

Making things in their own way

- a study of digital literacy practices in three multilingual households



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Abstract

The purpose of my study is to contribute to the understanding of the ways in which South Asian children use digital technologies in their homes to learn literacy and language and examine the relationship between home and school discourses. My study explores the ways in which bilingual and multilingual children's literacy is influenced by their home culture and their engagement with digital technology. The study also considers screen-based multimodal communicative practices.

Data collection was conducted over the course of a year and involved three South Asian families including six bilingual/multilingual children in their homes in Northern England. The children's ages ranged between four and twelve years.

An ethnographic methodology was used as a means of understanding the children's digital practices as they unfolded in their family homes. It included rapport building with the families, obtaining their consent, participant observations, semi-structured interviews and video-recording. A video camera was used to capture digital practices when the children were using a mobile phone, playing Nintendo DSi, making a PowerPoint presentation and accessing online multilingual resources. The video-based data was transcribed using the concept of multimodal interactions. The data analysis employed a thematic approach. From the overall data description, three initial themes emerged: 'literacy-language in a cultural context', 'home-school relationship' and 'multimodal digital practices in the context of learning literacy and culture'. These initial themes were used to analyse the data further and gain a deeper understanding of the ways in which South Asian family culture influenced children's literacy and language learning through their use of digital technologies.

The main findings recognised that children communicated in the home by combining their bilingual languages in a syncretic process. This bringing together of children's digital, multimodal and multi-cultural communicative practices provides new insights into the concepts of grammatical trans-languaging, syncretism and hybridity, evident in the children's chosen activities. The study revealed that their language interaction was intergenerational. The children were creating a hybrid space of practice. The children demonstrated creativity in the construction of hybrid languaging/ trans-languaging. It

was also evident that heritage language communication, dual language and digital technology skills emerged through the affordance offered by technology to the children.

The study explored different kinds of knowledge transfer between home and school. These were literacy, language and heritage culture during children's use of digital technology. Therefore, children's home-school linking practices, during their use of digital technology, were understood as schooled constructions of literacy in the multilingual home setting. I viewed this knowledge transfer as symbiotic.

It was also apparent that children associated their prior knowledge and experience with new knowledge while using digital technology. This indicates that the children's learning process extends beyond the visual mode. Children's currently observable activities revealed a complex process that individualises their learning experience.

Overall, multimodal digital literacy practices were extended through the modes selected by the participants and these went beyond the visible modes of communication. This communication was seen as digital and inter-generational multilingual literacy practice in the multilingual household.

Finally, the study revealed a new dimension to the theory of multicultural family-focused learning in terms of literacy and language. Children were drawing on different funds of knowledge within their activities. These were digital 'funds of knowledge', cultural heritage 'funds of knowledge' and home-school link 'funds of knowledge'. These funds of knowledge integrated into the children's multicultural family-focused learning and evolved an emergent theory - namely funds of integrative digital multicultural practices.

The study implies that, for South Asian children's home-based literacy and language development, educators need to take cultural context into consideration. Finally, the study suggests that more research is needed into the growing use of digital literacies in home environments and its implications for children's literacy and language development. This is particularly relevant for research involving bilingual/ multilingual children.

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The thesis is dedicated to the memory of my mother and father.

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List of Acronyms

BECTA - British Educational Communications and Technology Agency
UNESCO – United Nations Educational, Scientific and Cultural Organisation
BERA - British Educational Research Association
LEA – Local Education Authority
ESRC - Economic and Social Research Council
NIACE - National Institute of Adult Continuing Education

Glossary

The following is a glossary of key terms used in this thesis.

Bilingualism

The term bilingualism is used to refer to children who can speak two languages. In the context of my study, these children are learning English in the primarily monolingual culture of the English state school and also learning another language from their non-English heritage culture. According to Butler and Hakuta (2006, p.114) ‘Bilinguals are often broadly defined as individuals or groups of people who obtain the knowledge and use of more than one language. However, bilingualism is a complex psychological and socio-cultural linguistic behaviour and has multi-dimensional aspects’. In my study the participants (British-born South Asian children) are learning Bengali, Hindi and Urdu from their heritage culture for the purpose of communicating with people from their home culture.

Multilingualism

I mean the term ‘multilingualism’ as the ability to employ more than two linguistic identities in a particular space. In my study, this includes British-born children from Bangladeshi, Indian, and Pakistani backgrounds who are attending mainstream English state schools where they learn English literacy and are also learning other languages

for cultural and religious purposes. According to Blackledge and Creese (2010, p.56) ‘we do not view ‘multilingualism’ as a fixed pattern of language but as an inventive, creative, sometimes disruptive play of linguistic resources’.

Syncretic/syncretism

I used the term syncretism (Duranti and Ochs, 1996; 1997; Gregory *et al.* 2004) to describe how diverse cultural practices inform literacy activities across multicultural communities. In my study this term describes the process of using phrases from two different languages. It also relates to cultural and linguistic diversity of practices, which might include, for example, interactions around the computer, Internet and digital games and the relationship with children’s literacy and language practices from within their heritage cultures. Children followed their own rules when they inserted words from their cultural heritage in order to communicate with their siblings. They ‘make things in their own way’ and I referred to this phenomenon as syncretised language.

Hybridity

In my study, I used the term hybridity to refer to the way people mixed languages in their communication. I viewed this process of sentence construction as a syncretic communicative practice, referring to the product as ‘hybrid language’. Bhabha’s (1996) concept of hybridity came from postcolonial discourse to describe the construction of culture and identity. He used this term to describe the creation of productive hybrid language use within a cultural space. One of the examples of this in my study was the observation of a pattern of hybrid communication demonstrating language practices between two brothers in the context of Nintendo DSi play.

Grammatical trans-languaging

Blackledge and Creese (2010) use the term trans-languaging to describe ‘flexible bilingualism’ in the context of language teaching and learning, particularly in complementary schools. Garcia (2009, 2009a, 2009b, 2013) used the term trans-languaging in the context of bilingual and multilingual people accessing different linguistic features important for their communication.

I used the term trans-languaging as an umbrella to cover the linguistic features of syncretisation, hybridisation and translation. In the context of my study, I needed to describe the bilingual and multilingual children’s communicative practices through their

use of more than one language, their ability to translate from one language to another, their combination of two different languages in communication through a syncretic process and the creation of hybrid language. I observed that the children used hybrid grammatical processes in order to communicate. Their construction of sentences illustrates how they followed English grammatical rules or other language grammatical rules in order to create the hybrid sentence. This hybrid construction of sentences was not simply word transfer but also the transfer of grammar. Therefore I added the word grammatical to the term trans-languaging.

Digital practices

I use the term digital practices to refer to what Gilster (1997, p.6) defines as: 'the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers and, particularly, through the medium of the Internet'. Many literacy researchers acknowledge this and began to study digital literacy as literacy practices that are shifting through the use of digital technology (Lankshear and Knobel, 2003, 2006, 2007, 2008); Merchant (2003, 2005, and 2007); Marsh *et al* 2005; Marsh (2002, 2004, 2005, Marsh 2010) and so on.

In my study, the term 'digital practices' are those through which children shape meaning during their use of digital technologies in their everyday life including their cultural learning influences. For example, in the context of my study young children were engaged in various digital practices through their use of digital technologies at home; these included using computers (for Internet browsing, making PowerPoint presentations and extensive use of online multilingual resources), playing with the Nintendo DSi and using mobile phones. These are seen as digital practices employed by children when seeking to acquire knowledge in the areas of language and literacy mediated by digital technology.

Multimodality

I used the term multimodality to describe multimodal interaction that combines embodied and disembodied modes (Norris, 2004; Kress, 2003; Jewitt, 2009). Embodied modes include gaze, gesture, posture and language and disembodied modes include sound, print and onscreen design (colour, images and written text). I particularly looked at children's digital practices and the outcome of their performance was often apparent on screen (computer, mobile and Nintendo DSi). Therefore I looked

at disembodied modes (mainly onscreen design i.e. colour, images and written text) in order to gain the meaning of their performance. The children's screen-based digital practices were seen as multimodal texts. I also looked at embodied modes in relation to digital practices.

Migration

The Oxford Dictionary of Sociology defines migration as 'the (more or less) permanent movement of individuals or groups across symbolic or political boundaries into new residential areas and communities' (3rd edition Scott and Marshall, 2005, p.410). This term, however, is historically and politically situated. In the particular British South Asian context of my study, 'Asian settlement is a postcolonial suffix to the colonial relationship between Britain and its Indian empire' (Hesse and Sayyid, 2006, p.15). I have provided a short historical account of South Asian immigration to the UK as my research is focused on children (participants) from those backgrounds (in section 1.1). The first generation of migrants (grandparents) or the second generation (parents) originally came from Bangladesh, India or Pakistan. In my study, I use the term 'migration' in a general sense to describe the accounts of South Asian people moving from their birth place to the UK for educational purposes, for work, and due to environmental or political conditions.

Diaspora

In my study, the word diaspora was used to explore culture, language and literacy among first-second and third generations of three British South Asian families' in the UK. The term diaspora is often used in order to understand different aspects of cultural knowledge, specifically the culture of migrant groups in countries other than those of their origin (Alexander et al., 2007; Knott, 2005; Dirlik, 2004). In the context of my study these are related to culture, religion, language and literacy practices of British Bangladeshi, Pakistani and Indian families.

Domain and site

I used the term 'domain' to explore where a specific practice originates from and the term 'site' to explore where a specific practice is implemented or carried out. For example, when children mainly brought homework from school, this means the domain is school and the site is home. I used both terms to explore literacy, language and cultural practices occurring between home and school. Barton and Hamilton (1998)

used the terms domain and site to look at home and school literacy. Barton and Hamilton (2000, p.39) stated that, 'there are different literacies associated with different domains of life'. These domains are often home, school and workplace.

In my study, Sima's school homework was one of the examples of a literacy practice that originated in the school domain but, in order to develop it further for her cultural presentation, it was transferred to the home site.

Funds of knowledge

In my study, I relate the concept of 'funds of knowledge' to children's use of digital technologies in their homes. The concept of 'funds of knowledge' helps me to describe and classify children's digital practices in their home, their social and educational environments. The concept of funds of knowledge was originally developed by Moll *et al.* in 1992 and then was further developed by Gonzalez *et al.* in 2005. Moll *et al.* (1992) use the term 'funds of knowledge' to describe the connection between home and school of cultural resources. Gonzalez *et al.* (2005) also use this term for theorising practices in households, communities and classrooms. I used the term 'digital funds of knowledge' to analyse children's knowledge (literacy, language and culture) transfer between school and home for the purpose of developing better understanding of households and classrooms.

Chapter 1

Introduction

I begin this thesis with the belief that ‘technology has always been an essential part of literacy’ (Marsh and Singleton, 2009, p.1). Literacy and language is a major concern for many family members as parents are children’s primary support in language and literacy learning (Gregory *et al* 2004). There is a need to study literacy and language learning particularly for children in multilingual homes because this enables us to understand issues around heritage language and diverse culture. Given that digital technology has influenced constructions of literacy it seems imperative that we understand how digital technology contributes to multilingual children’s literacy and language learning. Yet there is a shortage of literature focusing on children’s use of digital technology in multilingual homes (Marsh, 2005; Levy and Marsh, 2011).

This thesis presents a study of British South Asian children’s language and literacy learning, with a particular focus on intergenerational practices around digital technologies in multilingual households and the potential influence of these home-based practices for school learning. I adopted an ethnographic approach by using home visits (semi-structured interviews and field notes) and my observations of video recording. The outline of this thesis is drawn from a sociocultural theoretical perspective, informed by established literature around multimodal and multi-cultural communicative practices, trans-languaging, syncretic and hybrid language practices.

In this chapter I demonstrate the background of my study, why I wanted to do this study and research questions, together with its aims and objectives. Finally, I present the chapter outline of this thesis and summarise the main points I have made.

1.1 Background of my research and general field of the study

This study is concerned with understanding the ways in which British South Asian children experience language and literacy learning through their use of digital technologies. Constructions of literacy are changing and digital technology has a major role to play in these changes (Coiro, 2003; Kinzer & Leander, 2003; Lankshear & Knobel, 2003a; Burnett, 2010).

Children and parents are increasingly using digital technology in their family lives for the opportunities it provides for engagement, entertainment, and education (Wartella et al., 2013). There is still a shortage of research relating to the cultural practices of children from minority ethnic, bilingual or multilingual backgrounds (Marsh, 2005; Levy and Marsh, 2011). It is my particular concern to understand these children's everyday life, literacy and language practices while using digital technology.

My study explores the ways in which British South Asian children's literacy is influenced by their home culture and mediates their engagement with digital technology. Today's children are growing up in a digital world (Marsh et al., 2005) and are increasingly engaging with digital technologies in many aspects of their everyday life and literacy practices (Carrington and Robinson, 2009; Lankshear and Knobel, 2003a; Marsh, 2002, 2004). Specifically, these include: computing, playing digital games, communicating with friends and families via the Internet, videoing, watching television and using mobile telephones (Gee, 2003). A number of researchers have addressed children's use of digital technologies and its impact is continuously changing literacy practices (Lankshear & Knobel, 2003a, 2006, 2007, and 2008; Merchant, 2005, 2007 and 2008; Marsh, 2010; Carrington and Robinson, 2009). In my study relevant literature (Chapter 3) was reviewed to explore this impact, particularly in the context of bilingual and multilingual children's multi-literacies and multicultural learning practices, and the role played in this process by digital technologies.

It is initially important to provide a short historical account of South Asian immigration to the UK as my research is focused on children from those backgrounds. According to the census 2001, the South Asian population in Britain grew to just over two million (Ballard, 2001) during the period of 1951 to 2001. In the 2011 census this figure stands at over 3 million people (Office for National Statistics, 2012). South Asian settlers included people from different religious, linguistic, ethnic and socio-economic backgrounds. In order to understand the different aspects of cultural knowledge regarding immigrant families my research uses the term 'diaspora' community in the UK. The terms "diasporas" and 'migration' may be treated singly or together, but 'identities' must be treated in engagement with one or both of these" (Knott, 2010, p.8). The general view of the term 'migration' is designed to explain the accounts of people moving from one place to another due to economic, social, political or environmental conditions. I view this term as being

historically and politically situated.

South Asia consists of Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. Between 1857 and 1947 India, Bangladesh and Pakistan were one country and there was substantial immigration to the UK (Ansari, 2006). In the mid-nineteenth century South Asian students began to arrive in Britain, as it appeared that the education system was suitable for them. Scottish universities in particular were popular, due to the large number of Scots who taught in India. Eventually some of the students settled in Britain, making significant contributions in their local communities.

After the end of the second world war, Britain was suffering from a severe shortage of labour and South Asian workers started to form a significant part of the visible migrant population in the UK (Ansari, 2006; Hesse and Sayyid, 2006; Cummins, 2000). There is continued debate about the most appropriate way of describing South Asians settled in Britain. According to Sayyid (2006, p. 4) 'It can also be found in kebab shops and bazaars, in streets and clubs, in homes and offices, in short in locales that bring together people who share a sense of belonging to South Asia, a sense mediated by coloniality and marked by racialised subordination, and continually represented through the currency of Indological discourse'. In the context of understanding the contemporary meaning of coloniality, Hesse and Sayyid (2006, p.18) stated that 'as a cultural intervention or intellectual practice, postcolonialism has been mainly associated with the field of literacy and cultural studies, where it has referred to a genre of writing which reflected on the complex [...] social institutions'.

In the context of my research the terms 'digital literacy' and 'multilingual households' are of particular interest. In my study I used these terms to refer to the children's use of digital literacy in their family homes and to their interactions with digital technology in their daily lives. I used the term 'Multilingual households' in the context of the bilingual and multilingual linguistic practices of South Asian families. My study focused on the children's language and cultural practices embodied in their use of digital technology. The definitions and the overview of bilingual, multilingual and digital literacy are provided in the glossary (which explains how I have interpreted various terms in the context of my research). A more detailed discussion of these terms can be found in the literature review (see Chapter 3).

I observed in my study how literacy was informed by different ‘funds of knowledge’ operating as cultural resources in these multilingual households. Theories regarding ‘funds of knowledge’ (Vélez-Ibañez and Greenberg, 1989; Moll *et al.*, 1992; Gonzalez *et al.*, 2005) relate to how young people understand and make use of oral and written texts and the ways in which meanings are transferred between home and peer group, school, and the wider community. My study explores how cultural practices in South Asian homes connect to digital literacy practices and digital technology, and the ways in which this integration contributes to children’s literacy, language and cultural learning. Home-based cultural practices and leisure activities are seen as important contributors to children’s funds of knowledge. In my study I also consider that children’s use of digital technology can be seen as an emerging cultural practice that operates along with the existing home cultural practices. The application of the theory of ‘funds of knowledge’ allowed me to understand how digital literacy practices were being used within this specific home-based cultural context.

Lewis (2011), in her study, described the home digital literacy practices of a male child and his mother within an African American family. She observed the child’s intergenerational meaning-making and multimodal and digital literacy practices between mother and son. In this ethnographic study, I observed children’s digital literacy practices online. These practices included the ways in which the children were learning literacy and language in their daily family life. This included intergenerational interaction between children, parents and grandparents, and also how siblings support each other’s school-related and digital/online learning in the home setting. Given that large scale research such as Livingstone and Bober (2004; 2003) has previously identified that many parents recognise that the Internet can help children with their school work, what is not fully understood is the learning relationship between South Asian children’s experiences of literacy and language and digital technology goes further than simply how they interact in a formal educational context. In my study, six children within three South Asian families were filmed at home as they used a mobile phone, Nintendo DSi and computer (online).

Having collected a vast amount of data over the course of a year, five specific examples of video-based data (the most relevant to my research) were selected from the whole data set. The examples illustrated how these children were using digital technology to develop literacy and language in their multilingual homes. The selection criteria are described in detail in Chapter 5.

In order to identify the best way of describing my data, I carefully observed the video clips several times. I subsequently transcribed the data using the concept of multimodal interaction (Norris, 2004). From the transcriptions of the data and their interpretation, three initial themes emerged that were of significance to my study. The analysis process consists of describing qualitative data and interpreting it in order to make sense of it (Wolcott, 1994). According to Wolcott (1994, p.12) ‘Description addresses the question, “What is going on here?” Interpretation addresses: “What does it all mean?”’ Through this analytic process three initial themes emerged from the qualitative (mainly) video-based data collection. These are discussed below and throughout Chapters 5, 6 and 7 of this thesis.

The five examples of my data set are described in Chapter 6. From these examples, three initial themes emerged. The data was scrutinized through the description of these three themes, revealing nine original and important sub-themes that were analysed in chapter 7. These sub-themes (findings) suggest a new dimension to the theory of multicultural family-focused children’s learning, in terms of literacy and language and its relationship to digital ‘funds of knowledge’ involving cultural heritage.

Theme 1: The theme ‘literacy-language in a cultural context’ identified an evolving language transformation across generations. Interaction across generations was important for language development. I considered the communicative practices between three generations in the study. The older generation tended to remain mono-cultural and mainly mono-lingual. The children were seen to combine two different languages while communicating with their parents or grandparents. This showed that the children were creating a hybrid space of practice by moving between languages (English and Urdu/Bengali/Hindi) in their communication. I saw their ability to insert English words in their heritage language as a form of syncretic literacy (Duranti and Ochs, 1996; Gregory et al, 2012). I understood the way in which children creatively constructed their sentences to be hybrid. Syncretic language and hybrid language were seen as aspects of translanguaging (Blackledge and Creese, 2010). I used the term translanguaging to describe the bilingual and multilingual children’s engagement with more than one language: their ability to translate from one language to another, combining two different languages in their communication through the use of syncretic process and creation of hybrid language. Therefore, ‘creativity in the construction of hybrid languaging/ translanguaging’ emerged from the data. A hybrid language emerges from this evolutionary

process (Croft, 2000) reflecting a population of permanently adopted utterances defined by and adopted by a ‘language community’. It is therefore the result of the propagation of words and structures from one community language into permanent membership of the other community language involved in the mutual interaction. Furthermore, the definition of the terms bilingualism, multilingualism, syncretic/syncretism, hybridity and grammatical translanguaging, used in this thesis are included in the Glossary.

In a multicultural society many people speak and use more than one language in a different range of social domains or contexts. As a result such societies are made up of multiple speech communities, and therefore it follows that every language is made complex by an available range of context-dependent linguistic choices.

In my data it was also evident that the children’s communications were embedded in their heritage language practices and that technology played an important role in their dual language practices. Therefore, heritage language communication, dual language and digital technology skills emerged through the affordance offered by technology.

Theme 2: The theme ‘home-school relationship’ considered how South Asian children constructed their reading, writing and communicative practices (social and cultural) in the home. In order to understand how they related these practices between home and school, I constructed a theme about the relationship between home and school discourses. Although I did not go into schools, I was able to observe, over time, some of the ways in which children drew on school discourses (Street and Street 1991) in the home setting. While I recognise that these observations were home focused I began to understand how school discourses and practices influenced children’s home literacy practices, however it is important for the reader to know this was all constructed in the context of a home settings study.

The knowledge transfer relationship between school and home occurred through children’s digital literacy practices. These practices and knowledge transfers form a two-way process between school and home, and were seen for these specific children in their particular cultural context as potentially symbiotic in terms of both cultural and linguistic knowledge.

The process of this school-home link was identified in terms of children’s literacy,

language and cultural practices mediated by digital technology. Therefore, children's home-school linking practices, during their use of digital technology, were understood as schooled constructions of literacy in the multilingual home setting.

Theme 3: The theme 'multimodal digital literacy practices' was used in the context of literacy and culture in learning terms. This term is extended through the modes that I observed used by the participants. Modes such as spoken language, sound, gaze, gesture, and posture are used to understand the content of communication; together, we designate these multimodal communicative practices (Norris, 2004; Kress, 2003; Jewitt, 2009). I observed that children's digital practices are multimodal. These are disembodied modes including on-screen sound, print and design (colour, images and written text), which appeared on computer, mobile and Nintendo DSi. Therefore, I extended this term into the theme 'multimodal digital literacy practices'. The analysis of this theme identified the ways in which multilingual children delighted in their heritage literacies and languages, and also in connecting English language to their heritage culture. It appeared to me that the theme 'multimodal digital literacy practices' indicated that practices are culturally, contextually and linguistically based because children's cultural and linguistic learning was being mediated by digital screen-based multimodal practices. These practices were created by the children as screen-based texts and were flexible in design. During my study, I was able to observe some of the ways in which multilingual children drew on screen-based texts that are 'linguistically flexible and motivating, enabling bilingual learners to manipulate different scripts and realize ideas on screen' (Kenner and Gregory 2012, p.375). As a result, multimodal digital literacy practices can usefully serve as learning encouragements to children's meaning making and knowledge acquisition in the context of digital and inter-generational multilingual literacy practices.

This knowledge acquisition is also connected with their previous personal experience which is potentially significant in creating and conveying meanings in the context of multiple modes of communicative learning. Therefore multimodal digital literacy practices extended beyond the visible multiple modes of communication.

Through the deeper analysis of the initial three themes in Chapter 7 findings emerged: 'hybrid spaces of practice'; 'creativity in the construction of hybrid languaging/ trans-languaging'; 'heritage language communication'; 'dual language and digital technology skills'; 'evolving language transformation across generations'; 'the symbiotic nature of

cultural and linguistic knowledge'; 'digital and inter-generational multilingual literacy practices'; 'multimodality extended beyond the visible multiple modes of communications' and 'understanding schooled constructions of literacy in the multilingual home setting'.

Finally, the study's findings suggest a new dimension to the theory of multicultural family-focused learning in terms of literacy and language and its relationship to digital and heritage 'funds of knowledge'. This involved drawing on experiences from home and school and using the wider sources of knowledge available on the world-wide web. This new dimension to the theory has been summarised in this thesis as an 'integrative digital multicultural practice'.

