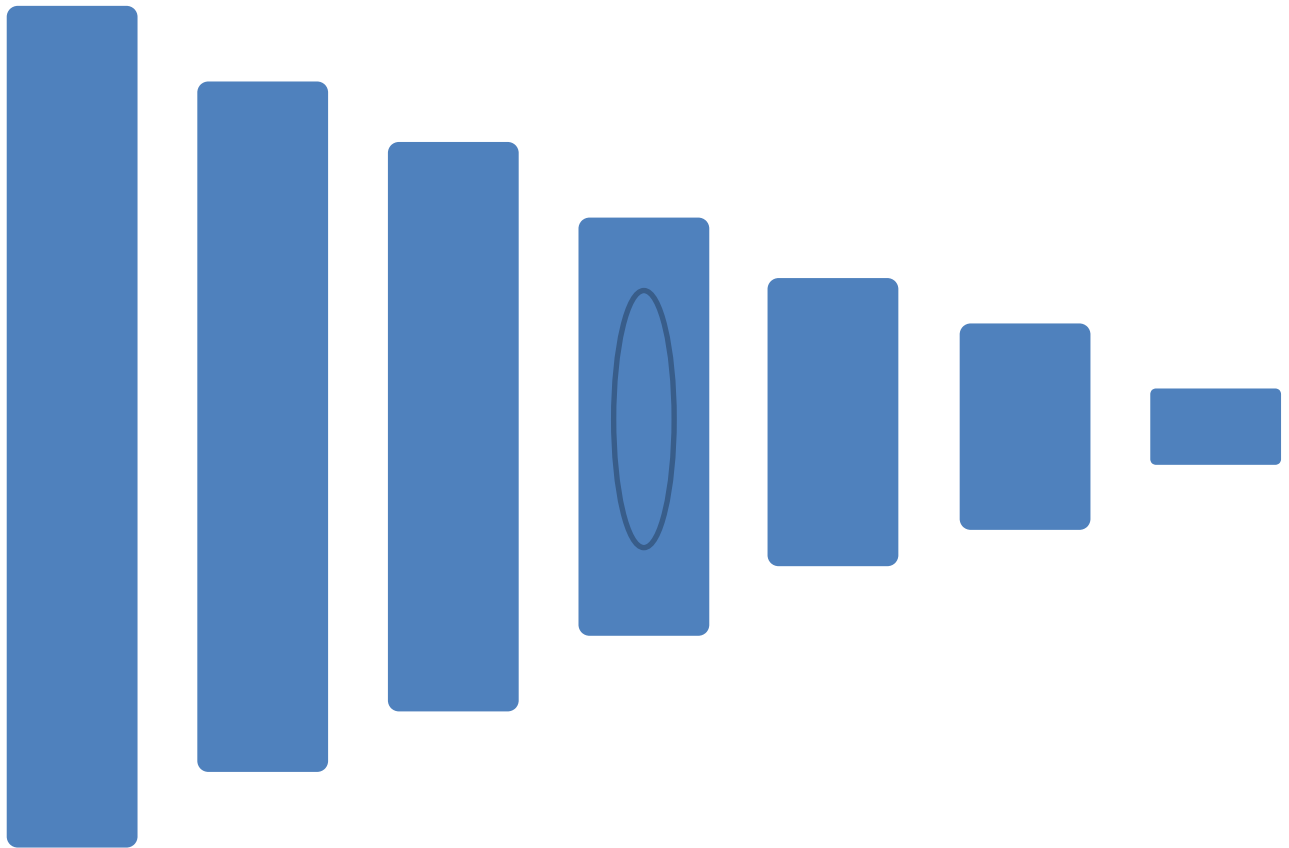
Pwy wnaeth eich dysgu chi?

Pa iaith ydych chi'n ei defnyddio fwyaf ar hyn o bryd?

Tua faint o'r amser ydych chi'n defnyddio'r iaith honno? _____%

Appendix F Prompt Pictures

Picture to aid rating of ability



Picture Aid for Rating of position in class