1.2 Why I wanted to do this study

Current research gives increased attention to children's learning through their use of digital technologies, both in and out of school (Grant, 2010; Willoughby and Wood, 2008; Gee 2008; Peters, 2008). Marsh (2005) acknowledges that little attention is given to the analysis of popular culture and media in the lives of young bilingual children. Levy and Marsh (2011) draw attention to the need for greater understanding of intergenerational practices in connection with children's digital literacy practices. As mentioned earlier, Lewis (2011) observed in her study that the son and the mother made intergenerational meanings between them through the use of digital technologies. She raised the question: can this type of learning, which occurs between mother and son, be used in school? If so, this would enable us to look at specifically learning relationships between home and school within the role of digital technology. This might help to understand practices in the home and make sense of them in the school. The British Educational Communications and Technology Agency (BECTA) (2009) gave importance to the role of digital technology for learners' attainment. The report stated: "There is now a growing body of national and international evidence demonstrating the positive impact of digital technologies on measurable learning outcomes" (BECTA, 2009, p.3). Despite the BECTA study, the growing use of digital technology in the home is not fully understood in relation to bilingual and multilingual children's language and literacy development.

The large scale study by Livingstone et al. (2013) also acknowledged children's digital skills in learning terms. Livingstone's extensive study 'EU children Online' found online resources as enhancing opportunities for learning, but argued that harm can also follow for children through encounters with unsafe online material. Their research found that

opportunities and risks are positively related. This study however also discussed that children are gaining the digital skills and social support through their use of digital technology. They studied the varieties of internet access experienced by children in their everyday life in Europe. The relationship between children's online experience and their use of digital technologies is socially shaped within family and peer relations (Livingstone *et al.*, 2013). This study showed how the variety of internet access influences children's 'cross-national variations in patterns of usage and provides a classification of countries' (p.5). The study however offers few original insights into the complex factors that shape British Asian children's cross-cultural experiences of language and literacy learning in multilingual families. Therefore, I intend to make a positive contribution to knowledge in the field of South Asian children's literacy and language development in the context of multilingual and multicultural environments. In the context of children's use of digital technology, and its relationship with their intergenerational practices, Levy and Marsh (2011, p.173) stated that:

There is still much that needs to be understood about the way in which children's understanding of digital literacy is constructed through intergenerational practices as well as peer-to-peer interaction.

My research examines the ways in which intergenerational and peer-to-peer practices provided a learning resource in multilingual and multicultural homes. I therefore studied the role and contribution of digital technology to children's home-based digital practices and their relationship with intergenerational practices in this context. That there is also a paucity of research on learning in South Asian families only further justified my avenue of research. In infancy, children generally acquire their initial life skills and knowledge within a home environment that reflects a specific ethnic culture and language. Children also experience hybrid cultures when participating in different cultural and linguistic groups in the community and school. Gregory *et al* (2004) described this hybrid cultural combination as an enriching 'syncretic literacy' practice. Brooker (2002) described the ways in which children learn home cultures depending on their ethnic backgrounds, and how they then enter into another quite different culture in the school. Rogoff (2003) focused on how culture matters in human development and identifies patterns in the similarities and differences between cultural communities. This study was conducted in America in the context of a different cultural history and its complexities. My study was influenced by the work of Gregory *et al* (2004), Brooker (2002) and Rogoff (2003) who found that children engage in cultural practices in ways that are meaningful to them. Their study found that

children's communicative practices are developing in culturally meaningful ways. Given that their concern for the importance of cultural practices is a matter of communicative practice, what has not been pursued is that communicative practices can perhaps be mediated by the role of digital technology. I therefore planned to explore children's cultural aspects, linked with their everyday lives through digital literacy practices. All cultures are embedded in language, modes of interpersonal relationships, beliefs, values, and other modes of communication but eventually children encounter a second cultural environment when they enter a formal educational institution. This initial encounter between two cultures can be confusing for any child and this is especially the case when the home culture is significantly different from the institutional culture. Brooker (2002) pointed out that each child's school learning was shaped by that child's understanding of learning in the home. Therefore I planned to look at children's particular learning (literacy and language) practices that are engaged with in the home. I believed that those practices should be addressed in awareness of their connection with school.

Gregory et al. (2004) revealed that literacy and language development is both multilingual and multicultural for children whose home literacy is other than English. I therefore argue that these children are dealing with complex learning practices in their home environment that have a significant influence on their home and school based literacy development. This influence needs to be understood by educators. My study identified the need for educators to understand the multicultural links between home and school learning. As a South Asian parent I am especially aware of the learning issues facing a child in dealing with multilingual and multicultural issues in both the home and the school. Being a South Asian I therefore focused on South Asian families with particular attention to possible insights regarding the ways in which children acquire knowledge through the use of digital technology, the range of literacy and language learning practices adopted within cultures, and also the impact of the nature of knowledge transfer between home and school.

Some studies by past researchers have expressed the view that children's home literacy practices continue to be undervalued in the school (Levy and Marsh, 2011; McTavish 2009; Pahl, 2005, 2009; Moje *et al*, 2004; Lankshear and Knobel, 2004; Levy, 2008; Brooks *et al*, 2008; Marsh et al, 2005). Most home literacy learning is not visible in schools and much school literacy learning remains unfamiliar to parents (Weinberger, 2000; Toomey, 1989). This suggests that there is still work to be done regarding linking children's (from both monolingual and multilingual families) digital learning practices

in the home and in the school.

Recently Burnett (2010) argued that there is a need for more widespread research on how children's digital practices relate to literacy learning, to better understand the use of new technologies and their contribution to applications within educational settings. Burnett recommended widespread research on children's digital literacy practices. I therefore specifically looked at the ways in which digital technology contributes to British South Asian children's literacy learning.

In my study the research questions emerged in the light of my literature review and my initial vision for the observation of digital technologies being used by South Asian children in their home. My attention was also drawn to the contribution of home cultural practices and the relationship of these practices in terms of home and school and their significance for children's learning. Consequently, my research questions are as follows:

1.3 Research questions

1. *In what way does digital technology contribute to British South Asian children's (aged between 4 and 13) literacy and language learning and how do these children learn through their use of digital technology in multilingual homes?*
 - a. *What kinds of digital technologies can be observed being used by these British South Asian children in their homes?*
 - b. *What is the relationship between home and school, in terms of learning, with particular reference to digital technology?*

1.4 Aims and objectives

My study aims to explore the ways in which children from a small group of three British South Asian families are interacting with digital technologies in their everyday lives. These families are Bangladeshi, Indian and Pakistani in origin and the digital interaction includes: computing, playing digital games, communicating with older generations while using technology, using the Internet, and using a mobile phone (an iPhone 4).

As my research is substantially located within the children's homes for the observation of

their digital practices, my study also includes an investigation into particular aspects of children's daily lives and cultural practices.

The following objectives are therefore adopted for my research:

- To identify and record the various kinds of digital technology that can be observed being used by children in their homes;
- To identify the nature of learning practices that are taking place when children use digital technologies in the home setting and to explore the potential contribution of these home-based practices to school learning. These are focused mostly on cultural and social aspects of home digital practices; and,
- To determine where 'areas of opportunity' exist to support children's learning development in order to make suggestions for recognising their learning practices within a broader educational context.

In order to achieve these objectives I needed to use an ethnographic methodology because my study is concerned with the in-depth study of social and cultural learning practices with regard to South Asian heritage. Therefore, I adopted this methodology and made extensive use of the available literature from ethnographic studies of communicative practices in South Asian homes (see Chapter 4 for further details).

1.5 Chapter outline of this research

Chapter 1 introduces the background of the research and its aims and objectives. It also incorporates a statement of why I consider this investigation important. Chapter 2 presents my positionality as a South Asian which reflects my language history that supports communication with the participants, and my work experience with the same communities. This chapter also includes my relevant study (MA working with communities) that inspired me to identify the topic and the field of the study. Chapter 3 presents a comprehensive literature review with appropriate detail and justification of my study. This also includes how my research questions emerged in the light of the literature review. Chapter 4 establishes the methodology employed to explore the processes to conduct the research. I used an ethnographic methodology as this approach allowed me to investigate the socio-cultural patterns, faith and value systems of the children from three South Asian families (Gregory and Ruby, 2011; Gregory *et al.*, 2004; Flewitt, 2011; Davidson, 2011; Heath and Street, 2008; Pahl, 2002; 2004,

2005). My study was carried out through home visits and it was important to employ a range of methods to support my ethnographic methodological approach. These methods included participant observation (Tedlock, 1991); field notes (Wolcott, 1994); semi-structured/unstructured interviews (Spradley, 1979); and video recording which covers multimodal communicative practices (Jewitt, 2009; Norris, 2004) for the collection of research data. The video recording (that produced rich data for ethnographic study) covers audio and visual aspects of modes. The transcription of this data followed a view of interaction as the practice of multimodal communication (Norris, 2004; Jewitt, 2009). In my study the combination of ethnography and multimodality produced a situated insight into children's multimodal communicative practices. In this context, Pahl & Rowsell (2006, p. 9) stated that 'ethnography allows us to view multimodality'.

Chapter 5 presents the data analysis process employed in my research. This includes three steps: firstly, I describe the whole data set (see table 5.1).and then I included criteria for data selection (5.3). I also presented how I selected five examples of video clips and the criteria for their selection relating to the ways in which children were using digital technologies in their homes (see Table 5.4).

The second step was to assemble the dataset descriptions (details in Chapter 6), including multimodal interaction (Norris, 2004), together with video-based visual and audio communicative modes. Thirdly, these were interpreted (details in Chapter 7) in accordance with my established research questions, while acknowledging the limitations of my study.

Chapter 6 presents purely data description where the research themes emerged. These themes are literacy-language in cultural context, home-school relationship, and multimodal digital literacy practices in the context of learning and culture. Chapter 7 presents the analysis of these themes in order to address the research questions and identify the findings of my research (Boyatzis, 1998). In my study it was apparent that two-way knowledge transfer occurs through children's literacy and language practices in the home environment. The reason for naming knowledge transfer is that I was able to observe these home practices connected with school learning. These are social and cultural. The nature of this knowledge transfer relationship for children of South Asian heritage is mediated by online and offline communicative practices with their parents and grandparents. This knowledge transfer process was seen as potentially symbiotic.

Symbiotic is used in the sense of beneficial educational advantages for both home and school.

Children's digital communicative practices were multilingual (Hindi, Arabic, Bengali, Urdu and English) and multicultural, creating a syncretic process. These communicative practices reveal new insights that invited further investigation of grammatical trans-languaging, syncretism and hybridity. Through this investigation the sub-themes emerged that are presented in Chapter 7.

Finally, Chapter 8 focuses upon conclusions, implications, validity and reliability of the research and also possibilities for further research. This includes responses to the research questions and discussion of the analytic findings presented, specific to bilingual/multilingual children's literacy and language learning. This suggests developing an effective partnership with teachers and parents using joint planning to develop children's meaning making in education.

1.6 Summary

I focused on the importance of doing this study because of the reasons outlined in this introduction. I have introduced the background information that shows the inherent breadth of my study. I presented a short historical description of South Asian immigration to the UK (Ballard, 2001; Ansari, 2006; Cummins, 2000; Knott, 2010) as my research participants are children whose parents originally come from those backgrounds. I described the outcome of the data-driven themes which showed a complex understanding of children's multimodal and multicultural communicative practices together with trans-languaging, syncretism and hybrid language practices. I mentioned nine sub-themes (findings) that emerged through the deeper analysis of the initial three themes. I expressed my view that there is still limited research in these areas, specifically South Asian children's communicative practices and intergenerational language and literacy practices around digital technology. This also acknowledges work by Marsh, (2005) and Levy and Marsh (2011) as mentioned earlier.

As a multilingual South Asian parent and member of a diaspora community, I argued that South Asian children are dealing with complex literacy and language learning

practices in their home environment. This seemed a significant influence on their literacy and language development that needs to be understood by educators.

My research questions are to explore and understand bilingual and multilingual children's digital literacy practices in three South Asian families as stated above. My research interest emerged from the gaps in literature on South Asian children's communicative practices that are influenced by their heritage culture during their use of digital technology in their home environment. The nature of the data also helped to construct the research questions. My first research question was therefore focused on British South Asian children's literacy and language learning within their specific cultural context, through their use of digital technology in the home environment. Two more sub-questions emerged from the data in order to answer this question. It was essential to identify what kind of digital technology was being used by the children at the beginning of the investigation. Then I needed to explore the nature of their digital practices. These practices were video recorded. Through this process of video observation, it was possible to understand that children acquire knowledge in terms of literacy and languages (which was multilingual and adopted within their cultures) through the use of digital technology. Finally, I presented the chapter outline of this thesis as previously stated.

Chapter 2

Positionality – My contextual position and relation to the field of study

2.1 Introduction

I begin this chapter with an explanation of my own positionality with a focus on identity and how this might relate to my study. I also explain how I am located by the participants in this study. I describe my positionality with regard to my educational background and work experiences which influenced the selection of my research topic and research participants. Throughout the chapter, I argue that researchers need to recognise and declare their own position in relation to the field of their study, and to consider how and to what extent their positionality impacts upon their research.

2.2 My identity

I use the term ‘identity’ to cover the shifting multiple identities (Gee, 1999) which we adopt and which are context dependent. Thus, I am originally Bangladeshi and British by nationality and English is my second language. I am also a married woman, a mother of two, currently a post-graduate student and previously a community development practitioner. I see my own position in my research as one that involves ‘reflexivity’ (Troyna, 1994). This requires well-considered interactions between myself (the researcher) and participants involved in the research process, who are important in situating the research and knowledge production (Coffey, 1999; Ellis, 2004; Hertz, 1997).

2.3 How I am located by the participants in this study

While I was working in community development I was asked on several occasions whether I was Indian, Bangladeshi, Pakistani or ‘Muslim’. In most cases it is very difficult to attribute Bangladeshi, Pakistani or Indian origin to South Asian individuals, given the fact that skin colour and traditional dress are similar among South Asian communities. The Pakistani national dress is Salhwear (trousers) and Kamiz (tops) and the Indian national dress is the Sari. The Bangladeshi national dress is the Sari,

however, the cultural norm is that an unmarried girl is allowed to wear Salhwear and Kamiz. On the other hand, Indian girls/women also wear the Sari, or Salhwear and Kamiz. It can therefore be very difficult for people to identify the ethnic background of someone such as myself who comes from this cross-cultural background.

Whilst people from the Indian subcontinent refer to themselves as South Asian it is noticeable that ‘Asian’ is the most common way in which people in Britain refer to people from this background. However, ‘Asian’ does not translate very well outside the context of the British Isles (Sayyid, 2006. p.5). For instance, in the United States and Australia ‘Asian’ is used to refer to people of East Asian or South East Asian heritage. Determining what ‘British Asian’ refers to depends on knowing the cultural context of those South Asian communities who have settled in Britain.

My research participants are children and parents from British South Asian families in the North of England. In my study, I believe that my own cultural identity, cultural awareness and connections with diverse British South Asian communities are positionality significant for my research. Subedi (2007, p, 53) expresses the view, ‘that there are cultural commonalities, particularly within South Asian communities (language, religion, history and more)’. In my view both cultural commonalities and differences are evident between South Asian communities. My mother tongue, for instance, is Bengali, while that of my Pakistani research participants is Urdu. I do, however, understand the Urdu and Hindi languages to some degree. We also share a common religion in Islam. On the other hand, my Indian research participants share the Bengali mother tongue with me, but we belong to different religions.

I am an insider in terms of understanding the grammatical construction of South Asian languages (Bengali, Hindi and Urdu). For example, in my study, the children’s communication was influenced by the phonetics and phonology of both Bengali and English texts (also Hindi and English; Urdu and English). As a South Asian I understand how their syncretic construction of sentences was not simply word transfer but also the transfer of grammar. The children followed English grammatical rules and word transfers in order to make meanings through their new hybrid sentence constructions.

Abu-Lughod used the term ‘halfie’ for people ‘whose national or cultural identity is mixed by virtue of migration, overseas education, parentage’ (Abu-Lughod, 1991, p.137). My own ‘halfie’ position is derived from settlement change between my home country and England. I was born and brought up in Bangladesh, where I completed my first degree in psychology. My home country’s educational system bears similarities and dissimilarities to the British system, but I was able to transfer my previously acquired knowledge into my higher education in England. Subedi further recommended that (halfie) researchers ‘be accountable for their contradictory identities in transnational sites and recognize the socio-cultural contexts in which they do fieldwork’ (2006, p.573). This is consistent with my own positionality where I recognise the concept of multiple identities from Gee (1999) in my own shifting identities. My halfie positionality enabled me to understand the complexities facing children in both their linguistic and cultural efforts to develop literacy. The children are facing competing demands in multilingual and multicultural situations, generated by their parents or community. For example, in my study at the early stage of learning most of the children are attending the mosque or they have private tuition at home for learning Bengali or Arabic. These children are attending mainstream English schools where they learn English literacy whilst at home they speak Bengali and learn Arabic for religious purposes. It is assumed that children may experience some complexity in connecting two domains (the home and the school). These aspects of language practice are critically relevant in the case of multilingual societies.

My research field is located in western societies with South Asian immigrants (parents and children) living in Northern England. Their cultural background is similar to mine. With regard to my positionality, introducing myself as a PhD student is not straightforward, since people knew me as a community development practitioner and from my work with people from the multilingual community. A researcher visiting families from the same background may seem a matter of having easy access but on the other hand carrying a laptop bag, video camera, and diary for writing short notes could be taken as intrusive behaviour. In the eyes of some males from the South Asian community, it may even be construed as inappropriate behaviour. It was important that I recognised these possibilities and acted accordingly. From the perspective of South Asian traditional culture some people may perceive higher education as being for the middle class. All these factors put

me in an in-between place which could be regarded with suspicion by the community to which I belong. In other words, according to Subedi (2006): 'their in-between status requires that they be more accountable to how they have researched and written about people with whom they affiliate' (p.574).

Alzouebi (2008) expressed the tension she felt as an independent woman entering higher education, which was a move away from traditional Yemeni culture. She stated:

'In the feminist community I may be unwelcomed because of my traditional Arab family values which may be perceived as working against the emancipation of women' (p.33).

As a woman, it is very difficult to define my socio-economic class. It is also difficult to make comparisons between Bangladesh and the UK. In both societies socio-economic class position often appears to be determined by males. In my fieldwork however, I do not seek to explicate socio-economic class because the more important issues in my research are cultural commonalities, differences in relation to family literacy, language/culture and the building of trust with participants. I do not fall into the category of someone with a privileged family background whose parents are living in the UK. I am from a South Asian family background which has a rich tradition of art, culture and literature. This helped me to connect with the people of my research with whom I had a common shared background and as a result mutual co-operation was more easily achieved.

Since coming to this country, I quickly realised that I would not see my close family members as often as I would wish. Sometimes I do travel to my home country to visit my parents and relatives for personal or family reasons, although the travelling expenses are very costly.

During my PhD study I had to travel to Bangladesh twice as my father was suffering from a brain haemorrhage. The second time I went because he wanted to tell me something important. Within a day I made arrangement to go there traveling for almost 24 hours and arriving at 2 am. From the airport I went straight to the hospital rather than going home but unfortunately I found that he lost his voice. He

desperately tried to communicate with me but could only make sounds that I was not able to understand. I was never able to discover what he wanted to tell me. In spite of this, my journey to be at his side at that time reflected and strengthened the emotionally charged cultural bond between daughter and father. This cultural bond is also maintained through regular contact with family members (abroad) by phone or by Skype. I am constantly managing and maintaining these culturally important connections between my family/children in the Western and Bangladeshi contexts. In my study the participants' children and parents are in a similar position of managing and maintaining their intergenerational cultural connections between East and West.

2.4 My Educational background and Work experience

In terms of conducting the field work into a diverse South Asian family culture, I believe that being a married, multilingual South Asian mother and part of a diaspora community, who is committed to using the principles of inclusive practice when working with diverse communities, equips me with a good understanding of their cultures and eases communication with families from diverse multi-ethnic backgrounds.

In this investigation I am not examining the position of the diasporic community in Britain but rather using diverse cultural knowledge as my fund of knowledge and research lens for a more selective focus involving language, literacy and culture. There is, for me, a valuable relationship between my identity (South Asian) and that of the research participants (South Asian) from diverse multi-ethnic backgrounds in terms of access and rapport.

My first degree in Psychology (MSc, 1997) at the University of Dhaka in Bangladesh triggered my interest in children's learning in the social world. My initial research interest on children's language development in the context of culture came whilst I studied contrasting views of Vygotsky's (1987) and Piaget's (1952) theories. Piaget suggested that, in the early stage of language development, children learn through social interaction but do not take the listeners' viewpoint into consideration and children speak alone (egocentric) as they are thinking aloud. Vygotsky (1987) argued that children's speech is internalised to regulate their activity and originates from their culture and social interaction between the adult, the peer and the child. Vygotsky did

not accept that a young child's language development was largely egocentric, rather it was an on-going process of social interaction with others who are surrounded in their environment. Vygotsky commented that a child's social relationship with their practical activity was missing from Piaget's view. I worked for many years with children and families in a community setting, developing a family learning provision focused on children's literacy and language development. Subsequently my MA degree at the University of Sheffield's Department of Education was based on my work experience and was titled 'MA, Working with Communities: Identities, Regeneration and Change'. The MA community programme fitted well with my research topic and I acquired both theoretical and applied knowledge of contemporary community matters.

As part of my current PhD I have gained an MA in Educational Research, which has, I believe, given me insight into teaching and learning in educational studies. All of this contributes to the intellectual requirements of my study, as does my role as a community development practitioner. From 2002 to 2008, I worked to develop a community learning campaign and became increasingly involved in developing family learning provision and family learning courses.

I believe that my culture, education and experience were important for me in establishing the necessary trust and understanding between myself (the researcher) and the participants involved in my current research. My positionality allowed me to appreciate the supportive interactions across and between generations. It also allowed me to recognise the intergenerational practices involved in developing shared cultural funds of knowledge regarding important aspects of their cultural heritage.

2.5 My geographical and educational origins, in pictorial form

Finally, I have illustrated my positionality through images of some of the places and events that have had a major influence in my life. My first influence quite naturally is my place of birth, Bangladesh, and the culture into which I was born. The second major influence is my education within Bangladesh, and my work and education in Sheffield. The final, and perhaps the strongest influence, are my family and cultural ties here in the UK and in Bangladesh.

My birthplace is Dhaka, the capital of Bangladesh. The democratic republic of Bangladesh is in southern Asia, bounded to the North, West and East by India. To the South East, it borders on Myanmar, while the Bay of Bengal lies to the South. Around 1000 BC the Bang tribe arrived and established the kingdom of Bengal, which was governed by a succession of Hindu and Buddhist rulers. In 1199 the Muslim Khilji dynasty from central Asia ruled Bengal, and Dhaka served as the Moghul capital of Bengal from 1608 to 1704. Bengal also served as a trading centre for British, French, and Dutch interests before coming under British rule in 1765. In 1905, Dhaka was again established as the capital of Bengal, and in 1956 it became the capital of East Pakistan. The city suffered heavy damage during the Bangladesh war of independence in 1971 (Gupta, 2006). The period of time was the cultural conflict between two sides, one side was seeking to impose their (Urdu-speaking Islamic) culture onto a multicultural Bengali-speaking side who wanted to establish their independence. I was born into this time and the cultural conflict involved. The outcome was the establishment of a multicultural Bengali-speaking state now known as Bangladesh. This multiculturalism is reflected in my research and the beliefs, values, priorities, language, and lifestyle embodied in those cultures. I was born into this multicultural world and spent early, adolescent and early adult years absorbing this multicultural world view.

In my childhood, I was a science student up to A-Level in English and Bengali-medium schools. I went to the Government Girls' High School in Bangladesh (see the image in figure 2.2 below). Then I moved to biological science, and studied at the University of Dhaka in a multicultural environment. The historic Curzon Hall in Ramna built in 1905 by Lord Curzon (the Governor General of British India) is initially the first building that was established as University of Dhaka (see Figure 2.3). The current University has expanded significantly to include other buildings. The University of Dhaka formally opened its doors on July 1, 1921 with three faculties: Arts and Humanities, Science and Law. Teaching Departments include: English, Sanskrit and Bengali, Arabic and Islamic Studies, Persian and Urdu, History, Economics and Politics, Philosophy, Mathematics, Physics, Chemistry, Law and Education. During the nineties, unlike any other university in the Indian subcontinent, Dhaka University started as a new model University being a teaching and residential university with the provision of a tutorial system. All students were required to affiliate with one of the residence halls and the Provost and House Tutors would be responsible for helping students with their education. My formal

education and my home education provided me with a deep understanding and appreciation of Bengali culture, which I regard as a privilege and important aspect of my life. Subsequent to my years in Bangladesh I moved to the UK with my husband who was undertaking doctoral studies. Inevitably, this involved cultural adjustment, at times cultural shock, and an extended period of learning.

My introduction to the UK came as something of a culture shock. It was the month of January; the day was bright with sunshine when I arrived at Heathrow airport with my husband and child. I was carrying my 3 month old daughter. After passing through immigration, we came out of the arrivals terminus and immediately felt freezing cold, I had been thinking that, like in Bangladesh, sunshine meant warmth. Then, after a very short time, it started to rain. We got a taxi and, while looking through the window, I saw that all the trees were dead and the branches had no leaves. By now the rain had turned to snow. I was really shocked by all of this but began to understand why the British are so obsessed with their weather. I had noticed, while in the aeroplane, that my daughter's stomach was upset and, in the taxi, I realised that she now had diarrhoea. The taxi driver took us directly to the children's hospital. After a long wait, the doctor called us and I was advised to keep her in the hospital for the night. It was now past midnight and both the doctor and the nurse advised us to leave our baby in the hospital. Leaving a baby on her own in hospital without her parents would never be suggested in Bangladesh and I had never even heard of such a thing before! The nurse insisted that it was now her responsibility to look after our baby, but, as a South Asian parent, that was something I was having great difficulty understanding and simply could not accept. The culture shocks were coming too thick and too fast, and I feared would continue to do so! What else might lie ahead?

I was however fortunate in that my heritage culture was firmly established from an early age and I only had to learn a single new culture (English). The parents in two of the families (Bangladeshi and Indian) involved in my research shared the same dual cultural experience that I had. The remaining family parents are second generation in the UK and share the same cultural experience that all the children in the study are experiencing. They are faced with the multicultural need of learning their heritage culture and British culture at the same time.

In the UK I became involved in community activities and gained community work experience. Again my areas of study were transformed by my work experience. As a consequence, as described earlier, I am now working with South Asian children in the course of my PhD research study at the University of Sheffield. Interestingly, I have found the similarities between the architectural design and red brick construction of my universities in Sheffield and in Bangladesh (see the images of the two universities in Figures 2.3 & 2.4). The colour of redbrick carries historical significance for the general public in Bangladesh. The significance is that in the early 20th century Lord Curzon who was the governor general of British India founded Dhaka University in what is now Bangladesh. He copied the design of a British University and built it with traditional British material, red brick. This was the case with most Universities that were built during the late 19th and early 20th centuries. The people in Bangladesh, however, mistakenly interpreted this to mean that every building in England was constructed in red brick. Later, the term red brick was often used synonymously with the Russell Group universities.

My meaning is however completely different. When I saw the similarities between the two Universities (Sheffield and Dhaka), regarding architectural design and red brick, it gave a comfortable feeling of continuity. This can be seen as an environmental influence of cultural comfort which encouraged me to study at the University of Sheffield.

I have realised that understanding the nature, origins and consequences of positionality is very complicated as it is a combination of complex varieties involving such factors as place, identity, class, gender and education.

	
<p>Figure 2.1: Place of birth</p>	<p>Figure 2.2: My School in central Dhaka</p>
	
<p>Figure 2.3: My university in Bangladesh</p>	<p>Figure 2.4: My university in England</p>

I believe that my background has given me indispensable support in researching with communities who are from a diverse range of ethnic groups and who have a variety of languages and levels of literacy. Inevitably this means that I find myself drawn to the subject matter of my study 'literacy, language and culture in multilingual households' and that this was almost a natural choice for me.

2.6 Summary

In this chapter I have discussed how the multiple dimensions of my identity enabled me to recognise and work with the complexities of South Asian children's home literacy practices. I also showed how my educational background and work experience

influenced working with specific South Asian communities in the context of children's literacy, language and cultural learning. Finally, I have illustrated how aspects of my identity were developed through descriptions of my place of birth and its history, as well as places of education in both Bangladesh and England. These in total influenced my ability to understand the subject matter of my study.

Chapter 3

Literature Review

3.1 Introduction

Immigrant families in the UK are concerned that young children should have access to their cultural practices and that they preserve the language, literacy and religion of their heritage (Gregory and Kenner, 2012). As a consequence these young children are often expected to learn to read a second language and a third language (Gregory, 1996; Hirst, 1998) whereas English is the predominant language in mainstream school. My research is focused on the area of multilingual home based digital literacy practices where children are learning Bengali, Hindi and Urdu to communicate with their extended family members and friends abroad, learning Qur'anic literacy for religious purposes, and learning English for general educational purpose in England. To support my research I referenced relevant literature on children's use of digital technologies as part of their socio-cultural practices.

This literature review chapter considers a range of relevant issues that are central to my study. The aim of this review is to focus on the meaning of children's multilingual and bilingual practices together with aspects of syncretism, hybridity and trans-languaging. I also explore the literature of home-based digital literacy practices as children develop ways of language practice that engage with their use of technology. Therefore my literature review addresses the following areas as relevant contributions to my study of multilingual children's home based digital literacy practices in connection with multimodality: the meaning of bilingualism and multilingualism, culture and language learning practices, children's language learning practices, existing literature on bilingualism and multilingualism, syncretism, hybridity and trans-languaging (in the context of bilingualism and multilingualism), digital technology in connection with literacy and language and multimodality in connection with digital literacy practices.

3.2 The meaning of bilingualism and multilingualism

Currently multilingualism is often seen as encompassing an individual's repertoire of languages and their ability to use several languages in a particular space. This term has emerged as a topic of significance in understanding language acquisition and multilingual literacy. In this view the individual is seen as both the locus and the channel of contact (Coste et al., 2009). In my study multilingualism is one of the key issues in the development of children's early stage multilingual literacies (Cope and Kakantzis, 2000; Gregory et al., 2004). Research has indicated that children often use their knowledge of multiple languages in various reading and writing practices but these often remain ignored in mainstream education in favour of their further development of learning literacy and language in English (Martin-Jones and Jones, 2000).

There is a growing body of recent research that acknowledges how little is known about bilingual and multilingual children's own views regarding their learning more than one language and how they view their literacy skills in various written processes (Kenner, 2005; Burman 2008; Levy and Marsh, 2011). Burman (2008) also points out that although most of the world's populations are multilingual, most literacy research continues to focus on mono-lingual perspectives. Children who are using more than two languages in their everyday life for reading or writing (for a particular purpose with a different level of proficiency) can be regarded as multilingual (Cenoz and Genesee 1998; Robertson, 2004 in Gregory et al; Kenner, 2005; Wang, 2011; Gregory et al 2012). Pahl and Rowsell (2012, p. xvii) refer to multilingualism as 'the employment of different linguistic identities in a particular space. For example; Punjabi, Urdu and English used in a home space'. Focusing on children's multilingual practices means giving consideration to the diversity of their reading and writing literacies. It is therefore important to examine how multilingual children adapt to using more than one language where one of those languages is the dominant language in the mainstream school. In my research this mainstream language is English.

It has also been customary to define the term bilingualism to include second language acquisition where a learner acquires another additional language that is then termed 'multilingual acquisition'. Bilingualism can therefore include the acquisition of languages other than the first language. Researchers in the field of bilingualism have

started to study how bilingual children, who learn a first language at home and a second language at school, transfer their linguistic and literacy skills from one language to another (Cummins, 2000; Brisk and Harrington, 1999). According to Cummins (1981, p.1) ‘Bilingualism is defined as the production and/or comprehension of two languages by the same individual. The phrase ‘minority-language children’ is used to refer to children whose first language is different from the language of the wider community’.

In relation to the ideas of ‘multilingualism’, Robertson (2004) in Gregory *et al* (2004) examined children’s multilingual flexibility and its advantages for literacy learning through their ability to read ‘simultaneously’ in two or more languages. The study identified advantages that the children were able to employ by switching from one language to another. Robertson suggested that their ability to operate with different literacy practices enhanced the overall process of language learning. In the field of language acquisition, Brown (1997) and Halliday (1975) acknowledged that language learning is purposeful and from this perspective it is important to understand the ways in which children are taking control of their learning in a context that is meaningful to them.

When literacy researchers point to children’s use of bilingual or multilingual practices they frequently use the terms biliteracies and multiliteracies and also recognise the complex relational link between language and culture (Gregory and Kenner, 2012; Vygotsky, 1962; Gregory, 1996). This can be understood in relation to the ‘pedagogy of multi-literacies’, defined as the ‘redefinition of texts and practices, moving the field from “literacy” to “literacies,” through recognizing multiple ways of communicating and making meaning, including such modes as visual, audio, spatial, behavioural, and gestural’ and ‘moving from a perspective on literacy as passive consumption of texts to understanding and enacting literacy practices’ (New London Group, 1996, p. 6.). This can be seen in the work of Leander and Boldt, (2013, p.23) who adopt the approach ‘A Pedagogy of Multiliteracies’ in their exploration of literacy practices with a child’s engagement in reading and playing with text from Japanese manga. This was seen as understanding human practices as an object of knowledge in the context of educational pedagogy. It is possible to utilise this approach in complementary language learning schools because bilingual and multilingual children associated with different texts and their modalities. I will address these additional features of modalities and multiliteracies

in the context of multilingualism later when reviewing the literature for bilingualism and multilingualism in connection with literacy and language practices.

Kenner (2005) drew attention to multilingual children's literacy practices, demonstrating the way in which children re-contextualised the 'stuff' of home to create texts that carry cultural values. According to Kenner (2005, p.86):

Nursery and primary school classrooms have the potential to open out to other linguistic and cultural experiences. If this can be done, bilingual children have the chance to build on and expand their linguistic knowledge, and also to explore their cultural identities. Multilingual popular culture is a key resource in this process.

It can be argued that this process is a fundamental part of multilingual children's literacy development that may be used as part of their linguistic knowledge in mainstream schools. This concept is significant for my study in the context of multilingualism. With the awareness of children's regular engagement with digital technology in the 21st century, my work extends this concept of multilingualism to include the digital literacy practices used by multilingual children in the home setting of their heritage culture.

3.3 Culture and language learning practices

According to the United Nations Education Science and Cultural Organisation (UNESCO), 'culture' is defined as the set of distinctive spiritual, material, intellectual and emotional features of a society or a social group. It encompasses not only art and literature, but lifestyles, ways of living together, value systems, traditions and beliefs (UNESCO, 2001, p.18). This definition of culture does not appear to be unique, but it encompasses many of the basic attributes that are widely recognised as defining it. A culture is normally associated with a group of people who have common interest and investment in a set of important beliefs and values. It tends to be intergenerational in that it is passed down from one generation to another through family lifestyle and literacy practices. Culture and identity are shaped by such intergenerational interactions (Pahl and Rowsell, 2012) where one learns and practices within the family and associated social groups. Gregory *et al.* (2004; 1996) also observe that grandparents often play a major part in providing shared cultural knowledge that can be transmitted across a generation (to their grandchildren). While cultures generally reflect

alternative mixtures of backgrounds in terms of race and religion, people can have more than one culture. For instance, in the UK bilingual and multilingual children are growing up in an English multicultural society and are often seen as living in ‘two worlds’, one based on their home language and culture and another based on English language and culture (Kenner, 2005). This multiculturalism influences children’s everyday life practices. Kenner (2005, p.86) states that: ‘Given the opportunity, they will share their hybrid cultural knowledge with their peers at mainstream school and produce texts which take this hybridity even further’.

It is important to be explicit regarding the interpretation of culture that I am adopting for my study. I am focussed on aspects of culture as they relate to and influence the development of children’s language, literacy and communicative practices within the family. I also intend to include a view of culture based on a socially constructive perspective - as stated by Street who observes that: ‘Culture is a verb’ (1993, p.25). In this regard, he argues that: ‘there is not much point in trying to say what culture is’ (p.25) but it is what culture *does* that is important. He also expresses the view that culture plays an important role in language learning and is an active process for meaning-making. Ethnographers are adopting and applying the ‘culture as verb’ idea to their own fields - the study of language and multimodal literacies (Heath and Street, 2008). Further research suggests that not only can ‘culture’ be considered as a verb, but ‘context’ can also be conceptualised in this way. For example Scott *et al.* (2005), in their analysis of discursive interactions within the science classroom, concluded that ‘dialogic communication emerges from a context’ (p 621). They were therefore arguing that despite the fact that much of the classroom communication that they observed was ‘authoritative’ and teacher-led, their framework allowed them to understand how communicative practice was embedded in a moment-by-moment context. Similarly Kumpulainen & Wray’s (2002) study of linguistic repertoire, in a classroom where students were ‘multilingual, multidialectal and use(d) “non-standard” varieties of English’ (p28), further demonstrated the complexity of attempting to understand the role of context when exploring discursive practices in this way.

My understanding of the term ‘culture’ also reflects this complexity. As described earlier in a discussion of my own positionality, I adopted a view of culture that involved aspects of beliefs, values, perspectives, language, and lifestyle that I acquired over many years in Bangladesh. These five aspects of culture are equally valid when

considering the children from the three South Asian family cultures that are involved in my study. The recognition of the crucial role of beliefs and values raises cultural questions that are relevant to my study, including what it means to be multicultural. Heath and Street, (2008, p.5) note that those ‘who do their research in nations with one dominant national language have to keep in mind not only multimodal literacies but also multiple languages’. Through these communicative practices, children are making meaning and, in this process, they are using and developing multimodal literacies (Heath and Street, 2008). Moreover, language can be seen as a passport for accessing culture. Language and other modes play key roles in cultural learning (e.g. use of gaze, body positioning and movements, performed rituals - all part of embodied cultural experience). This can be described as a process for meaning-making rather than just a set of linguistic rules. Children’s family life experiences with their parents and grandparents include historical and geographical contexts that shape and support their cultural learning. In this sense, it is possible to consider cross-cultural literacy with regard to the uses of literacy in a specific multicultural context.

Brooker (2002) suggests that family ownership of cultural practices is composed over time. She also highlights the differences in diverse family lives, in terms of parenting practices, in their perceptions of childhood and in their cultural and religious observances. She points out that these aspects of family life are important to children’s adaptation to school.

Conceptualising culture as a verb therefore helps to emphasise the complexity of what is happening to these families. However, there is no doubt that the term ‘culture’ is also perceived in the literature as a noun; and this too has major implications for my study.

Given that my intention was to work with families from three South Asian ‘cultures’ (Bangladeshi, Pakistani and Indian) it is important to be clear about what is meant by the term ‘culture’ in this context. I was aware from the outset that these families would have much in common but there are also substantial and important differences. A brief overview of the defining nature of culture goes some way towards explaining this. Gargiulo (2012, p. 88) states, ‘we define culture as the attitudes, values, belief systems, norms, and traditions shared by a particular group of people that collectively form their heritage’. A culture is intergenerational, transferring in many ways from one

generation to another. The features, for instance beliefs and values, are in many respects the most distinguishing element between the cultures. As Gargiulo & Kilgo (2005) point out, culture is characteristically revealed in language, religion, dress, food, social norms, and other aspects of an individual's daily life. Zirpoli (1995) warns that educators need to be careful and protect against generalizing and stereotyping when working with students from culturally and linguistically diverse backgrounds. Each individual is unique because of different family patterns in terms of childcare and rearing practices (Burman, 2008) even though the students are within specific cultural groups. For example, two students may be from the same racial group (Bangladeshi and Pakistani), in terms of religious education (both using Arabic language), but their heritage language is different (Bengali and Urdu) and they might act quite differently in the classroom regardless of their communal cultural heritage.

Cultures have evolved over time, and may continue to do so. At any point in time, in order to gain membership of a culture, acceptance of their current beliefs and values is expected. Thus Bangladeshi culture reflects and requires the acceptance of a set of Bangladeshi beliefs and values, and the same situation exists for Pakistani culture and for Indian culture. Secondly, each culture will determine the extent to which perspectives are allowed to individuals. Any such liberties must of course ensure the protection of the beliefs and values embedded in the parent culture. The final two features address language and lifestyle, and these provide the means by which the cultural ideology is communicated and preserved through the use of language, in its broadest multimodal sense, and by example in a lifestyle (role model) sense. Language is an important component of cultural, as well as social capital (Brooker, 2002, p.35). It is the passport to accessing a culture. Language provides an opportunity for people to communicate with others about their cultural knowledge, experiences, and perspectives. It is important to know much more about the cultural skills and knowledge of bilingual children in order to deliberate about multicultural education in Britain in the 21st century. If children are not allowed to engage in multicultural activities as part of their education, they will have missed out not only on their multicultural society identity, but also on their heritage culture identity.

From an ethnographic perspective, in order to comprehend different literacy practices, there is a need to understand different cultural settings and the link to literacy. Research involving cultures and literacies is required to identify the role of ethnicity,

gender and religious identities (Street, 1993). Literacy practices in the context of multilingual settings are likely to involve a cross-linguistic approach. Baynham (1995) characterises interaction in multilingual settings involving both code-switching and mode-switching in order to communicate in the relevant languages. Code-switching in multicultural literacy events means switching between the languages that are available to, and employed by, participants. In this context, mode-switching means shifting between the spoken language and visual texts, and/or shifting between non-technological communicative practices and technological communicative practices.

Barton and Hamilton (1998) also examined the notion of literacy in the context of cultures, and expressed that the disconnection can happen when the literacy practices in the community differ from those in schools. Culture is evidently the determining factor in who we are and how we live, whether Bengali, Pakistani, Indian or British. Each of us places value on, or is a victim of, our culture (or possibly both) and this influences what and how we learn. It also influences the ways in which we put our cultural learning into practice. These can be demanding experiences for children growing up even within a single culture. For many first generation children in the UK of South Asian heritage this becomes doubly complex as they encounter their multicultural learning environment. Hoque (2010) viewed this concept as a complex notion of identity. He found that British born Bangladeshi Muslims were engaged in a continuous process of negotiating identities which provides a space for them to manage their complex and often conflicting identities.

Research to date emphasises that culture can be viewed in many different ways and that conceptualising it as both a verb and a noun is a helpful tool in recognising the complexity of ‘culture’ – in terms of what it ‘is’, and what it ‘does’, especially in relation to multilingual children’s learning.

Children’s language learning practices:

In this section I consider specifically children’s language learning practices and their connection with theory from the socio-cultural perspective. Vygotsky (1986) theorised language and thinking separately but argued that language allows thought, as they control each other. Vygotsky gave emphasis to language as a fundamentally social communicative practice that completes thinking. It can be argued however that understanding the relationship between speaking and thinking is vital for multilingual

speakers as their switching between languages demands a particular cognitive process (of choosing one's words in another language). Conteh (2007b) explored teacher and learner interaction in the context of multilingual classroom settings and stated that 'code switching between English and Punjabi, is analysed and discussed using a socio-cultural theory of learning which recognises the inseparability of language, culture and context and places emphasis on culture' (p. 457).

Similarly Burman (2008) stated that 'the structure of language learning across cultures may be due to communicative universals rather than biology' (p.184). In Burman's view, the process of children's language learning positioned the wider questions of social development. Language, as Scott *et al.* (2006) also point out, is therefore context based and it is not possible to separate language from the communicative focus and process. Language is recognised as a source of culture and national identification. In the accounts of language learning, Burman (2008, p.195) pointed out that 'bilingualism is effectively excluded from research as if it were a confounding variable, with studies littered with comments in sample sections or footnotes'. Although the majority of the world's population are bilingual or multilingual (Baetens, 1982), children from these backgrounds are disadvantaged in assessment contexts when the test is set in the bilingual child's second language (Demie *et al.* 2003; Gravelle, 2003). Burman (2008, p.196) noted 'it is not surprising that children who are not yet proficient in the language in which they are learning curriculum subjects fail to achieve to the level of their native speaker counterparts'. This suggests that language development theorists should give attention to these issues in the context of multilingualism as it affects children's linguistic repertoires.

Learning languages, however, takes place in a particular context and language learning is a continuous process with no single way to learn (Lieven *et al.*, 1992). For instance, multiple modes of communicative practice can be seen as a mediator for language learning because they describe words, images, sounds, non-verbal communications of communicative practices (Norris, 2004; Kress and Van Leeuwen, 2001; Jewitt, 2009; Flewitt, 2008). Therefore it can also be seen as a mediator for language learning. Multimodal interaction (Norris, 2004) recognises that symbols carry linguistic meaning but they have to be mutually shared and understood if they are to be an effective contributor to communication. Multimodality is to extend the social interpretation of language and the use of semiotic resources (such as images, written

texts, speech, gesture, gaze, posture) for making meaning (Kress and Van Leeuwen, 2001; Jewitt, 2009; Flewitt, 2008).

Vygotsky viewed children's learning from a socio-cultural perspective (1926, 1978) and argued that children's life experiences educate them, all thinking and learning was social and historical in terms of a child's development. Vygotsky (1926) suggested that teachers' educational activities should be linked to children's social and life experiences:

Ultimately only life educates, and the deeper that life, the real world, burrows into the school, the more dynamic and the more robust will be the educational process. That the school has been locked away and walled in as if by a tall fence from life itself has been its greatest failing. Education is just as meaningless outside the real world as is a fire without oxygen, or as is breathing in a vacuum. (p. 345-346)

Children's learning and development are the result of a process of socialisation within specific environments, as Vygotsky argued:

It may be said that the basic characteristic of human behaviour in general is that humans personally influence their relations with the environment and through the environment personally change their behaviour, subjugating it to their control.

Vygotsky (1978, p. 51)

The above learning theory indicates that, in general, human behaviour influences the relationship with the environment and is itself changed by that relationship. I have also considered the evidence presented in the existing literature which showed that children in the early 21st century are surrounded by, and are increasingly engaging with, a digital environment (Marsh, 2006; Marsh *et al.*, 2005; Levy and Marsh, 2011) and my research concurs. I began with the belief that 'technology has always been an essential part of literacy' (Marsh and Singleton, 2009, p.1). Children's multimodal literacies are also developed by the use of different media (computers, consoles games, mobile phones) in their homes (Flewitt, 2008; Walsh, 2005). This can be seen as children's learning being influenced by an environment that is different from the traditional environment in which traditional academic learning and teaching processes take place. In this respect, young children's language and literacy knowledge can be seen as fundamentally different from that required by the school (Heath, 1983). In the context of children's learning, Vygotsky's work viewed it as a social process that comes from the

relationship with the environment as experienced by the children. In this environment children's learning can be mediated by teachers, adults, and siblings whose role is to support the child 'into new cultural practices or guiding them in the learning of new skills' (Gregory *et.al.* 2004, p.7). I am interested in addressing the ways in which children shape meanings in the contextual environmental relationships of children's learning, with a particular focus on digital literacy practices in South Asian homes. These practices can be seen as family learning in the home which is not formally defined in the education system, although the importance of parents and the home background for educational achievement is widely recognised. Alexander and Clyne identified five distinct aspects of family learning, all of which contain intergenerational learning, based on 'kinship' however that may be defined (1995, p. 6). They are:

- Informal learning within the family.
- Family members learning together.
- Learning about roles, relationships and responsibilities in relation to stages of family life, including parenting education.
- Learning how to understand, take responsibility and make decisions in relation to wider society, in which the family is a foundation for citizenship.
- Learning how to deal with agencies that serve families, such as schools, health services, social services, voluntary organisations and the criminal justice systems.

In England, family learning programmes generally focus on family literacy, language and numeracy in the home (FLLN). This approach was developed with the aim of encouraging home literacy and language and numeracy activity; it was intended to benefit both parents and children by meeting the need for basic skills (Brooks *et al.* 2008). In this sense the family learning programmes encourage parental involvement and support in their children's home based learning activities. Family learning programmes are the development of a broad range of intergenerational learning opportunities for all families. According to the summary report by NIACE (2013, p.1), 'Family learning works. It works because parental engagement in family learning has a large and positive impact on children's learning, giving children greater confidence and self-belief, with measurable benefits to their literacy, language and numeracy skills'. As the term family literacy describes the uses of literacy within a family, this study viewed children's digital literacy practices through their use of digital technology in the family

environment as consistent with the inclusion practices of FLLN and the five distinct aspects of family learning recognised by Alexander and Clyne (1995, p. 6).

Gee argued (2003) that video games incorporate thirty-six important learning principles. He also argued that different people read texts differently, for example, the Bible can be read as history or literature or as a self-help guide. My research reflects some of Gee's (2003) learning principles, such as 'multimodal' ways of situated meaning and cultural models about semiotic domains. The nature of my study focuses on different cultural settings with an emphasis on their learning relationship with multimodal texts.

According to Gee (2003, p. 210), the multimodal learning principle is that: 'Meaning and knowledge are built up through various modalities (images, texts, symbols, interactions, abstract design, sound, etc.), not just words'. In my study the examples of multimodal text are primarily digital screen-based texts such as film, video, Internet and console games. According to Gee (2003), the principle of learning on 'cultural models about semiotic domains' is identified as:

Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models about a particular semiotic domain they are learning, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models about this domain.

(Gee, 2003, p.211)

In relation to the above quotation, Gee (2003) comments on this learning as 'a set of social practices in which certain sorts of people engage' (p.166). As a South Asian, this connects with my observations within South Asian families where the children are involved in out-of-school activities such as acquiring Qur'anic (Arabic) literacy at a local mosque. This is similar to the observations of Brooker (2002) and Rosowsky (2008), regarding children attending a local Gurdwara¹ to learn Punjabi (the language of the Sikh scriptures) or Sikh martial arts, learning Hindi or Gujarati at a Hindu temple or community centre or practising South Asian music/dance, or watching Hindi movies. In addition to such cultural activities families are increasingly engaging with Internet activities and digital games at home. They also are using digital technologies for cultural practices.

¹ A Gurdwara is the place of worship for Sikhs.

Throughout the discussion on children's learning, it appeared that children's life experience is framed by a theory of language learning as socially constructed knowledge. Children's understanding of the world develops through interaction with their family members as well as wider community participation in literacy practices which are culturally situated. Children are coming to school with diverse cultural and linguistic experience and may carry different values about the nature of literacy. Therefore, the next section is focused on research into bilingualism and multilingualism in the context of children's home culture.

3.4 Existing literature on bilingualism and multilingualism

Through existing studies on bilingualism and multilingualism in home, school and community, researchers have recognised that children acquire language and literacy through their interaction with siblings, parents, grandparents, peers and community members (Gregory, 1996, 1997, 2001; Gregory *et al.*, 2004; Brooker 2002; Heath, 1983). Gregory's research interests are in the field of early childhood, bilingualism, family literacy and a socio-cultural approach to literacy learning. Gregory (1996) studied young children learning to read a second language. The cross-cultural case studies showed that what counts as children learning to read an additional language would be different according to the cultural background of the family's value system and their different reading practices. For example, one of the participants (a child called Louthfur) in Gregory's (1996) study had great difficulties in concentrating in English lessons and was reported to have no interest in reading books. He was attending Bengali and Arabic classes too. Gregory identified that according to the families, 'reading is a cultural matter' (1996, p.47). However this was not recognised or understood in school.

Gregory reaches several conclusions, two of which are immediately relevant to my own research. Firstly, she draws attention to how teachers can understand the children's learning practices taking place outside of the school environment and secondly suggests strategies that can be devised to build upon children's home learning practices. Although Gregory did suggest that computer technology might be of particular importance, this was not discussed in the study. Since Gregory's work was published, digital technology has continued to develop at an ever-increasing rate, yet we are still struggling to really understand the influence of this technology on children's

learning in the context of multilingualism. In particular, little is known about the ways in which children from South Asian homes learn through using aspects of digital technology in their homes.

Gregory (1997) studied early learning in multicultural communities and explored what it meant for young children to engage with a new language and culture in school. The author noted that little attention was given to the learning of young bilingual children whose home language was not English. This study highlighted that there was also a lack of resources to provide guidance for teachers working with bilingual children in their pre-school stage. According to Bhattacharyya *et al.*, (2003, p3), 'On average, Black, Bangladeshi and Pakistani pupils perform less well than White pupils throughout compulsory schooling'. This study correlated with low achievement amongst Bangladeshi and Pakistani children in early years education. It seemed that the education system needs to pay attention to support these children in their educational attainment. The study concluded that there was a need to understand the diversity of these children's everyday life experiences. This justifies the purpose of this present research which explores South Asian children's everyday life, literacy and language practices in the context of their ancestral home culture. Current research also pays particular attention to the role of home based digital technology in the development of children's intergenerational literacy learning.

Intergenerational literacy learning between children and grandparents:

Kenner *et al.* (2008) have highlighted the idea of facilitating young children's learning through new technologies and intergenerational learning between children and grandparents using the computer. Their study, conducted in East London, involved a Sylheti/Bengali-speaking grandmother and her granddaughter playing a numeracy game, and a monolingual English-speaking child and her grandmother using a search engine on the Internet. It was evident that the Sylheti/Bengali-speaking grandmother was less familiar with English or with the computer and that she used bilingual skills with her grandchildren to share and exchange the learning process. In both cases, however, it was observed that there was an interchange of knowledge and skills between both sets of grandparents and grandchildren around literacy, language and ICT. It was also suggested that it may be possible to carry out this kind of exercise involving ICT with bilingual resources within family learning courses. 'The intergenerational learning exchange or "synergy" was therefore a dynamic process

liable to shift as participants gained new linguistic and cultural competences' (Kenner et al. 2008, p. 316). Kenner recognises that intergenerational computer activities between the child and the grandparents reflect the concept of 'synergy' identified by Gregory (2001). It is important that this aspect of linguistic and cultural learning exchange be considered in my current study because participants (children) are drawn from multicultural and multilingual home environments. On the basis of the Kenner et al. (2008) study I recognised that grandparents are transmitting intergenerational literacy to their grandchildren. Given the rise in technology, this study aimed to understand how grandparents support their grandchildren in this technological age, and whether the learning was in some ways reciprocal. Gregory et al., (2004) pointed out that young children are also learning with siblings in ways that are invisible in the school.

The role of siblings in young children's learning:

It is noticeable that Gregory extensively studied siblings in multicultural communities and looked at the ways in which the older siblings were playing a tutor's role in their younger sibling's learning. In the article on 'Sisters and Brothers as Language and Literacy Teachers' (Gregory, 2001) expressed her view that older siblings are in a unique position to translate school environments to their younger siblings, and younger siblings are prompted as they play together. For instance, Farjana, (eleven years old) read her favourite story to her younger sister Farhana and asked her difficult questions: 'what did you learn?' and then immediately encouraged her younger sister to get the answer by saying that, 'OK, go on, what have you learnt from the story?' This teaching play task encourages both siblings to practise learning together at home what they are learning at school. This exercise raised the question: in what ways can this type of learning between siblings be useful to my study? As siblings participate in the same game, usually attend the same school, and watch the same TV programmes (Gregory, 2001), there is a possibility that these learning practices in the home also occur between siblings through their use of digital technology.

In the book *Many Pathways to Literacy* (Gregory et al., 2004) many of the case studies considered involve children from ethnic minority cultures such as Pakistani and Bangladeshi British, Puerto Rican, and Spanish English. The authors conducted a variety of studies on children's learning language and literacy with siblings, grandparents, peers and community members. They revealed the value of

understanding literacy as a socio-cultural practice and that this is invisible in the classroom. Therefore, there is a need to develop connections between home and school learning. One of the case studies by Drury (2004) in Gregory *et al.*, (2004) was conducted with three randomly selected Pahari-speaking girls in three different multi-ethnic nursery classes in Watford, near London. The children were from the community originating from Azad Kashmir in northeast Pakistan and the majority of these children's mother tongue was Pahari, a Punjabi dialect. The participant Samia entered the nursery and was starting to learn English as a second language. She was quiet, listening to and watching other English speaking children while playing. Drury (2004) observed how Samia protests to a child in a play situation with minimal English language by saying, 'no mine, not yours'. This was ignored by the other child. Here the author expressed that this reflected Samia's social isolation in the nursery. She was the middle child out of three children in the family. Samia's older brother spoke some English at home. Samia played a school game with her two year old brother. She wanted her brother to follow her instruction in Pahari. She played this game in English in school and she used Pahari instead of English with her brother. During the conversation some English words were used as an alternative to Pahari, for example using the words 'group time', 'painting', 'colour' and 'satsuma'. Samia's syncretic use of these words shows that she applied her nursery school play experience at home where she played a teacher's role in order to let her youngest brother encounter these English words. This case study illustrated how bilingual language learning can occur in the home through play experienced in school. The increasing use of digital technology in school might be expected to extend such learning transfers to include other areas of study and this possibility will be addressed in my study.

Another case study (Williams, 2004) of children's school roleplaying in their homes (Anglo-British and Bangladeshi British) highlighted the difference in the way that the children played their school sessions. Wahida (aged 10) and Sayeda (aged 8) are the British born children of Bangladeshi parents. Wahida played the teacher role and Sayeda, the pupil. Wahida took registration, delivered maths and literacy lessons. It was noted that the older sister took her role as preparing her younger sister for both social and educational development in school. Wahida introduced each new topic and gave clear instructions to her sister. She followed the rules of the English classroom, praising her sister's performance with statements such as 'good girl' and 'well done'.

Williams (2004) highlighted that this ‘playing school’ is a good learning experience for both sisters. Both sisters’ first language is Sylheti Bengali, and Wahida was attending community classes for learning standard Bengali and reading Qur’anic Arabic. Despite these practices in Bengali heritage, Wahida was transmitting her knowledge of the English National Curriculum and her skills in English literacy to her younger sister. Williams (2004) argued that differences exist between children using Bengali and those using English. The bilingual children were seen to be ‘syncretising’ elements of both cultures and combining two languages (the term ‘syncretism’ is defined in the glossary and will be described in detail later in section 3.5). The ‘playing school’ session was different in Anglo-British children in terms of creating a teasing, erratic, co-constructed text. The bilingual children made use of both their languages in their school role playing and this encouraged a kind of literacy that was different to that employed by the monolingual Anglo-British children. This draws attention to the influence of culture on the ways in which children manipulate language in order to create meaning, and highlights the important links between culture and literacy which are taken up in the work of Heath (1983). These studies illustrate the importance of the role of culture on literacy and language learning (Gregory 2001, 1997, 1996; Heath, 1983 and Williams, 2004) and that the different ways children learn to use language are dependent on the ways in which each community is perceived by their families. My research connects this influence on three similar but distinctive South Asian cultures, taking into account the context of the children’s use of digital technology in literacy and language learning. The research evidence demonstrates that it is important to acknowledge the role of culture when examining how digital technology influences the home learning within these families. As I mentioned earlier, I defined culture with the view of Street (1993, p.25) who stated that ‘Culture is a verb’. Given the emphasis on how young children and siblings learn from each other in the context of multiculturalism, there is also a need to look at the impact on children’s learning across home culture and community.

The impact on home culture and community in children’s learning:

Heath’s (1983) ethnographic work has relevance in terms of understanding how culture and community impact on the ways in which children learn, and the ways in which their learning is perceived by others. One of Heath’s case studies explored how the sound and grammar systems varied from Standard English and between the two communities

in the study. She studied children learning language in two communities in the Southern United States, Roadville and Trackton are both working class communities. Heath followed the children's home and community experiences into their schools, it was identified that Trackton and Roadville children have different ways of using language and different ways of communicating as their communities have different social legacies. Heath pointed out that the process of language learning should be taken into account in relation to the ways of living, eating, sleeping, worshiping, using space and expressing identity. These all are varied within diverse communities. Heath (1983, p. 369) argued that

In any case unless the boundaries between classroom and communities can be broken, and the flow of cultural patterns between them encouraged, the schools will continue to legitimate and reproduce communities of townspeople who control and limit the potential progress of other communities and who themselves remain untouched by other values and ways of life.

It may follow that the language a child brought from home to school can flow back from school to home, as part of children's literacy learning development. In 1983, Heath's work revealed the extent to which culture and family shaped children's learning in their home. More recent research (Marsh *et al* 2005; Palfrey and Gasser, 2008) has found that it was noticeable that parents were learning to use technology from their children, who were born into and raised in this digital world. As with computers, some parents reported that their young children were more competent at using mobile phones than they were (Marsh *et al* 2005, p.41). Palfrey and Gasser (2008) acknowledged that the 'digital native', a term now routinely used to describe these children, is an on-going research topic. It is argued that these 'digital native' children are studying, writing and interacting differently, compared to older generations – they are born in a digital world. For instance, the younger generation are reading online and interacting with others online before they meet in person. Palfrey and Gasser (2008) stated that 'I'm certain that there is a global culture in the making, which joins people from many corners of the globe together with one another based upon common ways of interacting over information networks' (p.274).

Brooker (2002) described the ways in which children learn home cultures depending on their ethnic backgrounds and then enter into another quite different culture in the school. Brooker (2002) pointed out that each child's school learning was shaped by that child's understanding of learning in the home. Brooker recognised that children

acquire the knowledge from their home culture and then take this knowledge when they start school. She recognised the possible benefits of parental involvement with the school in terms of linking children's learning development to home-school relations.

Brooker (2002) conducted an ethnographic investigation into children's learning experiences in a reception class and in homes. This study described the differences, difficulties and experiences encountered by 16 children around their transition from the family environment to the school. Half of the children were Anglo-British (their home language was English and their home culture was English working class) and eight children were from Bangladeshi homes (their home language was Sylheti Bengali: they learned to read and write Bengali for cultural use and Arabic for religious purposes). The outcome of this study highlights the differences in family life in relation to social, cultural and economic status and the big difference these make to children's progress in school. She stated (p.174) that 'the open door that is needed in schools, then, is one through which multiple forms of communication can occur: between home and school, parent and teacher, teacher and child'. She argued that the school did not support some children but could support children who matched the environment of the school. Therefore, it shows how children succeed and fail right from their early days of education due to lack of support at school.

Finally, Brooker (2002) suggested ways of rethinking practices to help children from working class and diverse cultural backgrounds to access learning within schools. This relates to multiple forms of communication between home and school, parent and teacher, teacher and child. This suggests that there is a need to pay particular attention to children's learning in home settings and that educators need to be aware that children are learning in alternative ways which involve digital technologies. Today's children have been born into an age of digital technology which is different from the world in which their parents, grandparents and possibly their educators were born. This influences the way in which children's communication and learning practices take place and must therefore be included as an important part of my study.

Brooker's study is also useful in suggesting how to access families in order to understand children's learning in homes. She had obtained access to a Bangladeshi family and found that the majority of Bangladeshi parents were serving an instructional role which consists of religious knowledge, teaching the alphabets and counting systems of English, Bengali and Arabic. In her study the children's experiences reflect

not only ethnic background but also domestic practices of the family which can be termed as cultural knowledge. This suggests that schools could make use of this cultural knowledge. Brooker looked more generally at children's learning in the home and how it influences their adaptation to school. This concept is significant to the current study in exploring the role of digital technology in the 'space' between the home and school learning relationships. The concept of syncretic communication is useful as a framework for analysing how culturally and linguistically diverse children learn different languages and literacies.

3.5 Syncretism, hybridity and trans-languaging

The term syncretic literacy originally came from an anthropological study by Duranti and Ochs (1996). It introduced a framework for studying how diverse cultural practices inform the literacy activity across communities. Duranti and Ochs write that:

For us, syncretic literacy is not necessarily restricted to a blending of historically diverse literacy traditions; rather, syncretism here may include incorporation of any culturally diverse values, beliefs, emotions, practices, identities, institutions, tools, and other material resources into the organization of literacy activities. The main idea behind this notion is the belief that, when different cultural systems meet, one rarely simply replaces the other (Duranti and Ochs, 1996, p.4).

The concept of syncretism informs my research from the perspective of children's cultural and linguistic diversity among South Asian family environments. This diversity of practices focused on a range of interactions around the computer, Internet and digital games and the relationship to children's literacy and language learning.

In the book *Many Pathways to Literacy*, Gregory et al. (2004) studied young children's use of everyday language and literacy practices in their home and their participation in multiple communities. Gregory et al. (2004) examines literacies in various cross-cultural contexts making reference to what Duranti and Ochs (1996) describe as 'Syncretic Literacies'. Gregory draws on this approach to examine various cross-cultural contexts where children learn early literacy and language at home by interaction with siblings, grandparents, peers and community members. Children syncretise languages, literacies and cultural practices received from family members whose contributions are not naturally recognised or valued in schools. Thus, with an

awareness of diversity, literacy practices can occur among children from bilingual and multilingual backgrounds.

Gregory *et al*, (2012) argued for 'syncretism to be interpreted as a verb' (p.2). As such it serves to notify the activity of selection from a variety of cultural resources in order to create personal sense and meaning. In this way, children syncretize their multicultural life experiences to create their own personal social realities in an increasingly complex multi-cultural and multi-lingual setting. In this context, we return to Street (1993, p. 25): 'culture is a verb'. If we focus on the language use and language skills of children we see how they are simultaneously using the different languages in their repertoires to make sense of their lives. Creese and Blackledge (2010) described this process as 'translanguaging'. Gregory *et al*, (2012) also draws attention to children's faith practices at home differing from their own school experience as well as from their mainstream teachers' experience, and suggests that 'syncretizing', in the context of faith questions, remains largely absent from current research.

Consequently syncretic literacy is not seen as a simple blending (or substitution) of diverse literacy traditions but as an interaction of culturally diverse values, beliefs, practices, identities, languages and other material resources as a means of creating personal sense and meaning of life experiences. The research on syncretism is a growing issue in early childhood literacy in the context of multilingual and multicultural communities. Gregory *et al* (2012) acknowledge that bilingual and multilingual young children create transformative forms of literacy from everyday life experiences. These experiences are linked with their faith and heritage culture. These influence their knowledge and their linguistic and cognitive skills, as described earlier.

Gregory *et al*. (2004) point out that there is a lack of clarity regarding the difference between syncretism and hybridity in the literature and stated that, 'sometimes a distinction is made between the two concepts, at other times they are used synonymously' (p.4). There does remain some tension in defining syncretism because it embodies contradiction (Kulick, 1992). Hybridity theory recognises the complexity of investigating people's daily life space and literacies which can reflect cultural practices. According to Bhabha (1994, p.1):

The hybridity theory examines how being “in-between” several different funds of knowledge and discourse can be both productive and constraining in terms of one’s literate, social and cultural practices- and, ultimately, one’s identity development.

Bhabha’s concept of hybridity came from postcolonial discourse to describe the construction of culture and identity. Bhabha suggests that hybridity creates an in-between space, which he terms the ‘third space’, where the ‘cutting edge of translation and negotiation’ (Bhabha 1996) occurs. He used this term to create a productive hybrid identity within a cultural space. For example, Frances et al (2010) explored Chinese or British-born Chinese children and young people’s experiences of complementary schooling in relation to their identity in Britain. One of the students defined his identity as hybrid: ‘Not British-born Chinese, I wouldn’t say [that]. But I’d say like half English, half sort of Chinese. I was born half Chinese and half English. I don’t really go onto one side- I don’t really say Chinese most of the time, but I say English and Chinese’ (p.89). I view these children as carrying experiences from different cultures: the experiences from their parental generation, from education and daily interaction in English culture. As a consequence they are carrying more than one language skill. This splitting is both complex and productive in the context of children’s learning practices. In this context I refer to Kenner et al., (2008) and their study of intergenerational learning event activities around a computer. During their activities the grandmother and the grandchild were communicating in mainly Bengali with English as the embedded language. One of the examples, the grandchild said to her grandmother ‘Ono press khoro (press here)’ (p.311). In this instant the child was trying to assist the communication with her grandmother by inserting the English word ‘press’ in to a Bengali phrase. This can be recognised as an example of hybridity and flexible language practices and also code switching.

This intergenerational learning study however, introduced the supplementary option that the younger generation have greater skills in operating digital technology in this ‘new media age’, (Kress, 2003) whilst the older generation has more experience in literacy and language related to their heritage culture. This may provide knowledge transfer between generations and can be useful in making a link between home and school. Bilingual and multilingual children bring diversity of languages and literacy practices to school (Kenner, 2004, 2000; Conteh, 2010). In this context Cummins (2008) defined bilingual education as ‘the use of two (or more) languages of instruction at some point in a student’s school career’ (p. xii).

Garcia (2009a) acknowledged that bilingual practices consist of the ability to translate, flexibility in language practices and translanguaging resources. She stated that 'translanguaging is the act performed by bilinguals of accessing different linguistic features or various modes of what is described as autonomous language in order to maximise communicative potential' (p.140). This is the basis of my definition of translanguaging: It involves bilingual children's communications and the inclusion of one or more of the trans-languaging linguistic features of syncretisation, hybridisation and translation. This is the definition I adopted for my study.

Creese and Blackledge (2010, p.109) stated: 'The speaker uses her languages in a pedagogic context to make meaning, transmit information, and perform identities using the linguistic signs at her disposal to connect with her audience in community engagement'. In this context Kenner (2004, p.44) used the term 'simultaneous bilingualism' as bilingual children do not separate out their everyday literacies and languages but rather synchronise both languages in order to convey meaning.

Cummins (2005) commented on the assumption that is often made that, 'translation between first language and second language has no place in the teaching of language or literacy' (p. 588). This concept of the relationship between bilingualism and literacy is a major feature of my research.

An example of translation as an aspect of translanguaging is evident in the work of Conteh (2010) who explored how a young child uses her knowledge in Panjabi to help her to solve maths problems in mainstream school. This practice was seen as transition or code switching from one language to another. The child said that 'we had to count in fives, so I did it in my head in Panjabi then I said it out in English ... Eek, do. Teen, cha (one, two, three, four)...twenty-five...che, saat, aat, nor (six, seven, eight, nine)... Thirty...Eek, do, teen, cha....thirty five' (p.150). Conteh (2007b, p.467) described this process as 'the crossing of linguistic boundaries'. In this example the bilingual child's literacy knowledge helped her to think in one language (Panjabi) and then translate her knowledge in order to speak in another language (English).

In this sense I propose trans-languaging as transition between the two languages that involves multiple modes of communicative practice. These practices go beyond code-switching as they combine with each other. In the context of multilingualism Gutierrez

et al. (2001) also commented that the concept of trans-languaging extends beyond hybrid language use.

Gregory and Kenner (2012) pointed out that it is often the case that bilingual children who carry two languages are becoming bi-literate. The second process of language acquisition depends on the level of first language proficiency (John-Steiner, 1985). The question may arise how the first language can assist in learning a second language. Both languages are conceptually transferable (Cummins, 1980, 1981) and transitional in nature. Both languages are therefore 'native' and second. Research has shown that children gain skills in their native language learning and these can be transferred to the learning of their second language (Gregory and Kenner, 2012; Cummins 1981). This is transitional in the sense that children firstly acquire fluency in their native language then transmit these skills in the acquisition of fluency in a second language.

To put this into context, bilingual children in the UK may first encounter a range of literacy practices at home and acquire knowledge appropriate to their culture before they enter the reception class, (Brooker, 2002). These children are living in an English society and use English language for everyday life and in their education. On the other hand, it is common for parents and grandparents to want their children to be competent in different languages for different purposes. Therefore it seemed children were negotiating between two cultures. Research to date by Kenner and Gregory (2012), Gregory et al. (2004), and Hirst (1998) found that bilingual and multilingual families encourage their children to learn English for education, Panjabi or Urdu to communicate with their family members and Arabic to participate in religious activities. Given the discussion, with an awareness of the literacy and language development in early years education, the question may arise as to which language is the first language from the children's and the older generation's perspectives. If this is the point - that first language proficiency can help in second language acquisition - then should it run parallel in the educational system?

Throughout the discussion of relevant literature it is found that bilingual and multilingual children have the ability to write more than one language and combine resources in the same document. A combination of bilingual and multilingual resources can be considered as translanguaging (Creese and Blackledge, 2010; García, 2009). This can be seen as a complex and dynamic method in the process of bilingual children's

language learning development. The question of the linkage between home and school remains open for my investigation.

Home and school linkage and ‘funds of knowledge’:

Having explored the wider issues of culture and community, I am now focusing in on the specific issue of home and school which has particular significance for my study. Kumpulainen and Wray (2002) studied the ways in which children use their oral language in the classroom. The study discusses how children respond orally to teachers and how these responses are assessed by teachers, with particular reference to how these are shaped by the sociocultural context they originate from. The study also acknowledges that is essential to understand how children are learning both in and out of school. Therefore, it is important to explore the connection between home and school in terms of learning. In this context, D' Warte (2014, p. 22) stated that 'Clearly, everyday language practices and student's linguistic repertoires are valuable cultural resources and funds of knowledge (Moll et al 1992) that can be built on in school'. This study offers new ways of thinking about the connection between home and school by challenging the deficit perspectives (D' Warte, 2014) of students' everyday language practices. The research acknowledged Australian students' linguistic diversity and offers possibilities for developing the teaching and learning of the English language and literacy in school by building on the language, literacy and cultural competencies that students develop in their everyday lives.

Gutierrez et al (2009) gave emphasis to students' everyday home language and literacy skills and experiences across diverse cultural backgrounds and suggest that we should recognise these skills and experiences to enhance learning in an educational setting. In terms of linking literacy between home and school, Hull and Schultz (2002) and Street and Street (1991) have suggested that we should look at the continuities between home and school, rather than discontinuities. The study of continuities between home and school can make a bridge between the boundaries. This may help knowledge transfer between home and school. Literacy practices in the home contain different identities, memories, languages and cultural resources. This suggests that a rich model of literacy exists in the family. This may be seen as a family's funds of knowledge which are potentially carried over to school (Pahl and Rowsell, 2012, p.71). The process of these continuities may support the development

of children's school constructed literacy. Pahl (2007) also observed children's text-making which carries meaning from school to home and then home to school. In her study, a child observed a map-making event in a school. The child went home and found that her mother was drawing a plan for their kitchen. This gave the child the idea of drawing a map to describe the objects that were important to her in the home. She then took this map to the school to show her teacher. This was seen as an example of home funds of knowledge that travel between home and school (Pahl and Rowsell, 2012). Literacy constructed in the home can be considered along with school constructed literacy. This justifies the purpose of the present research which explores South Asian children's everyday life funds of knowledge and to understand what happens to existing (home-developed) funds in terms of literacy and language practices when children transfer knowledge between home and school. This may contribute to clarify what is transformed in the process. Current research also considers the impact of learning on children's use of digital technology and its connection with literacy practices. Levy and Marsh (2011) stated that 'we examine recent research that has illuminated the continuities and discontinuities in digital literacy practices across home and school domain', (p.168). Similar observations about children's use of digital technology in connection with literacy and language are described in the next section.

3.6 Digital practices in connection with literacy and language

Recently, researchers acknowledged that new technologies have offered the option of maintaining other languages and literacies (McTavish, 2009). For example, Internet resources and Sky TV channels are now available in the UK in UK minority languages, such as Bengali, Hindi, Urdu and Arabic. In relation to ideas of 'multilingualism' Kenner and Gregory (2012, p.375) stated that 'Multilingual computer-based texts show considerable potential for bi-literacy work. They are linguistically flexible and motivating, enabling bilingual learners to manipulate different scripts and realize ideas on screen'. If this is the case then it is important to explore how children are dealing with multiple languages through the use of digital technology in order to make meaning from their different cultural worlds. Levy and Marsh (2011) acknowledged that the relationship between literacy and technology is complex. They produced a critical review of ICT and the literacy skills that children bring with them in their early school years.

Wartella et al. (2013, p.3): 'Children and parents alike now have a growing stream of new technological resources at their fingertips, offering increased opportunities for engagement, entertainment, and education'. Young children are increasingly engaging with digital technologies in many aspects of their everyday social and literacy practices (Carrington and Robinson, 2009; Lankshear and Knobel, 2003; Marsh, 2002, 2004). Digital technologies are developing rapidly and changes are also happening in terms of how technologies are used. New technologies are transforming current literacies and literacy practices in classrooms, whether deliberately or not (Hagood, Stevens and Reinking, 2003; Lankshear and Knobel, 2006; Lewis & Finders, 2002). Therefore, to understand how and to what extent a child's learning is being transformed, is significant.

In their survey-based research, Livingstone and Bober (2004, 2003) found that parents recognise that the Internet can help children with their school work. Online information, educational initiatives and social media provide opportunities for new pathways to learning, education, and public engagement (Ito et al., 2013). In the context of wider studies of children's digital participation Livingstone et al., (2012) surveyed 25,000 children through the EU Kids online network. Although their study reported both positive and negative impacts of children's online activities, it particularly recognised that children are gaining the digital skills and social support needed as they navigate their digital resource pathways. This informs the view of enhanced opportunities for learning, creativity and communication and also informs researchers, policymakers and child welfare workers who are seeking to enhance children's digital experiences. This implies that different patterns of learning and communication are evolving for children, both at home and in a wider social context through their digital practices. In this context, BECTA (2009) explored how schools and digital technology learning ecologies are organized. This study found that 'digital skills are important to social and economic participation and the broader UK economy' (p. 3). Over the past decade the use of computers and Internet access has risen sharply and as a result the Internet is frequently used by the children at home to do their school work (Ofcom, 2008). Research by BECTA (2009) showed that integrated use of technology empowers a range of positive outcomes for children and young people's educational attainment.

It is important to understand the term digital literacy as this term is an arena of my research interest. Digital literacy is defined by Gilster (1997), as required practices in

understanding and using information in various modes from a wide range of sources when it is presented through computers. In other words, digital literacy needs skills and competencies for assembling knowledge, evaluating information, searching and navigating in a digital environment. I use the term digital literacy to refer to children's use of digital technology. These are when they are reading and writing on the Internet, using computers and playing with digital games for making meaning in their own way. According to Knobel and Lankshear, (2007, p.6) 'almost anything available online becomes a resource for diverse kinds of meaning making'. Many literacy researchers acknowledge that technology and sociality are intertwined in the case of online communication networks (Lewis and Fabos, 2008) and literacy shaped through online reading and writing practices (Marsh, 2010, 2011).

Technology features include the stylus pen, keyboard and also digitized code for use in literacy learning (Lewis and Fabos, 2008). There is an emerging body of research that focuses upon the diversity of children's engagement in digital literacy practices in the home. In a study on acquiring digital literacy practices in the home, Davidson (2011) focused on one five year old child's interaction with an aspect of computer technology. She examined a young child's social 'accomplishment' through the use of computers and the acquisition of digital literacy practices in the home. The child, Matt (a boy), found an image of a lizard in a book and interestingly he wanted to know the name of the lizard. He decided to do a Google search using the spelling from the book to find information about it. Matt found an image of the lizard clicked on it and enlarged it. Throughout the child, together with his father and brother, were communicating about how he might find appropriate images and knowledge. Eventually, by trial and error, Matt learnt to scroll down the screen and how to download information. This interaction between online and offline activity was viewed by the author as 'integral to his acquisition of digital literacy practices' (Davidson, 2011, p.16). Marsh (2010) also acknowledged that children's online interactions overlap between offline worlds, as 'they move increasingly across and between offline and online spaces in pursuit of their textual pleasures' (Marsh, 2011, p.16). To this effect the account of online activity indicates that children are developing technological skills. I would argue that in a digital world these skills are essential for knowledge acquisition. In the context of children of South Asian heritage this is increasingly complex as they are dealing with multiple cultures in their home as compared with monolingual children. Similarly, Davidson's (2011) contribution on children's acquisition of literacy by the use of digital technology

will be expanded in my research by considering the older generations' mediation and social interaction with children in order to help them in developing awareness of their heritage culture.

Davidson (2011) also stated that: 'The young child was learning to "draw in" the world using digital technology and to situate it in the here and now of his home' (p.19). I take this to mean that the child was interpreting his encounter with the world using digital technology and locating the outcome of that encounter within his already existing funds of knowledge. This indicated that the child had developed both literacy knowledge and digital literacy skills whilst undertaking the computer based Google search.

Multilingual children's acquisition of knowledge through digital literacy practices during their use of technology may involve bilingual and multilingual literacy practices and this can contribute to the benefit of early years education. I am however aware that Davidson's (2011) study did not pursue this at this stage but it is an important consideration for my study. I propose that, in order to understand children's literacy practices it is important to know the background of those children. Studies have found that families use literacy in different ways for different reasons in their daily lives (Barton and Hamilton, 1998; Barton, 1994; Heath, 1983; Pahl, 2002, 2005). Children from bilingual or multilingual immigrant families, who are learning English at school, usually have a home language that is different from English. This is not to marginalise specific ethnicity; rather it recognises their process of literacy development in their home cultural environment.

McTavish (2009) scrutinised the intersection between school literacy practices and home literacy practices (including new technologies) and examined how this intersection may be influencing the child's literacy learning development. This study is important for understanding how this intersection might be contributing to children's literacy learning. It was about a young child Rajan's computer use on the Internet, linked with literacy practices in and out of school. The child was an eight-year-old Indo-Canadian boy who attended an urban elementary school in British Columbia, Canada. Panjabi was the first language in his home. The research revealed that in the home and classroom domains, information literacy practices ran parallel to each other and 'out-of-school' information literacy practices were not strongly valued in the classroom.

In relation to other literacy activities, in the content areas of science and social studies, McTavish (2009) stated that:

As the class was focusing on informational text, Rajan spent a good deal of time in Science and Social Studies creating ‘fascinating fact webs’ while exploring topics such as the human body, religions, culture, and art (p.13). Rajan was interested in particular cultural holidays and religious icons; however, information books on these subjects were not available in the school library. (p.16)

The child’s own interest was in researching religions, culture and art, but it was apparent that he was also searching for information through the Internet on other subject areas related to science and social studies. This reflects the fact that there is a need to encourage children in their own area of interest that may perhaps lead to improved formal educational attainment. There were some deficiencies identified in the school library in relation to cultural information books for Rajan. The teacher also mentioned that there was only one computer in her classroom and that this had Internet access. The school computer lab had Internet access difficulties and the class teacher’s comment was that ‘Our school is not technologically available’ (p.12). It was evident that due to lack of resources Rajan was unable to use the Internet at school and also could not find in the school library books that were appropriate for him. Rajan used the Internet at home to research his own interests and produced a poster of gurus that related to his family’s religious life. When he brought this into the classroom to show, the poster was briefly acknowledged and then abandoned. In this study, the child’s home literacy practice was almost exclusively concerned with the Internet, the media and popular culture.

McTavish makes a telling comment when stating: ‘As I reflect on the textual worlds of out-of-school and in-school that Rajan negotiated in these new times, I am drawn to the tension at the intersection of these worlds’. At school, when asked about his research resources, Rajan replied, ‘I get my facts from the Internet’ (p.18). McTavish’s (2009) work allowed me to recognise one of the important key features in my study which was children’s increasing engagement with digital technology. Rajan’s engagement with the Internet signals a timely issue: that researchers need to understand the ways in which children’s technology use is mediating literacy that connects with learning outside of school. This literacy intersection between home and school is the issue that Rajan is signalling to the school.

Finally, a growing body of research to date emphasises that nowadays children are increasingly engaged with digital technology and literacy practices are transformed in home and school whether intentionally or unintentionally. Therefore, children's digital literacy practices cannot be viewed in isolation in the learning environment for the development of literacy and language – in terms of what they 'do', especially in relation to multilingual children's learning. This present study explores children's use of technology and its connection with literacy practices asking, how do children's technologically mediated different modes work together in both their connection of literacy and their communicative world? The impact of technology and its connection with multimodality are described in the next section.

3.7 Multimodality in connection with digital literacy practices

How do children's technologically-mediated different modes work together to create meaning in both their construction of literacy and their communicative world? The impact of technology and its connection with multimodality are described in this section. Over recent years, multimodal research has been conducted on digital practices and communication in order to theorise the nature of images, texts, on-line communication, digital narrative and literacy practices (e.g. Marsh, 2005, 2006; Lankshear and Knobel, 2003; Cope and Kalantzis, 2000; Jewitt, 2002, 2005). As digital technologies have a widespread scope for multimodal facilities (O'Halloran, 2009), in my study it is important to describe how technology and multimodality relate to each other. Kress (1997, 2003, and 2010) and Gee (2003) highlighted that on-screen digital practices are multimodal: involving sounds, colours, written texts, images and icons. According to O'Halloran (2009, p.110):

Computers receive multisemiotic-multimodal input (i.e. multiple semiotic resources such as language, images, sound and gesture combine across auditory, visual and haptic modalities) through a range of devices (e.g. keyboard, mouse, touch pads, pointing sticks, joysticks, pen input, touch screen, digitaliser, graphics tablet scanner, microphone, electronic white board, video cards and audio cards).

O'Halloran showed how multimodal perspectives were often mediated through the use of digital technologies. 'Multimodal texts' refers to the ways of communication that work across modes as described by Kress (1997). These modes include spoken or written language, still or moving images, music, sound, texture, gesture and non-paper based

texts (screens of computer or video). My exploration is about the modes of communication in visual, electronic and digital texts (Kress, 1997, 2003; Kress and Van Leeuwen, 2001). My research is situated within the literature of digital multimodality: of images, sounds, gestures, postures, speech, and their particular relationship to electronic screens (video, computer, TV etc.). Kress (1997; 2003; 2010) outlined the concept of multimodality and argued that image, sound, gesture, posture, speech and drawing are used to convey meaning. In relation to the digital multimodal approach, he suggests:

The screens of computer (or video) games are multimodal – there is music, soundtrack, writing at times – yet overwhelmingly these screens are dominated by the mode of image. (Kress, 2003. p.160)

Kress considers that the modes included in the screens of computer or video games are music, sound, words and images, which together carry meaning of multimodality. For example in order to play games, the written instructions, audio commands and the text arranged with appropriate images must be read. Kress (2010) also described 'social semiotics' as involving the making of signs within multimodal texts for social interaction. Crucially, Kress (2010) pointed out that human multimodal communication is continuously changing and becoming increasingly complex because of social, economic, cultural and technological developments. Flewitt (2008) emphasized the importance of the new term 'multimodal literacies'. She stated that:

Multimodality takes into account the whole range of modes that young children encounter in a variety of texts (such as words, images and sounds in printed and electronic media and in face-to-face interaction) and the range and combinations of modes they use to make and express meaning (such as gesture, gaze, facial expression, movement, image, music, sound effects and language). (p.123)

With the above statement on multimodal literacies, Flewitt (2008) drew attention to the fact that becoming literate is also a multimodal development. In today's world, children at home engage with different kinds of texts, both electronic and printed, and Flewitt argues that early years practitioners need to appreciate the complexity of children's textual worlds. This is how children learn and acquire skills, by using different media, such as computers, console games, and mobile phones.

In relation to flexibility in the context of multimodal communicative practices, Lytra *et al.* (2010) explored how pupils combine their multilingual and multimodal resources in

literacy classes at complementary school. They draw on the complex multi-layered communication of semiotic resources mediated by texts in classroom interaction. For example, different linguistic resources were combined with the manipulation of images of Turkish pronouns on the whiteboard. The teacher's instruction was for children to write a short story by using some of their pronouns. When they finished writing their stories, one of the students read aloud her work in the classroom. The communicative practices were a mixture of standard Turkish or Cypriot Turkish or English. The different language practices were seen as intersected with participants' multimodal resources. As described earlier, (in section 3.5) these practices can be seen as syncretic acts (Gregory et al., 2004; Duranti and Ochs, 1996) for children to participate in cross-linguistic and cross-cultural communities. In this sense, in this digital media age, it is possible to look at screen based multimodal texts that provide considerable potential for bilingual and multilingual texts online that enable bilingual children to manipulate different scripts from one page to another page in the website. Website design can be seen as a distribution of communication because of the user's response to the modes such as complex signs, texts, layout, speech and moving images. All these modes are used as multimodal texts in the context of learning resources (Bezemer and Kress, 2008). For instance many children are using the BBC website that provides learning resources for primary and secondary school students in England. This can be seen as an alternative for using a paper-based text book. In the context of multimodal texts Bezemer and Kress (2008, p.167) pointed out that 'we compare a contemporary textbook with "pages" on the Web dealing with the "same" issues, we see that modes of representation other than image and writing— moving image and speech for instance—have found their way into learning resources, with significant effect'.

The literature indicates that multimodal interaction combines embodied and disembodied modes (Norris, 2004). Embodied modes include gaze, gesture, posture and language and disembodied modes include music, print and layout or onscreen design (Norris, 2004). These modes are 'employed by social actors in order to communicate complete messages, which often integrate several conflicting messages' (Norris, 2004, p.65). This conflict occurs when visual modes of communication are difficult to interpret without speech and speech is also difficult when other visual modes are associates for meaning making. In this context Flewitt et al (2009, p.45) made a point that speech shapes the text but 'as soon as multiple modes are included, the

notion of speech turns becomes problematic as other modes contribute meanings to exchanges during the silence between spoken turns'. In relation to the communicative practices Norris (2004) argued that 'all interactions are multimodal' (p.1) and analysing multimodal interaction requires the examination of both visual and audio communicative modes. I recognise that my research involves both embodied and disembodied modes in children's interaction with digital technology. When participants are engaged in interactive learning practices using digital technologies, multimodal analysis is specifically appropriate (Jewitt, 2003).

Bearne's (2009) study described multimodal texts created by seven-year-old children from three different schools and 'the ways in which children integrate and combine them for their own meaning-making purposes' (p.1). The study reviewed the semiotic resources of different modes and media available for creating multimodal texts and suggested that 'current definitions of literacy do not readily answer to the variety of semiotic resources deployed'. The research was intended to 'open up debate' (p.1) for developing a framework for multimodal teaching and learning in a formal education system. The concern expressed here is relevant to my own research into digital literacy with multimodal practices.

Bearne (2009) states, with a degree of urgency, that revisiting existing multimodal literacy practices needs to be considered a priority.

With the greater availability and accessibility of digital technology, literacy has taken a spatial turn. The screen now takes a central place in public communications and increasingly in educational settings, changing the ways in which reading and writing are understood. (Bearne, 2009, p.1)

She expresses her view that nowadays digital technology is assuming a dominant place in literacy practices and considers that attention must be given to ways of shifting communication in terms of reading and writing practices in educational settings.

In Bearne's (2009) article one of the case studies described Rhianna's (the participant) PowerPoint presentation. The activities were transcribed under the headings adopted by Bearne: Image, Language, Sound/vocalization, Gaze and Movement. Rhianna's group screen presentation showed the choices made by the children regarding a use of colour, different typefaces, font sizes and sounds. In addition to the screen element, the presentation also involved a model of a playground design by the children for the

local community. The presentation was called ‘Bright Ideas’ and the children used their existing knowledge of electrical circuits to provide the lighting for the model. Their role was to present and sell their ideas to an adult.

According to Bearne’s (2009) statement: ‘In her spoken presentation, Rhianna spoke firmly and with sufficient volume for the class to hear but without great emphasis or intonation except on “will” in “the lights here will light the field” and in her “occasional giggles” (p.167). Sometimes Rhianna was slowing down as she was answering the adult’s question. She was also managing to occasionally look at the audience. The author stated that ‘for quite a lot of the time her gaze was removed from her audience as she sought to shape the meaning she was trying to convey, for example, looking either at the model (4) or at the screen (10) as she was explaining particular aspects of the project’ (p. 167). This meant that she was using the screen to give her the information she needed and which she then used to develop her vocal presentation. Bearne’s study (2009) accepted the current interest in multimodality that is often based on assumptions on screen based text. She stresses her view that traditional literacy and technologically mediated literacy have a shared multimodal context. This concept can be possibly linked with my study in the context of children’s online and offline activities. Flewitt et al (2009) acknowledge how technologies have transformed the research tools that are available in order to collect multimodal data for the purpose of data analysis.

In relation to multimodal communication, Kenner *et al.* (2008) pointed out that touch might play an important role between children and grandparents. They maintained close physical contact when working on the computer for intergenerational learning. Their gaze was at the screen with additional eye contacts with each other. Their activities of digital multimodal interaction took place through gaze and specific action (touch or posture) as well as through spoken language. It is important that this aspect of learning exchange is considered in my study.

Finally since communication is increasingly multimodal in nature, particularly in the context of digital technologies, it is important to recognise and utilise existing contributions to the understanding of multimodality.

3.8 Summary of the literature review and implications for my study

In this literature review I presented a range of appropriate research in the field of children's language and literacy development within a multicultural digital environment. Through this review I identified gaps in knowledge where there is a need for further study into children's increasing use of digital technologies in home environments for bilingual and multilingual children's language and literacy development. Although research into the use of digital literacy within children's everyday life practices is growing (Levy and Marsh, 2011; McTavish, 2009; Carrington, 2001; Marsh, 2005; Davidson, 2011), very little is known about bilingual and multilingual children's digital literacy practices within their everyday lives. From my review of existing literature I therefore argue that there is a need for widespread investigative research in this field, which considers how digital practices can contribute to children's literacy and language learning in the context of bilingualism and multilingualism.

Consequently my investigation will track the specific areas of inquiry based on children's learning involving digital technologies with a particular reference to South Asian families (Bangladeshi, Indian and Pakistani). The investigation will also include an examination of the relationship between bilingual/multilingual children's learning across their home and school environments. As a result the research questions for this current study are informed by the literature review.

The literature review raised several fundamentally important issues. Consideration of these issues was important in helping to establish a theoretical framework to conduct the study. Several relevant implications for my research emerged and are summarised below.

I described the meaning of bilingualism and multilingualism based on the studies of literacy researcher contributions such as Cenoz and Genesee (1998), Robertson, (2004) in Gregory *et al*; Kenner (2005); Wang (2011), Gregory *et al* (2012), Pahl and Rowsell (2012). This existing literature showed how the children's linguistic practices related to syncretism (Gregory *et al*, 2004), hybridity (Bhabha, 1994) and translanguaging (Creese and Blackledge, 2010; García, 2009) in the context of multilingual and multicultural identities. On the basis of their work I proposed a definition of translanguaging for my study that involves bilingual children's communications, which

included one or more of the trans-languaging linguistic features of syncretisation, hybridisation and translation as individually discussed in the previously mentioned research.

Given the complexity of the term 'multilingualism', it is necessary to clarify the classification of multilingualism in the context of my study as this is a significant aspect of my research. In my study I take 'multilingualism' as the ability of an individual to employ different linguistic identities in a particular space. This includes consideration of diverse language practices among children who are developing multi-literacy in their multi-cultural world.

My study reflects this multilingualism where the children speak more than one language. Bilingual and multilingual communicative practices are likely to be a daily reality in the lives of South Asians as they strive to create meaning within their multicultural world. As a consequence, where appropriate, my study will draw on the concept of syncretic communication as a framework for analysing how young children and their siblings not only learn different languages and literacies, but also develop different forms of learning that merge through their use of digital technology. In this context I also considered, in some detail, Gregory's account of her work as her research interests are in the field of early childhood, bilingualism, multilingualism, family literacy and a socio-cultural approach to literacy and language learning. All of these issues carried important implications for my research and raise questions to bear in mind when conducting my study.

This interpretation of children's learning in a complex multicultural and multilingual environment must also be integrated with my interest in the role and impact of digital technology in both the school and in the home. This integration is central to ensuring that my research (children's acquisition of knowledge by their use of digital technology, with particular emphasis on South Asian homes) is firmly based and can support useful outcomes.

My study also draws on Brooker's work in the sense that she studied how children learn at home. Her examination of the ways of working with children from culturally diverse families can be useful in my study for developing the connection between home-school learning relationships. The difference between my research and

Brooker's is that my study explores the role of digital technology in children's learning within South Asian culture, however she did not pursue the role of digital technology in the multicultural context of children's learning. Existing literature acknowledges that culture can be viewed in many different ways, and therefore gives emphasis to culture as both a verb and a noun - helpful tools in knowing the complexity of 'culture'. For example, in my study I reflect on the use of 'culture as a verb', when it considers the activity undertaken by the children in a digital environment as they develop their multicultural awareness involving their acquisition of language and literacy. Here the context can be seen as multicultural awareness.

Existing research revealed that in the home and classroom domains, 'out-of-school' information literacy practices were often not strongly valued in the classroom (McTavish, 2009), although they complemented classroom practices. Similarly, it is observed by Levy and Marsh (2011) that children are bringing literacy skills from home to school, however they suggest that schools need to recognise this and build upon these 'funds of knowledge' within the school. Bearne (2009) comments that children's multimodal texts carry meaning, but I reason that this meaning not only draws on the children's existing funds of knowledge, but that funds of knowledge are expanded during this meaning-conveying process. I noted that in her case study of PowerPoint activity, there are some learning elements occurring, such as presentation skills, technological skill and decision-making skills in the group design. The children's knowledge of electrical circuits is also being applied in a novel context. This is consistent with my research aims: to explore the means by which children interpret the data they receive in order to attach meaning to that data. It also explores how they are making meaning into their existing funds of knowledge (Moll *et al.*, 1992 and Gonzalez *et al.*, 2005) for future use. I propose using the term 'digital funds of knowledge' to analyse children's knowledge transfer between school and home. The learning relationship between school, home and child can also be seen as multicultural and possibly interdependent in nature.

It is evident from the literature review that young children's acquisition of digital literacy practices occurs through their engagement with digital technologies (Carrington, 2001; Marsh, 2005; Davidson, 2011). For an example: Davidson's (2011) study showed that the young child's acquisition of digital literacy practices occurred through the use of computers and the process was examined through the social interaction between the

family members in the home. Davidson's work allowed me to recognise some key features of importance to my study. These are children's online and offline interactions which are increasingly becoming an important mode of learning for them. This mode of learning in the home was evidently being supported by intergenerational activity and communication. This is, again, of importance to my research which will be based in bilingual homes. Davidson also alerted me to the importance of the interplay between new knowledge presented by digital technology and existing knowledge held by children. Collectively these three features are a means of understanding children's literacy and digital literacy development and this is a key focus for my research. In this view, my study is related but different in cultural context because my study recognises that multi-cultural learning can be facilitated by the use of digital technologies. Children from different cultural backgrounds are using different learning and reading practices in the home (Gregory, 1996; 1997; 2001; Gregory *et al.*, 2004).

Levy and Marsh (2011) also acknowledged that today's children, in their engagement with a variety of digital texts, are developing skills that help them to construct and make sense of multimodal text. The exploration of literature suggests that when addressing children's literacy the study of digital literacy practices could be usefully extended to incorporate multimodal digital literacy practices. Therefore my study deals with the field of multimodality assisted by digital technologies (Kress, 2003; Lankshear and Knobel, 2003; Moje, 2009). As technology becomes an ordinary part of young people's everyday life practices, I would argue that there is a need to pay particular attention to what functions technology serves in bilingual and multilingual children's lives. There is also a need to develop a greater understanding of the complexities of what they are doing and how their literacy and language is shaped by this form of digital literacy. I have considered children's digital on-screen activities as multimodal in nature. These are varieties of modes afforded by the digital technologies: bilingual/multilingual texts, sound, words, images and colour that can be created in forms of multimodality.

Important areas for further research into children's digital practices in connection with literacy, language and multimodality emerge from the above literature review. They can be summarised as suggesting a need for research in the ways in which digital literacy can assist the two-way transfer of knowledge between home and school. It also suggests the need for research in the ways that digital technology contributes to children's literacy learning within multicultural homes. McTavish's (2009) study raises

a question: How can teachers understand the children's home literacy practices that include using the Internet, the media and popular culture, involving family and friends? Bearne (2009) expresses her view that digital technology is now assuming a dominant place in literacy practices and considers that attention must be given to ways of reconsidering communication in terms of reading and writing practices in educational settings.

As a consequence of the literature review, I intended that my study would address the complex ways in which bilingual/multilingual children shape meaning through multimodal communicative practices in their everyday life during their use of digital technologies and their particular cultural exposure to literacy and language influences.

Chapter 4

Research Methodology and Procedure

4.1 Introduction

My research questions emerged in the light of the literature review. The review identified that there is a need to understand bilingual and multilingual children's lives in the context of digital practices. Previously, little attention has been paid to this context (Marsh, 2005).

The emergent research questions were as follows:

1. *In what way does digital technology contribute to British South Asian children's (aged between 4 and 13) literacy and language learning and how do these children learn through their use of digital technology in multilingual homes?*
 - a. *What kinds of digital technologies can be observed being used by these British South Asian children in their homes?*
 - b. *What is the relationship between home and school, in terms of learning, with particular reference to digital technology?*

This chapter presents the methodological approach of my PhD research project. Having established the research questions, it is essential to describe the methodology which I developed to conduct my study and explain why it was selected. This also includes an account of the methods chosen for data collection and the ethical issues that arose, together with the process undertaken for sample selection.

My research is set within an interpretive paradigm because it was concerned with understanding an aspect of everyday life. As my research questions included reference to children's digital practices in the home, I needed to use a methodology that enabled me to understand these digital practices, to develop insights into the homes of South Asian families. The emphasis in the study was on describing and interpreting children's digital practices in order to obtain appropriate knowledge for my research. There are some factors related to research paradigms that are coloured by values and beliefs,

such as political or religious faith; or experiences that follow social class, ethnicity, gender, or historical and geographical location. Different researchers define methodology differently due to the diverse purposes of their study. All definitions agree, however, that the methodologies chosen must be congruent with the research questions. According to Clough and Nutbrown, (2002, p. 22), 'A methodology shows how research questions are articulated with questions asked in the field. Its effect is a claim about significance'. They also highlighted that the definitions of methodology can be varied due to researching different fields of study and the different purposes of the research.

Wellington (2000, p.6) described, 'differing beliefs in the nature of reality (ontology) and the way in which we acquire knowledge of it (epistemology)'. Ontologically, my position incorporates my socially and culturally constructed beliefs, together with my own life experiences. The latter includes my educational background (I studied child psychology for my first degree), my role as a South Asian mother of two children and the recognition that digital technologies are playing an ever-increasing part in children's literacy learning – both formal and informal. This ontological perspective involves the home, social and cultural dimensions, the school dimensions and the digital technology dimensions of the children's life experiences. As such, it fits comfortably with an epistemological exploration of the ways in which children create meaning and acquire knowledge from their encounters with these complex relationships.

I chose to conduct an ethnographic study. It is initially important to describe the origin of the term 'ethnography' and its relevance to the nature and the characteristics of my study. 'Ethnos' is a Greek word that refers to a people, a race or a cultural group that is described graphically (Vidich and Lyman, 2000). Therefore, the emphasis in ethnography is on describing and interpreting the cultural behaviour of a particular society, group or community. As defined by Spradley (1979), ethnography is 'the work of describing a culture' (p.3). The purpose of ethnographic research is 'to understand another way of life from the native point of view' (p.3).

Lareau and Shultz (1996) stated that 'traditionally, in anthropology, ethnographic studies had a host of characteristics including the use of participant-observation to study a community for an extended period of time' (p.3). In the early 19th century anthropologists often lived with remote cultural groups in order to understand their

cultural behaviour. ‘Anthropology seeks to be a comparative discipline. It does not limit us to the study of our own society or even that of the Western world’ (Spradley and McCurdy, 1972, p.6). These authors also stated that anthropology is not limited to a few theories or explanatory models. Spradley and McCurdy do not suggest restrictions to the number of field methods which the researcher may use and, in fact, consider this lack of restriction an advantage in ethnography.

To use an ethnographic approach is to construct an understanding of complex issues that shape social reality. By adopting an ethnographic perspective, I consider that it is possible to take a focused approach to study particular aspects of children’s everyday digital practices and understand their cultural exposure to literacy and language influences. As is commonly associated with ethnographic research, I used a range of tools including participant observation (Tedlock, 1991), unstructured interview (Fife, 2005), field notes (Wolcott, 1994), semi-structured interviews (Spradley, 1979), and video recording which covers audio and visual aspects of modes (Jewitt, 2009; Norris, 2004) in order to collect data.

I recorded paper based field notes in the diary to recall dates and the purpose of each visit to each family, and to record aspects of both the semi-structured and unstructured interviews in order to collect contextual information. The transcription of video conversations/observations shaped a major part of the data which involved conceptualising, interpreting and analysing data associated with the children’s digital practices. I decided to take video recordings because it produced rich data for ethnographic study that covered both the audio and visual aspects of modes (Norris, 2004; Jewitt, 2010; Pink et al., 2004). The details of these processes are described in chapter 5 (Data analysis process). Over the course of twelve months, I shared time and worked with three families as an ethnographic observer of their digital communicative practices. An ethnographic approach (Gregory and Ruby, 2011; Gregory et al., 2004; Flewitt, 2011; Davidson, 2011; Heath and Street, 2008; Pahl, 2002; 2004, 2005) allowed me to investigate the socio-cultural patterns, faith and value systems of the children in these families as they interacted with digital literacies as part of their daily lives. Heath and Street (2008) brought some of these threads together for those who are working in the field of language and literacy, acknowledging that ethnographers are juggling with many levels of reality, stating that ‘we see learning ethnography as being a lot like learning to juggle. Both call for practice, close

observation, and the challenge of having to manage more and more balls in the air' (p.2). Heath and Street (2008) observed that ethnographers may encounter multiple languages and literacies as they try to understand cultural patterns; these literacies carry diverse forms of meaning. These can be seen as multimodal literacies (Flewitt, 2008). Aligned with this argument Pahl and Rowsell (2006, p. 9) stated that 'ethnography allows us to view multimodality within a larger, broader context of patterned practices'. I took this perspective in my study and used an ethnographic approach to understand children's multimodal communicative practices as my data was video recorded while children were using digital technologies.

4.2 Why I have chosen ethnography and video based ethnography

This study was designed to identify elements of children's learning in the context of digital technology and communicative practices in their homes. This includes the relational connection between home and school knowledge transfer, related to children's use of digital technologies in their home based activities. Much of the study acknowledged that there is an extensive increase in digital technological items in the home, relative to other household resources and children are, from birth, absorbed in a technology environment (Levy and Marsh, 2011; Marsh 2006; Marsh et al 2005). There are a wide range of digital resources that children often use in their homes. In homes however, it is important to understand the situated nature of research. It is important to recognise that researching in homes requires methodology and methods that are consistent with the families' existing social practices. There is a growing body of research that describes uses of the ethnographic methodological approach in the field of digital literacy practices (such as Pahl, 2005; McTavish, 2009; Davidson, 2011) as 'technology has always been part of literacy' (Marsh and Singleton, 2009, p.1).

My research data and questions related to children's use of various digital literacy practices also placed emphasis on South Asian families' cultural influence. In order to respond to this data I was aware of a need to follow flexible approaches that can help the interpretive, the analytic and theoretic elements of my study. Many literacy researchers consider these approaches to be of an ethnographic nature in contemporary societies (Gregory and Ruby, 2011; Gregory *et al.*, 2004; Flewitt, 2011; Heath and Street, 2008; Pahl, 2002; 2004, 2005).

The research questions required that I understand children's digital practices in their home and get meaning from their perspectives. I collected data in the home by employing ethnographic approaches. When I entered into participants' homes, as a researcher, I came across children who were engaged in a diverse range of home activities, mainly with digital technologies. These activities occurred in a complex and unstructured form. Due to this diversity my research also required the selection of appropriate techniques to ensure effective data collection. For example, my data was mainly collected through video recording because my research required me to observe children's screen based multimodal interactions. I was able to watch video clips repeatedly which helped me review the most relevant data. I found that watching children's activities with their speech supported my capture of more than one mode. I also found that the research-relevant visual representations were easy to capture from the video footage given that video based data is so rich. In this digital age, ethnographers increasingly use digital images, video and technologies to understand the cultures, lives and experiences of other people (Pink, 2004; Flewitt, 2011). Pink (2004, p. 5) stated that 'it is now recognised that film or video is not simply useful for representing ethnographic research but is a research method in itself'. Therefore my video observations also followed an ethnographic approach with regard to my research. Pink *et al.* (2004,p.4) drew attention to the importance of new media in ethnographic research when they stated that: 'new media invite new methods of visual research, new ways of presenting and viewing research, and new ways of creating reflexive texts'. During the early 2000s researchers began to describe how they used videos in their studies (e.g., Pink, 2001; 2004; Grassani, 2004; Flewitt, 2006). Pink (2004) argued that video clips are more than a filmmaking situation, but a process of fieldwork that produces informants' narratives, their embodied actions, facial expressions and the objects they can encounter in the context of the research. She also described hypermedia as a range of written text and visual resources. Pink however does suggest that it is important to be reflexive about video and to recognise that all video is infused with both researcher and participant positionality. This endorses my adoption of an ethnographic approach and the anticipated extensive use of video recording in my research.

Flewitt also (2006) drew on data from ethnographic video case studies of young children communicating at home and in a preschool setting in her research. She argued that video based visual data gives insights into aspects of children's

communicative practices in early years education. She also discussed how visual data created a rich data resource and allowed close examination of young children's multiple modes of communicative practice. In the context of the use of video for early years education research, Flewitt (2006, p.26) stated that 'new visual technologies have increased educational practitioners' awareness of the potentials of learning in different modes and have changed the tools with which education researchers can collect, transcribe, represent, interpret and disseminate data'. She argued that in early years, children themselves intentionally use different semiotic modes in order to construct the meaning of their communication. My study supports her argument regarding my selection of ethnographic methodology in the context of the use of video.

From the perspective of the ethnographic approach I needed further visits to the participants' homes in order to understand the meaning of children's activities. Pahl (2002, 2004, and 2011) also described the extended period of time required for getting to know the participants and their practices and beliefs in the home. My observations of children's digital practices and their communicative practices were representative of the broader educational, social and cultural environment that shaped children's access to learning. In order to gain insights into children's learning through their use of digital technology, I realised that I had to spend an extended period of time with children in their home settings. Therefore, I needed to use ethnographic methodology and methods in order to conduct the study in the home settings.

My choice of ethnography as the methodology for my study is centred on Gregory's (*et al.*, 2004, p.19) proposition that:

First, ethnography always involves fieldwork carried out in a natural setting, usually over a sustained period of time' [...] 'Second, the researcher is the primary instrument of data collection' [...] 'Third, the researcher uses multiple techniques to collect data from multiple sources. These techniques may include participant observation, audio and video taping, taking field notes and photographs, conducting interviews and collecting artefacts. Fourth, the researcher uses inductive strategies synthesized with deductive ones to analyze the data collected.'

My research needed to observe how children are using digital technologies in the home, to acquire knowledge from a socio-cultural perspective and to seek to understand where the link in the context of school environments is found. This involved fieldwork over an extended period of time in order to analyse both the depth and

complexity of this learning relationship. In this sense, the field work was carried out in a natural setting. I consider myself as an insider being a member of a South Asian community group and able to share a similar background, culture and faith. I was the primary, but not the only, instrument of data collection, having collected information from the parents, grandparents and children. As stated, I largely used video recordings alongside paper based field notes however there was communication through the phone for making an appointment as well as collecting missing information when required. It is important to know the process for interpreting collected data. Spradley and McCurdy (1972) pointed out that the major processes for revealing the meaning of particular cultural events are description, classification, comparison and explanation. Green and Bloome, (1997, p.181) also stated that:

We acknowledge that ethnography often involves writing about the culture of others (or as is more recently the case writing about the culture of one's own cultural group or subgroup) and that the writing process may influence the nature and meaning of inquiry.

Given the emphasis on how ethnographic study informs the inquiry of social and cultural practices within a social or cultural group, from the perspective of ethnographic study, Green and Bloome, (1997) are concerned with talking about ethnography as a process of inquiry that is different from writing. Writing ethnography involves telling stories that attempt to understand other people's own world in their own terms. Therefore, it is important to analyse how writing is implicated in the meaning of social and cultural practices from the perspective of ethnography. Green and Bloome (1997) illustrate ethnography as a theory driven approach that is situated within a particular site. Questions may be raised however as to what counts as ethnography and ethnographic research, and where and how such research adds to developing knowledge in the context of education and social science.

The authors also highlighted that ethnographic research is about a way of constructing knowledge of the world and stated that: 'the definition of ethnography as a process, a product, an area of study, or a way of constructing knowledge of the world depends on the context of use' (Green and Bloome, 1997, p.183).

For conducting and describing ethnographic study in contemporary societies Flewitt (2011, p. 296) stated that:

Yet, over-arching characteristics of ethnographic research include recognition that: 1) data should be drawn from 'real world' contexts; 2) both participant (emic) and researcher (etic) perspectives should be valued; and 3) meanings emerge in social and cultural contexts from the interwovenness of language, bodily movements, artefacts, images and technologies.

She investigated how the combination of ethnography and multimodality can produce situated insights of early literacy development in a technological age but argued that 'new methodological solutions are needed along with the development of more collaborative models of constructing and reporting analyses' (p.308). My study explores children's learning practices linked to their use of a range of digital technologies in daily life and examines how children create multimodal texts by encountering digital practices in their homes. My intention is to respond to the argued needs identified by Flewitt (2011) and to the theory building issue in an ethnographic study.

Based on the above definitions of ethnography, it is apparent that there are some characteristics that are inherent in the ethnographic approach. I summarise these crucially important features to my study as follows: Describing, comparing, interpreting and classifying specific events or cultures over extended periods of time; the requirement to use an appropriate variety of field methods that includes semi-structured and unstructured interviews, participant observation, the observation of participation, emic, etic and reflexive perspectives, analysis, theory building enterprise; revealing meaning from the participants' point of view.

Given the above features I believe that the adoption of an ethnographic methodology meets the requirements of my study in terms of its processes and purposes. These features are primarily to explore the learning practices in the development of socio-cultural knowledge and the digital technologies which children use. In terms of describing, interpreting and analysing children's digital practices in homes I need to spend adequate time on observation. This process has been conceptualised by Pahl (2002) who described that children's text-making in the home is shaped by family structure and family narratives. She suggested that there is a need to pay particular attention to the theoretical constructs relating to children's home-based communicative practices in the context of ethnographic research. She commented that spending time in order to gain insight into children's activities in the home environment was necessary. Pahl (2002, p.149) also stated that she:

...looked for patterns over months and years when analysing data, and researched meanings that were built up over time, often going back to the home for more information on particular cultural subjects.

Pahl (2004) studied children's text making which included images, drawing and photographs. The methodology for this study was the ethnography of communicative practices and observations took place within homes. This study considered the ways in which identity shaped children's text making for family literacy education. Pahl (2005) studied a young boy's communicative practices through the use of games consoles. These practices provide a narrative space and identity in the child's textual explorations. The child's playful responses created a multimodal text. I used the concept of multimodality for analysing my video observations of children's talk in response to their digital games playing or use of a computer.

There are some perspectives that exist in ethnographic study such as the researcher's role as an insider or outsider and also reflexive accounts regarding the field work. These concepts are described below.

4.3 The role of the researcher as an insider/outsider concept

A statement of the researcher's role is important and should include research-relevant information only. The researcher should question and explore their role in relation to their research. For example, what is my own position in relation to this research? What are my past experiences or prior knowledge? Am I an insider or outsider in the context of this study? What is the advantage or disadvantage of being either an insider or outsider? To introduce the concept of the role of the researcher, Headland *et al.* (1990) mentioned that the terms 'emic' (insider) and 'etic' (outsider) were popular and widespread amongst the disciplines of linguistics and anthropology. In the late 1980s it was noticed that the terms were being used in other disciplines, and were not only connected to linguistics and anthropology (Headland *et al.* 1990). The ethnographic approach consists of the concepts of the 'emic', the 'etic' and the 'reflexive'. I will define the concepts of emic and etic perspectives, and then will move on to the reflexive perspective in an ethnographic study.

The researcher's positionality from the 'emic' perspective is the 'insider's' point of view as a member of a culture or society. The researcher's external positionality is the 'etic'

perspective as seen by researchers who are not members of a particular culture or society. Young (2005) describes the 'emic' perspective as 'personal experience of a culture/society', while 'etic' is described as 'the perspective of a person who has not had a personal or 'lived' experience of a particular culture/society' (Young, 2005, p.152).

During the last decade, Gregory and co-authors have worked on a sequence of ethnographic studies to investigate the home cultures and literacies within Bangladeshi British and Anglo-British communities in East London. In the study of the Insider / Outsider dilemma Gregory and Ruby (2011, p.169) commented 'I felt disheartened at the fact that before entering the home I felt I was an "Insider" but I left feeling very much a "confused Insider"'. Before visiting the home of the Bangladeshi family, the researcher's (Ruby) perspective was to consider herself an insider by dint of being a Bangladeshi as well as a Muslim. In her first visit to the home she felt that she could not impress the participants, because both grandparents were not contributing to the discussion as they were diverted by the TV. As an insider researcher I viewed this is an obvious issue in the participants' home. My experiences concur with those of Ruby and, in the first visit, it was difficult to get the participants' full attention in the home environment.

The advantage of being a Bangladeshi is that I have a good cultural understanding of other South Asian (such as Indian and Pakistani) families' cultural heritage. Gregory and Ruby (2011) adopted both an emic and etic approach to develop interpretations in their ethnographic study. They defined an emic approach as collecting data and describing it from the participants' point of view. Their article presented the researcher's dilemma of both an insider and outsider role in the field. This study acknowledged that insider researchers have insights into the participants' backgrounds in terms of language and cultural knowledge. On the other hand, it is described that insiders also have a challenging role and are not free from methodological dilemmas in their search. The possible solution suggested is that, as an insider, the researcher's role is to present the data from the participants' perspectives. This is to give voice to the participants and to ensure that they are heard.

Gregory and Ruby (2011) acknowledged the dilemma of both the 'Outsider' and the 'Insider' roles. They discovered that the outsider faced 'why' questions a number of

times and in this context stated that ‘the ‘outsider’ is a complete novice when it comes to the rituals, gestures, language and behaviour patterns of [the group]’ (2011, p.171). On the other hand, while the outsider is able to bypass many queries regarding common practices, the insider may feel uncomfortable because of their awareness of cultural issues (as a member of the faith group taking field notes rather than joining in faith activities). In their research, which investigated the insider and the outsider role to understand how young children learn in cross-cultural contexts, Gregory and Ruby identified that being an ‘insider’ can also be problematic within the research context. In their research the researcher found herself in a complex position. In this article one of the events was about purchasing a Qur'an. The insider did not want to hold the Qur'an because of the requirement of washing the body before touching it. The outsider said that she will hold this ‘if there is a problem, but why?’ (2011, p.167). Gregory and Ruby's (2011) study suggested, however, that whether the researcher is an insider or outsider the observation and discussion process remain the same.

I am aware of this kind of issue. I do understand these South Asian families' cultures as being an insider in the field of my study. I am not suggesting any restrictions to the process of field methods which the researcher may use as an insider or outsider and I, in fact, consider this insider perspective to be an advantage in ethnography.

Certainly, followed by the above discussion on the Insider/Outsider dilemma (Gregory and Ruby, 2011), it is important to recognise three perspectives that are useful for ethnographers in their efforts to generate an understanding of the research field.

I aspired for my positionality to be a combination of emic and etic points of view. As a member of the South Asian community and as a mother; I have some (emic) perspectives in common with my informants (parents) and their children. My family are experiencing the same (UK) education system as my research participants and also have similar experiences of using digital practices in their home settings. I viewed this as an advantage of being a South Asian mother in that I have a good cultural understanding of the children's activities relating to their cultural and literacy heritage. This was particularly advantageous in observing the grammatical processes that the children used in making hybrid language in order to communicate. There are also differences in some (etic) cultural patterns and practices as there are faith differences among South Asian cultures. It is inevitable that both emic and etic approaches will

have to be adopted in my ethnographic methodology. As Rogoff (2003, p.31) stated, 'Cultural researchers usually aspire to use both the emic and the derived etic approaches'. In this book she focuses on the importance of culture in human development and identifies patterns in the similarities and differences among cultural communities. The voices heard in my study are those of the participants and the derived knowledge constructed from their experiences and their diverse cultural backgrounds. This emic data may then be used together with derived etic understandings. This approach seeks to describe a wider understanding based on, and arising from, the emic and etic elements which we all accumulate via our life and learning experiences.

Reflexive study:

'Reflexive study' is another important aspect of ethnography (Garfinkel, 1967; Kincheloe and McLaren, 2005). Reflexive ethnography maintains that the ethnographer is not separate from the object of investigation. It uses the interpretation of field notes to establish the relationship between the observer and the observed person. Troyna (1994) placed emphasis on the importance of being reflexive as well as reflective in an ethnographic study. In my ethnographic study these perspectives raise important implications for examining how children's learning processes are acquired during their use of digital technologies and the emergent questions regarding possible influences on my study. My reflective account involved my critical analysis of my observation about the overall research process. My reflexive account is my role as an insider as mentioned in the previous section.

In order to do research within the framework of my ethnographic study, it was necessary to gain access to the homes of South Asian families and establish trusting relationships with family members. It was also important to recognise that ethnography involves 'reflexivity' - the relationship between the self and the ethnographic field (Robinson-Pant, 2005; Coffey, 1999; Ellis, 2004; and Hertz, 1997). This means that researchers should declare their own position relative to the field of study, and to consider the impact of their own 'positionality' on their research. This requires a constant awareness of how personal experiences may affect the field and recognise their importance when making sense of fieldwork. Coffey (1999, p.1) stressed that making sense of fieldwork requires recognising that 'fieldwork is personal, emotional

and identity-related'. In order to write my ethnographic fieldwork account, I need to be aware of this and to constantly think about each situation that arises in the field, and to seek comparisons in order to facilitate meaning-making in the context of culture, technology and children's learning. The recording of field experiences reflects both my ontological perspective and my observations in the field, as well as revealing the epistemological foundations of my exploration of the communicative and learning processes with digital technologies employed by my research participants (children, parents and grandparents).

4.4 Methods for data collection and research design

Having established the complex nature of exploring what counts as ethnography I also introduced the ethnographic tools which include the use of methods and techniques in the previous section. Now I am going to describe them in detail. Following Law's (2004) insight that methods construct reality, 'it is that methods, their rules, and even more methods' practices, not only describe but also help to produce the reality that they understand' (2004, p.5). The data collection for my PhD thesis consists of video based collection and semi-structured/ unstructured interview and also field notes taken to recall the purpose of each visit as mentioned earlier. I took video recordings when children's activities were engaged with digital technology. The background information regarding families was collected without the use of video technology, though in keeping with ethnographic informal discussions and observations. I decided to use semi structured interviews to collect more in depth information about the families. This provided a descriptive account in order to interpret and analyse the data. As described earlier this data was collected during the period of rapport building and informal conversation taking place in the social settings. The video recordings were used to observe mainly the children's digital practices in order to understand the nature of their activities. These two different kinds of observations needed to be described to identify the themes of the study. I transcribed data from the video observation and then described this data in order to identify the themes that addressed the research questions. The interpretations convey meaning and the analysis addresses the outcome of the research. I drew on Wolcott's (1994) process, which comprises of description, analysis and interpretation. The first approach is to treat descriptive data as subjective. The second is a systematic way of organising and reporting data with an analysis process, in order to identify key factors and relationships among them. Thirdly,

there is a need to interpret these relationships to reach out for understanding and meaning where analysis becomes interpretation.

My data is mainly video based, which consists of both visual and audio communicative modes and captures children's interaction as multimodal communicative practices through their use of digital technologies (Norris, 2004; Jewitt, 2003; 2010). As according to Pahl and Rowsell (2006, p.9), 'Ethnography allows us to view multimodality', it gives an analytical tool to understand children's multiple modes of communicative practices such as using ethnography to inform multimodal analysis from digital environments (Marsh, 2006). It is however important to describe the elements of my research methods in the context of ethnographic research design.

Discussion of participatory research methods in ethnography:

Participant observation is one of the research methods used as part of my inquiry process, along with other methods such as semi-structured/unstructured interviews and also home-video observation. Benjamin Paul (1953, p. 441) has pointed out, 'Participation implies emotional involvement; observation requires detachment. It is a strain to try to sympathize with others and at the same time strive for scientific objectivity'. Later, Tedlock (1991; 2000) explored the nature of participation and revealed that in the 21st century, there has been a change in that ethnographers modified 'participant observation' towards 'the observation of participation'.

Tedlock (1991, p. 69) defined participant observations thus: 'Ethnographers attempt to be both emotionally engaged participants and coolly dispassionate observers of the lives of others.' In contrast, she defined 'the observation of participation' as ethnographers both experience and observe their own and others co-participation within the ethnographic encounter.

This modified view of participation offers the prospect of an enriched understanding of ethnographic encounters and for Tedlock forms the preferred basis for research aims. This continued shift of participation suggested that a 'participant observer' takes part in the research, then steps back to comment on it (attempting to comment objectively on their experience). On the other hand an 'observer of participation' acknowledges that they are part of what's going on by acknowledging their subjective experience.

It seems that a variety of techniques are incorporated under the title of participant observation. In other words, participant observation means not one technique but techniques ‘usually carried out in explicit or implicit combination with other strategies designed to elicit different sorts of data’ (Green and Bloome, 1997, p.184). This technique altered again from the user point of view and the term ‘participatory research’ is now often used as a research method with children from early childhood education. Levy and Thompson (2013) pointed out that a growing body of literature is now using the term ‘participatory research’ commonly for the inclusion of young children’s voices to be heard within social and educational research and argued that it is important to define the term ‘participatory research’ in terms of research design. According to Levy and Thompson (2013, p.4):

The term ‘participatory research with young children’ has many different interpretations, however, most would agree that it has to involve listening to children and hearing their voices. It is not surprising, therefore, that many researchers of children situate their commitment to listening to the voice of the child in the domain of human rights.

Recently, researchers have supplemented participatory methods with participant observations alongside general ethnographic interviews (Pahl and Allan, 2011; Christensen, 2004). The reason for this supplementation is to encourage children to actively engage with the research process in order to get their opinion on the meaning of their activities. In the context of young people’s participation in the research process, Pahl and Allan (2011, p.192) commented that ‘we argue from a methodological perspective, that a participatory, ecological methodology can open up a new research space, which also brings agency into the picture, as the young people in the study actively planned and delivered the research’.

McCall and Simmons (1969) describe the variety of methods involved in participant observation. They stated that:

....participant observation is not a single method but rather a characteristic style of research which makes use of a number of methods and techniques - observation, informant interviewing, document analysis, respondent interviewing and participation with self-analysis.

McCall and Simmons (1969, p.1)

In my ethnographic approach I accommodated participant observation as a complementary mode of inquiry. This allowed selective flexibility in the type and extent of participation appropriate to the ethnographic situations being encountered. These include participant observations of complex and dynamic home activities such as children's digital game-playing, using computers and using mobile phone technology, all of which involved some measure of active participation. Appropriate observations and participations over this range of options are used to create insights into the relationship between children's socio-cultural life practices and their use of digital technologies. Although my research mixed both observational and participatory methods, in this sense it is important to clarify to what extent my study is participatory. It is evident that participatory research with children can certainly be designed to empower them through listening and gathering opinion, and also include them as co-researchers. I am not however, limiting a definition of participatory research to the specific research of my research aims. My focus rather is problematising a critical reflection on the use of participatory techniques with young children while observing their activities relevant to research aims. I viewed participatory research as the ways in which I was observing, listening and occasionally responding to children's activities – I cannot discount the effect of my presence as an observer in influencing elements of what I observed. Though I could not fully be described as a participant, and though I did not directly take part in any of the children's activities, this was clearly not a 'pure' observation. In order to further my understanding, it was also essential to negotiate a positive and enduring relationship with participating families (children, parents and grandparents) during the period of fieldwork. Children willingly participated in the research and selected the observational activities themselves. They were using digital technologies linked with literacy, language and cultural practices. During the period of using technologies they were talking and interacting on screen regarding each activity. These interactions helped me to gather the meaning of their activities. In terms of including children as co-researchers, I asked them whether they were happy with me videoing them and also checked with them when I need to understand about the meaning of their activities.

Interviews with parents and children were situationally chosen, semi-structured and unstructured. I had a clear list of questions around key issues related to my research, but these questions were open-ended (see appendix 2b and 2c). This allowed interviews to be flexible and adaptive to any important issues that arose. A repeated

process was used to understand children's digital activities and interview schedules for family visits were revised as necessary. Audio and video recordings were taken for interviews and activities when appropriate. Having established methods for data collection and research design, now I am going to describe how my sampling strategy (family selection) was purposive. Then I will describe family backgrounds together with some accounts of the preliminary home visits with each family which are extracted from the field notes.

4.5 Research sample

4.5.1 Research criteria and family section

It is important for researchers to engage with their research sample criteria explicitly and reflexively (Finlay, 2003). I believe that the criteria adopted for my research sample are compatible with the specific nature of my research linked with its aims and objectives. Several selection criteria were considered for the purpose of the present investigation. In an ethnographic study, the most common type of sampling technique is purposive sampling because the fact that the participants have specific knowledge or experience (which is mediated) of interest to the investigation (Crookes & Davies, 1998). As my investigation was to understand children's literacy and language learning practices in South Asian families, my first criterion was that families should be from different South Asian cultural backgrounds. Secondly I considered children living in Northern England with families originally from Bangladeshi, Indian and Pakistani backgrounds. Thirdly, those children should be mainly in early years education (though in the course of the research interesting examples from secondary school children presented themselves and therefore, two secondary school-aged children were included as research participants). Fourthly, I specified that the families have an understanding that they were voluntarily participating and I negotiated that they would stay long term in my research. Finally, children had to have access to digital technologies amongst their family resources. This selection fits the research requirements with a view of understanding diverse cultural practices among these South Asian families and their children's learning practices. The selection of the participants was therefore based on purposive sampling rather than simply selecting them on the basis of age, gender or ethnicity.

In terms of obtaining access, I had pre-established contact with South Asian families as a South Asian who had worked with this community previously as a community development practitioner. I therefore had prior knowledge that the children of these families are involved in digital practices in their home settings as I know the parents from my previous work capacity. This is how I came to know these families.

At the initial stage of my research, it was important to know what the children did with the digital technology, as well as learn how the children talked about it, and made sense of their digital practices. I wanted to know about the ways in which I can link these practices with the children's cultural world. Therefore, I initially arranged to visit seven families from Bangladeshi, Indian and Pakistani origin.

During the initial stage of visits, my usual process became to make several social introductory contacts (in a neutral environment such as a café or a community centre) before I entered the home of a family. My preliminary intention was to identify whether parents and children were interested in my research study and if families would agree to be involved. I then arranged to visit these families on a regular basis (once every two weeks). Initially, I gathered the families' background information (provided below). I also discussed with parents and children to identify what sort of digital technologies they have. Through this process I have chosen four families due to the fact they fulfil my research sample criteria. The children who took part in the research were British born with parents of Bangladeshi, Pakistani and Indian origin living in one of the cities in the North of England. One of the families dropped out for a particular cultural reason. Luckily, three families showed interest in contributing to my research.

It could be remarked that the reason for making this selection is that I am South Asian too. However this was not just a matter of convenience. My study required insider knowledge to understand the complex process of learning involved in the ways in which multilingual and bilingual children acquire knowledge through their use of digital technology. Multilanguage learning practices can be adopted as part of heritage cultures (Gregory et al., 2004; Kenner, 2005). Nowadays children are developing literacy skills from their early years of education and 'technology has always been an essential part of literacy' (Marsh and Singleton, 2009, p.1). I take this perspective in my study to address children's literacy and language practices mediated by digital technology within South Asian family cultures. Therefore the selection of three different

South Asian families was important for meeting the purpose of my study. I began to realise that there was also a need to express my position as an insider or outsider researcher. As a South Asian, having cultural knowledge of these communities does not always position me to have straightforward access to my participants, but access can be equally difficult for researchers in very similar family life settings due to different values and beliefs. Although I am familiar with my participants' family lives, I needed a prior plan for visiting them due to cultural commonalities and differences evident between Bangladeshi, Pakistani and Indian communities. For instance, during a fasting month, the Bangladeshi family went to Bangladesh to celebrate Eid. The Pakistani family's children would be fasting and tired. Therefore I planned to visit the Indian family as they would be available for visiting in their home. I knew the mother of the child from my working capacity and had also had a prior discussion with her about my research. I phoned her to arrange the first visit with her child in their home. She mentioned that it was fine to visit them in the home but wondered whether it was the right time for me to visit them as it was the month of Ramadan. I said that during working hours it was fine to visit them and I managed to make my first visit to the home. On the first of my visits, the mother and her son were busy downloading wireless software and drivers for Windows due to the fact that the Internet connection was not working for some reason (an account of this procedure is given below). Even though in my first visit I had identified that this family matched the criteria for my research, and the mother knew me before I visited the home, I still had to take time to build rapport, trust and confidence with the participants (the child and the mother). The same process was followed for visiting the Bangladeshi and Pakistani families in their homes. I also believe that although I considered myself an insider, I still felt a challenge because conducting research in a participant's home might encounter families' values and practices. I had to maintain my personal adaptability and responsibility for continuing my relationship with (participant) family members throughout the research process.

Most importantly, I have selected South Asian families because it is also noticeable from the existing relevant literature that research regarding the daily life routine encountered by children from ethnic minority groups in the context of children's digital practices is still inadequate (Marsh, 2005; Levy and Marsh, 2011). More details regarding this area were previously described in the literature review.

4.5.2 Three Families Profile

From November 2010 each family's profile was extracted from the field notes of initial social visits in the café, community centre and homes. I arranged a few social visits to the homes of three families and collected the family's contextual information. I have provided an account of the preliminary home visits below. This is for the purpose of providing my observation of digital resources available to the families and also to give an impression of the families' everyday life practices.

Family One:

This is a British family from Pakistani heritage. This family's heritage language is Urdu. The first generation of this family came to England in the 1960s from a Mirpuri Pakistani background. The first generation of this family (the maternal grandfather) worked in the cotton mills in London and in 1963 the family moved to Northern England to work in the steel industry. The grandmother of this family got married when she was 14 years old and came to the UK in 1971. She used to work as an Asian dressmaker. The daughter is the second generation of the family: her children are the informants of my study. This family is living in a terraced house and in a community that has a predominantly Mirpuri Pakistani concentration along with other ethnic minorities, located in the North of England. I am familiar with this area as my previous workplace was located there. The area's multiculturalism is evident from its diverse immigrant group cultures which influence each other's music, fashion and cuisine. The communities are: Somali, Yemeni, Libyan, Iraqi, Pakistani, Bangladeshi, Portuguese, French and Indian.

During my first visit to the home the conversation with the mother concentrated on their house and the extension work. The family were making their bathroom bigger by extending it to another room and were also enlarging the kitchen by enclosing some outdoor space. The house was built in 1940 when most of the large terraced houses in that area were being constructed. The family moved to their current house in 2006.

My access to this family came through my previous employment as a community development practitioner. The mother of this family used to work in the voluntary community sector. Her name is Sazu, aged 35. Her husband works at an American

business firm as an assistant manager; she and her husband were born and brought up in England and studied up to university level. She has four children: three girls and a boy aged 12, 10, 3 and 1. The eldest daughter, called Sima, has an autistic spectrum disorder and expressive and receptive language difficulties. She had just started secondary school when I first visited her in November 2009. Her second child Amina (daughter) is at junior school in Year 5 and their third child Mustafa (son) is in a nursery. The youngest child is the one-year-old daughter Rubi. Except Rubi, these children are attending Local Education Authority (LEA) schools and they are also attending a local mosque (out of school hours) for acquiring Qur'anic (Arabic) literacy.

An account of the preliminary home visits: It was Saturday 6th February 2011 at 1.30pm, after the family's lunchtime. As I stood outside the doorstep knocking at the door, I noticed some outdoor toys scattered in the yard, just outside the front door. The front yard was paved with concrete slabs. The toys were made of plastic and included: a pink bicycle, blue cars, a blue horse roller, pink roller skates, a yellow car with a rolling handle and two helmets in one corner of the yard. I considered the meaning emerging from the toys as being connected to the children's popular culture, their age and gender. This landscape of the front yard of the family home offers the viewer a sense of the children's popular culture (Marsh *et al.*, 2005) and also defines the space for children. The toys also reflect the children's ages and genders as discussed with the mother. The mother mentioned that all pink-coloured toys belonged to girls and blue-coloured toys were for her third child (boy). She said that most of the toys were birthday gifts from relatives (children's uncles/aunts, grandmothers and grandfathers). The toys reflect the sense of time and space in the home. 'When we use words, we are always situating ourselves; when we read contexts, we are always reading words and discursive relations extending into other space-time' (Sheehy and Leander, 2004, p.3). The overall meaning of these toys reflects the sense of time and space in relation to the children's ages and their front yard playing space.

On entering through the front door, a shoe-shelf was visible in the hallway and the wall was painted dark blue. The floor in the hallway, living room and dining room was wooden. The living room had a brick-coloured wall, a mahogany table and a chair standing against the doorway blocking the passage between the living and dining rooms; black leather sofas were placed against the walls, and there was also a coffee-table in the middle of the room. The fire-place was situated on the front wall and

some traditional pieces were on the mantelpiece. A large mahogany-framed window with blinds was on the other side.

While I was sitting in the living room the children's mother offered to show me around the house and see the extension work. I observed when walking around the house that the children's activities involve a computer, TV and mobile technology.

The children were watching TV in the room adjacent to the living room. In the corner of the room, there were a fair number of toy cars that belonged to the family's third child, a boy. I returned to the living room and sat there. After a while the eldest, Sima, came to sit beside me. I asked where her brother and sister were.

She commented: 'My brother and sister are watching TV, "the Ugly Doggy". It's about this dog and it's ugly. Everybody hates him.'

I asked: 'why?' Sima: 'Because he looks ugly and small. He is there all the time. My brother likes watching this programme. I don't like this.' She said that she was downloading a Hindi movie to her computer. I asked, 'Where is the computer?' She said: 'Upstairs in the study room. ..It's my computer'. I asked, 'What sort of activities do you do with this computer?'

Sima: 'Sometimes I do my homework, and sometimes we get to watch films, Indian Hindi movies. We get the BBC and play games'.

P: 'What sort of homework do you do on the computer?'

Sima: 'Sometimes science homework, English homework, and sometimes I like to research stuff about history.'

In my first few visits my intention was to socialise with the family and then to observe what sort of digital objects the family had, because my study involves observing their activities linked with the digital technologies they possess in their home. I gradually moved the discussion towards my research with parents and children, and ethical issues that related to my study. I always carry my equipment while visiting homes (a laptop, video camera, audio recorder, and diary for writing short notes) so that I do not miss any opportunity to capture important data. Luckily, in the first visit, the eldest child asked curiously why I was carrying all this equipment. I thought that this was the right moment to introduce my research and build a rapport with the children. I also thought that they could gain an overview of the areas of my research by watching the PowerPoint presentation on my laptop about it (included in the Appendix 4). I offered to

show them the presentation about my study. It seemed that the mother and the children found it interesting to observe some of the digital objects in the presentation. It is important to know how my informants view me. Although it was too early to know this I got the impression that the mother viewed my work positively. She understood that my intention was to identify how her children were learning through the use of digital technology. She mentioned that her eldest child's learning development is slow relative to what might be expected for her age. The mother expected that I might help her to identify the way in which her eldest child learns better. She intended to inform the child's school teacher of this.

Family Two:

This is a British Indian Punjab family. The participants in my research are a mother and her son Raju (11 years old). The mother of this child is originally of North West Indian Punjab heritage and can speak Hindi, Urdu and English. This family's home language is Hindi. The child's father was born and brought up in England and studied in England. The first generation (paternal grandfather and grandmother) of this child's family came to England from Indian Punjab heritage before the 1960s. The child's father is the second generation. The child's mother mentioned that her marriage was arranged through family members. This child's parents are divorced. Sometimes the child's father visits his son. The mother used to work as a community development practitioner in an Asian women's resource centre but due to a funding crisis she is not working at the moment. She has a medicine degree from an Indian university. This family is living in the same area as Family One and recently moved into a semi-detached three bedroom house in the North of England. My access to this family came through a Bengali women's community support group which the family belonged to; I too am a member of this group.

An account of the preliminary home visits (July 2011): When I first saw Raju in their home, he was assisting his mother to connect a wireless Internet router. My preliminary discussions about my research with his mother began with a few social visits (July 2011) in a café and also in a community centre. I also gathered the family's contextual information through social visits. This process allowed me to become socialised with the family. I established mutual trust between myself and my research participant (the member of the family) in the following manner: the child was in a

summer school while I talked to his mother in the café and he was also attending private lessons out of school hours in order to improve his literacy and numeracy skills. The child also attends the Hindu temple occasionally. I asked the mother to tell her son about my study before I met him. The following day she told me over the phone that her son was interested in getting involved as a participant in my study as my research relates to children's use of digital technologies. She mentioned that her son uses assorted digital equipment (e.g. a computer, console games, Playstation, e-Learning sites, mobile phone technology).

The first day of my home visit was towards the end of September 2011. As I entered the home I noticed that some decorating work was going on both upstairs and downstairs. The hallway and the staircase were covered with unused cloth to protect the carpet. The mother showed me the finished decoration in the lounge and new wallpaper already in place in the kitchen. She mentioned that upstairs was still messy because she had left all the decorating equipment in her son's bedroom where a computer, X-box, and PS 3 were located. She also said that the Internet connection to the laptop was not working and they were trying to fix it. The discussion with the mother allowed me to collect information about digital objects that the family had which related to my investigation. The latter conversation gave me some idea of the child's activities in the home with reference to digital technologies such as the computer, laptop, HDTV, X-box, PS3 and computer games. More information about the child's digital practices will be provided in the data analysis chapter. The mother mentioned that a couple of days previously her son had connected a video camera in her laptop, after which the laptop's internet connection had not been working. Their Internet provider had advised them to install Intel wireless software in another laptop and transfer it to their laptop. As I always carry my research equipment while visiting to homes, including a laptop, I was able to offer them the use of my laptop in order to fix their internet connection. The mother made a phone call to the internet provider and discussed the problem. The mother called her son to come downstairs. Her son sat beside his mother and helped in downloading the software. The mother and the son collaboratively downloaded Intel wireless software and associated Windows drivers in order to get the Internet connection running. The installation was completed successfully in their laptop. The child said 'Mum, it is working'. After this I observed that the child immediately started playing a football game on the console connected to the HDTV. After a little while, the child was diverted by the conversation about children's learning processes which I was

having with his mother. It was fascinating that the child asked me: ‘what sort of learning process for children?’ I replied that children’s learning can take place through their use of digital technologies in home settings, and that I also wanted to look at whether there is a learning connection between home and school. The child responded by nodding his head, all the while continuing to use the console controller to play the football game on the TV. After two hours I realised that it would be best to leave this discussion at that point, since it was the first visit, and to come back another day to observe the child’s activities and discuss them.

The mother understood that I was a researcher and asked me whether I was employed in that capacity and also wanted to know who needed the information about children’s learning. I made it clear that I was a PhD student at the University of Sheffield and this research was for my study. She wanted to know whether she needed to bring her son to the university. I mentioned that the study is about observing children’s digital practices in their home, so there was no need to bring her son to the University. I said that the results of the study would be written up in my PhD thesis which my supervisors would read, and another external examiner and my supervisors’ contact details were provided in the ethical form. I provided the mother with the contact details of my supervisors in case she was unclear about any issues.

Family Three:

This is a British Bangladeshi family. Three children (boys) of this family are my participants who were born and brought up in England. Their ages are 7 (twins) and 3 years old. Their names are Amin, Bablu and Rumi. The children’s mother and father are native Bengali speakers who have come from Bangladesh. Their children are the first generation born in England. The mother is working as a classroom assistant for the primary school and the father is working as a computer programmer. I gathered the family’s contextual information through social visits. Children in this family spoke mainly Bengali and sometimes they communicated in Bengali and English together when communicating with their parents. They are in early years education and therefore in very early stage of learning English. They are also in a very early stage of learning Arabic for religious purposes. The children’s grandmother visits England once a year. The grandmother is teaching them the necessary Arabic for praying at the weekend, mainly bed time.

This family is living in the same areas as the other families in a semi-detached house. My access to this family came through my previous workplace and also from shared membership of community groups.

An account of the preliminary home visits: My preliminary discussions with the mother about my research began with a few social visits in one of the community centres and also in their home. Through my visits, I saw lots of digital technologies that the children were using at home. These were a Nintendo Wii, portable Playstation; tablet computer, i-Phone 4, laptop, desktop computer, computer games and Sky games through the television. When I entered the house through the front door, I heard the noise of the children playing games. Their mother welcomed me and asked me to sit on a sofa. I noticed that the youngest child (3 years old) was playing word games by using an i-Phone 4 and the twins were playing a Tom and Jerry game by using remote on their TV. I was talking to their parents regarding their children's use of digital practices that involve learning. I noticed that the children wanted to show me how they like to play with digital games. My intention had been just to do a trial video recording with the children. I was not sure that I would be able to collect any data that day, but luckily the children's activities were running in the home in any case and seemed very relevant to my research.

The youngest child Rumi, a three year old boy, was using his father's i-Phone 4 and practicing a word game. I was observing him to understand this activity. The mother said that their children like to play digital games. His mother and father were communicating in Bengali with him and also asking to do the spelling correctly in my presence. As he was learning words through digital practice, I decided to follow up his word game play activities in the next visit. This activity was video recorded (on 20th November 2011) and is analysed in chapter 6.

My relationship with this family blossomed through attending community cultural activities in the North of England and also through shared membership of community groups. The mother of this family came from an area in Bangladesh very similar to the state I came from. Thus, the customs of this family are similar to those of my family.

Finally, I have knowledge of the cultural values of these three families embedded in their home lives, in language, religion, cooking, costumes and learning practices. These cultural practices are important for me to identify the children's learning relationship between home and school. In my study the children's learning practices involve digital technologies with a particular reference to South Asian families. I became a part of these family members' well-wishers and the children call me 'Aunty' (a South Asian cultural custom). The members of all these families believe that my study is important to identify and understand children's learning processes and the family members are helping me by providing a research sample that will therefore benefit families with children in local multilingual community and educational settings.

4.5.3 Ethical information

Ethical issues inevitably arise during educational research involving human participation, and informed consent is generally taken as the foundation of good ethical practice. This is of particular importance when, as in my case, the research involves the participation of children. Flewitt (2006) draws particular attention to ethical dilemmas encountered in the case of young children who have not reached the age of consent. My research involves the use of video to investigate children's digital practices in home settings. Simon and Usher (2000) termed this 'situated ethics', indicating the need respond differently and reflexively to ethical dilemmas as they occur in the field. Serious ethical and cultural issues may emerge in deciding which portion of the videos should be transcribed in consideration of ethical concerns and respect for the participants' background and personal understanding of privacy. I therefore ensured that I used images from the video recording in home settings only with the full consent of both parents and children.

While including children in the study raises ethical challenges, excluding them is in itself an ethical issue. It has been stressed that children's voices should be heard regarding all matters that affect their lives (Morrow and Richards, 1996; Nutbrown, 2011) and it was my intention that their voices be heard in my research. For accessing children's voices, researchers must ensure that the methods used allow their participation willingly because it is particularly easy for children to feel that they do not really want to withdraw or to abstain from a research activity (though they have that right).

For the purposes of my study, the ethical process for children under the age of eighteen has been followed based on the policy and practices of my University and an ethics form was designed to provide a critical response on ethical issues affecting the research process. The participants' information sheets and consent forms were easy to read and used ordinary English language. The participants' ethical information sheet and the consent forms are provided in Appendix 1. In my initial visits, while I discussed my research with parents and children, I did not say 'sign here if you are interested in participating my research' but I informed them verbally about the ethical issues. I felt it would be inappropriate to ask people to sign in the initial visit without knowing whether they were going to participate or not. In an ethnographic study it is common to spend an extended period of time with the participants for rapport building in the initial stage.

In the initial stage some of the visits were just to observe activities while using digital technologies and chatting with children and parents just to see whether they were interested in participating in my study. These visits were not video recorded. Once I had recruited three families to participate, I arranged a separate session to explain the research aims and to acquire formal written permission. It was also a continued process that the parents were notified about video recording with regard to their views about their children's digital practices in their homes. The children's consent form was very simply designed, with a minimum number words for the children to read according to their age; in my study the children (participants) were able to read English and they all attended an LEA school. The parents also read the ethical form for their children aged 3 to 7 and children gave their consent by circling on the form with the support from parents. When the participants decided to take part in my study, the information sheet was given to them to keep and they signed the consent form. Although the participants decided to take part it was explained that they were still free to withdraw at any time, without penalty or loss of benefit, and without giving a reason. As mentioned earlier, Flewitt (2006) used video observation as a method for understanding how children's home activities mixed with, or were silenced by, institutional practices. The most important concern for me was to show all visual data to the participants to make sure that they agreed with every bit of data. I took data back to the participants to show them that the data could be rendered unusable. My point was it would be destroyed in a way that was acceptable to the participants so that, if they wished, they could actually

perform the data deletion action or they could keep it. They kept data they wanted to keep and told me that if I wished to delete unused data I could do so.

Another important issue was protecting anonymity. I used pseudonyms to protect participants' anonymity, and did not declare the name of the place in which they are living. According to the British Educational Research Association (BERA, 2004), researchers must protect participant requirements for privacy, confidentiality and anonymity. In my study all participants were therefore fully consulted on this issue and their requirements given primacy. Providing written information to participants is good practice but at the initial stage of negotiating participation I believe that it is important to discuss my role and my research topic verbally and socially. There was therefore a need to plan how I introduced my research topic to my participants and to prepare what I was going to say to the children. My introduction observes the need to communicate with them in words and language with which they are comfortable, this is as follows:

My name is Parven. I am studying at the University and doing some research. My research project is about children's activities linked with their use of digital technology in the home. I have already discussed my research with your mum. You and your mum are being invited to join my research project. Before you decide I would like to help you to understand why this research is important and how important you will be to it. This research is important because I want to understand the activities you and your brothers and sisters do at home using digital technology. These include: computing, playing digital games, communicating with friends and families, videoing, watching television, helping with your schoolwork and anything else that interests you. This will take some time, probably many months, as I expect that you are very good at using technology – probably much better than me and there will be a lot for me to learn. Later on perhaps you can answer some questions for me to get me started but in the meantime let us play a game.

I will give you a piece of paper with a list of digital resources. If your activities are linked to the use of computers, digital games or other digital technology then you can mark it on the list. I will ask you which activities you do at home, so that I will be able to see what interests you. If you spot that I have missed something from

the list let me, or your mum, know and I will add it in. If you need any help with the marking in the list again let me or your mum know and we will help you.

This list was helpful for finding out particular activities that interested children in their home environment and I also used an open ended questionnaire (See appendix 2).

The main part of my research is to video your activities under the supervision of your parents or in my presence. I would like to know your preferences about how you would like to be videoed. You can either have a family member video you or I could video you. The video can be taken while you are playing digital games or involved in any other activities by the use of computer with your brothers and sisters at home. Then I will observe this video clip in order to describe it. Then I will need you to check what I have done, so I will show you some images from the video and I will read out what I wrote about the particular activities that you did. If you see that I have missed something out, or have not properly understood, you can tell me.

You will not be named in the final report but I will let you know the secret name that I used instead of your real name. This is so other people cannot share our secret. Take your time to decide whether or not you wish to join in this research and if there is anything else I can tell you, please ask. If you decide to join in I will give you another paper to sign or circle it which says you are happy to work with me on this research. I will read the paper to you to make sure it is clear before you sign it.

I did not use this process with the three year old (the youngest participant) but his mother helped me to conduct the process. His mother was talking to him in Bengali regarding the process and explained where to circle if he was happy to participate.

4.6 Summary

In this chapter I presented the ethnographic methodology and methods of my investigation. I have described why I chose an ethnographic methodological approach to research children's digital literacy practices and their constructed literacy relationship

between home and school. Through the discussion on ethnographic studies (Spradley and McCurdy, 1972; Green and Bloome, 1997; Gregory et al., 2004), it is evident that ethnography often involves the study of particular aspects of people's everyday life practices or the cultural practices of a community group. In addition this chapter discussed the fact that there is no restriction to the number of methods that can be used in ethnographic study. This lack of restriction was an advantage in my own ethnography. Therefore, I used a range of methods to support an ethnographic methodological approach in order to provide information that answered the research questions. A range of methods were used for different purposes based on specific characteristics of ethnographic procedure. For example, I problematised a critical reflection on the use of Tedlock's (1991; 2000) concept of 'participant observation' towards 'the observation of participation' techniques. I viewed participatory research as the ways in which I was observing; listening to children's voices as well as video recording them in order to reflect critically on my own experience and interpretation of the field work as an insider. The children willingly participated in the research and selected the observational activities themselves. Semi-structured and unstructured interviews were also used for collecting contextual information on the children's activities.

This chapter also addressed the role of the researcher as an insider and outsider and also emphasised the importance of reflexivity within my study. Given the emphasis on studying specific groups, I found that the ethnographical approach seeks insider (emic) knowledge about how people interpret their everyday life practices to themselves and how they describe it to others. I in fact, consider my insider perspective to be an advantage within this ethnography. I recognise that this is not necessarily always the case. Bringing reflexivity into this research design helped to develop the relationship between myself and the research participants. This chapter also explained and reflected upon the research methods used in this study.

In the context of my study the specific ethical issues that involve the use of video recording to investigate children's digital practices were explored, together with an account of how I selected the research sample. Video selection and transcriptions were considered with ethical concerns and respect for the participants' privacy was taken into account.

Finally, my history of having lived and worked within the South Asian community ensured that I was able to gain the trust of the participants and could be confident of receiving open and honest co-operation. On the other hand, their responses were natural, subjective and indicative of personal opinions. My presence brought positive contribution from the children which I saw as consistent with the nature of my research. In the next chapter I will demonstrate the process of selecting data, and the process of data analysis, to demonstrate how themes emerged from the data. The validity of my research methods is addressed in Chapter 8.

Chapter 5

Data analysis process

5.1 Introduction

This chapter presents the data analysis process employed in my research. The process involved three major steps: firstly, I describe briefly the overall data set and what I have learned from it. I describe how I selected five examples of video clips from the overall dataset, relating to the ways in which children were using digital technologies in their homes. Then I explain the criteria I set up for selecting relevant and important data from the whole dataset. This also shows how I used these categories to reduce the data in the context of my video observation. I demonstrate how the five videoed episodes became central components of data. Secondly, I describe the process used to make sense of the five examples. These were then interpreted in accordance with my established research questions. This process led me to understand the themes emerging from the data description. Thirdly, the final process was to carry out thematic data analysis (Boyatzis, 1998; Crabtree and Miller, 1999) in order to achieve relevant and reliable conclusions from my research.

The whole dataset is presented in Table 5.1. The total number of visits (including video recording and non-video recording) for all families (including visits to a drop-out family) numbered forty-six. Table 5.2 presents an overview of the twenty seven visits I made where no video recording was taken. One family dropped out; therefore there were twenty one visits without video recording. Finally, three families' data sets were considered in this thesis. Therefore in total, thirty eight visits were considered (including visits for video based data). Table 5.4 gives an outline of the overall video data set, which was comprised of seventeen video clips/events in total, of which seven were rejected as not meeting specific criteria. Finally Table 5.5 presents the five video datasets, consisting of ten events in total that formed the heart of this study.

5.2 Process of selecting the data for discussion

Before I explain how I selected particular data for analysis, I intend to describe the whole dataset. The total data set was made up of many visits (see table 5.1). These were field notes taken for the purpose of rapport building that included eating food with

the families, learning about the families' background information, ethical information sharing, video recording of digital practices and semi-structured interviews when required. I took short notes during my visits. Data gathered during most of the visits were typed up on the same day as my observations, while the information was fresh in my mind.

Table 5.1: A Chart of the overall data set

Families and participants	Purpose: visited to introduce my research	Discussion with parents and children	Identify digital resources	Observed children's activities	Conversation with children and parents about filling consent form	Video recording	Video recording	Video recording	Video recording	Video recording	Video recording	Total visits over the year
Bangladeshi: Mother and twin son, youngest son.	7 th July 2011 & 17 th July	6 th August 2011 & 14 th August	3 rd September 2011	1 st October 2011 & 20 th October 2011	29 th October 2011	10 th November & 20 th November 2011	4 th December 2011	4 th January 2012 & 19 th January 2012	6 th March, 7 th March, 18 th March, 19 th March 2012	10 th April 2012	19 th May 2012	
Indian: Mother and only child a son	16 th July 2011	13 th August 2011 & 26 th August 2011	10 th September 2011	8 th October 2011 and 13 th October 2011	5 th November	9 th November 2011			Family was on holiday	Family was on holiday	6 th May 2012	
Pakistani: Mother and two daughter	23 rd July 2011	20 th August 2011	17 th September 2011	15 th October 2011 & 27 th October 2011	12 th November 2011		15 th February 2012	19 th February 2012	2 nd March 2012	10 th March 2012		
Half Bangladeshi and Pakistani: Mother and daughter	30 th July 2011	27 th August 2011	24 th September 2011	22 nd October 2011 & 28 th October	19 th November 2011		15 th April 2012	29 th May 2012				
Total participants	Total mostly purposeful visits					Total visits for video record						Total purposeful visits
6 children and 4 Parents	27					19						46

From an ethnographic perspective I needed to visit each family in order that I might get to know the family members and to collect information about the availability of digital technologies, and establish trusting social relationships with them. Therefore I made regular visits to each family, usually once every two weeks. The most important accounts of these visits were described in the methodology chapter 4 (see section 4.5.1 [research sample] and 4.5.2 [family profile and important accounts of the preliminary home visits]). These explanations are extracted from the field notes of initial social visits in the café, community centre and home. Some of this data relates to the period of rapport-building and informal conversation which took place in social settings. For instance eating food with the families was a common feature of rapport building as this is part of South Asian culture. I arranged a few social visits (see selected visits in table 5.3) to the homes of the families in order to gather contextual data and establish family profiles based on the field notes generated from the initial social visits. Through the initial visits I strove to establish rapport and a good, friendly working relationship with the families as initial impressions are particularly valuable in an ethnographic study. These visits were part of my overall data set at the preliminary stage as they helped me to collect background information relevant to my research participants. These visits also played a supportive role because they helped me to plan future visits. Finally, they helped me to focus on what was particularly important in order to answer my research questions.

Sharing food with participant family members helped me to discover common ground between myself and the participants. Existing within a South Asian cultural context, Bangladeshi, Indian and Pakistani families have a similar day-to-day basis of eating and cooking practices. I had a meal with all three families and I observed the ways in which food shaped relationships between the family members (my research participants) and myself. Family meals are a common practice in everyday family life however, people from South Asian backgrounds customarily build social relationships through food sharing; eating events naturally occurred during my field visits to the families. Social relationships occurred through the discussion of particular food making processes, ingredients, or addressing taste. Some of the accounts of food sharing events from the initial visits are described here (extracted from the field notes).

Bangladeshi family: During the school summer holiday, 14th August 2011. The purpose of my visit was to have a general discussion with both parents and

children. The mother asked me over the phone if I could come at lunch time to have a meal with the family. She said that ‘it’s nothing only *dal* (red split lentils soup) and *vath* (rice)’. I was familiar with the social cue that was used by the mother. I thought this would be a good idea to talk about my research while sharing a meal. Consequently, I accepted her invitation and I brought some tuna kebabs to share with the family. The mother cooked a variety of items. These were lamb curry, chicken curry, mixed vegetable and fish curry. This is an element of Bangladeshi family culture: they invite people in their home by saying that ‘only [modest food]’ will be provided but in reality serve lots of items on the dining table. The mother discussed her children’s food preferences. The mother said ‘children you should eat some vegetables because these are good for health’. The children said that they like meat curry rather than vegetable. I told her that my children have similar eating habits. It was a relaxing and sharing atmosphere created at the dining table. The main purpose was to enjoy a meal with conversation which occurred naturally. In my prior visits, children were given a simple introduction to the methods of my research. They were aware that video recordings would be taken while they played digital games or were involved in any other activities such as using a computer with their brothers and sisters. Interestingly the children asked me which game play I wanted to watch. I said that I was interested in any activities they do using the computer or any other digital device. Amin and Bablu both mentioned that they use the Internet to do school homework, and play memory games using a Nintendo DSi. They told me that Rumi loved to watch TV cartoons, and that if he was able to get hold of it, was reluctant to relinquish his mother or father’s mobile. I felt that I gained some background information relevant to my research from the exchange held at the table. Our discussion also included an appreciation of, and respect for, the food; thus allowing rapport building between me and the children.

Indian family: It was a somewhat chilly Saturday evening on 8th October 2011. The purpose of my visit was to observe Raju’s engagement with digital technologies that naturally occurred in the family. I knocked at the door and Raju’s mother opened it. She said that her son was playing outside, and then she immediately called him loudly to come back. She also mentioned that their Internet connection broke and her son got fed up without the Internet. I said that I would come another day. Immediately she then invited me to ‘come in and have

a cup of tea' if I was not in a rush. It was an invitation to socialise. I accepted her offer, thinking that if I were to wait, Raju might come back. Raju's mother welcomed me and asked me to sit on a sofa. After a while I could hear the voice of Raju and he entered the lounge through the kitchen door. I said 'Hi Raju, How are you?' He said that he was bored as there was no internet. Straight after, he said 'Aunty can I use your laptop?' So I said 'Yes'. He tried to connect to the internet on my laptop by using their WPA code. After a while he decided to give up as it did not work. Then, he asked for food. His mother said that she put pizza in the oven. I said 'have a dinner with Raju and I will come next week, hopefully the Internet will be fixed up by then'. Raju's mother however, said to me that she is vegetarian, if I like I can have a meal with her. I said 'ok', thinking that accepting the offer of having a meal together is respectful in South Asian culture. She was talking about some family matters with me while making chickpeas with spinach and wrapping with tortilla.

While Raju was eating, he asked his mum about which day their Internet will come back. His mother suggested probably next week. Then he said to his mum, 'Can I go to Aunties' house to use internet. I want go on my Facebook' His Mum then said that he should do his homework. He said that he needs Internet to do homework. At the same time he said that he found school homework boring, and lot of pupils don't like it. I then asked 'What kind of homework do you do using the Internet?' He replied, 'Geography work, Spanish language using Google translates, sometime I watch YouTube and also practicing maths.' The mother said that she needed to check her email. She said to Raju, 'we need to change our Internet provider'.

The overall dining table conversation indicated that the family is annoyed by their home Internet service provider. Although this event might simply be classified as a rapport building visit, interestingly through eating food I actually collected research relevant information.

Pakistani family: The purpose of my visit was to discuss the children's activities in the home and the mother's perspectives on it. I phoned the mother to make sure that the appointment was still ok. The mother mentioned that the children were going to the mosque in the morning as it was school holiday time. She said,

'they are coming lunch time. You can come lunch time and have a chat with us'. The next day I went to visit the family at their home. The mother started with the discussion of one of her children's special educational needs support. She said with sorrow that it has been a long process to get access to this learning support service from the LEA (Local Education Authority) and the education system didn't provide a clear route for getting access to special needs educational support. Although this information was not directly relevant to my research, I felt that the mother was seeking a space to share this with someone. Spending social time with families was the part of the rapport building process, I wanted to make sure that the parents and children were comfortable discussing everyday family life activities with me, with particular reference to their use of digital technology.

During our conversation the mother was fetching food from the kitchen, I was also giving her a hand. She cooked some delicious spicy chicken samosas, lamb curry with potatoes and bread (chapatti). While I was eating I said 'home made samosas are always very tasty'. I asked for recipes. The mother was talking about all the ingredients of making samosas and also how to make it. The children were listening and eating. Before I left, I said to children 'see you next week'. The children said, 'are you bringing the video camera next week?' I said, 'yes'. Amina said 'Ok, we will play Nintendo wii game'.

As mentioned earlier, the overall dataset was comprised of numerous home visits, some of which were video recorded and some not. Table 5.2 presents an outline of visits I made where no video recording was taken.

Table 5.2: A Chart of the data set for visiting families (without video recording)

Families and participants	Purpose: visited to introduce my research	General Discussion with parents and children	Identify digital resources	Observed children's activities	Conversation with children and parents about filling consent form	Materials used for note taking
Bangladeshi: Mother and twin sons, youngest son.	7 th July 2011 & 17 th July 2011	6 th August 2011& 14 th August 2011	3 rd September 2011	1 st October 2011 & 20 th October 2011	29 th October 2011	Laptop, Pen, note book and Diary
Indian: Mother and only child (a son)	16 th July 2011	13 th August 2011 & 26 th August 2011	10 th September 2011	8 th October 2011& 13 th October 2011	5 th November	Laptop, Pen, note book and Diary
Pakistani: Mother and two daughters	23 rd July 2011	20 th August 2011	17 th September 2011	15 th October 2011 & 27 th October 2011	12 th November 2011	Laptop, Pen, note book and Diary
Half Bangladeshi and Pakistani: Mother and daughter	30 th July 2011	27 th August 2011	24 th September 2011	22 nd October 2011 & 28 th October 2011	19 th November 2011	Laptop, Pen, note book and Diary
Total participants	Total visits					
Main 6 children and 4 Parents played supportive role	27					

The above visits played an active role in establishing rapport with both parents and children and were recorded as such in my field notes. Sometimes I just observed children's play activities without video recording to gain familiarity with their activities and routines. This data was not used for analysis but provided the context for my study. It also helped me to plan for further visits in order to focus on what was particularly important in order to answer my research questions.

I began the process of data reduction by sorting the data into broad categories, for instance 'children's interaction with technology' and 'children's interaction with older generations'. I began to realise from the outset though that it was not always easy to assign data to certain categories. There were different kinds of episodes, reflecting the ways in which each child used digital technology and communicated with their parents and grandparents. As mentioned earlier, all the visits within the context of rapport building were also part of the overall dataset which played a supportive role in collecting research relevant data while children were using technologies related to literacy and language practices from within their heritage culture. I admit to feeling somewhat overwhelmed by the data at this point, and spent considerable time working out the best way to sort and reduce. I would describe this initial sorting as 'messy'. I decided firstly to sort according to the diverse use of the children's digital technology (Nintendo DSi, Nintendo wii fit, computer, use of Internet and i-Phone 4). I selected those parts of my dataset where children's activities were particularly relevant to my research questions. It was necessary to devise further criteria for data reduction, as discussed next section.

The criteria for selecting research relevant important data from the whole dataset:

In this section, I describe the criteria for data reduction and how I came to select these criteria. The criteria for data reduction were produced from the process of looking at the whole dataset. The whole dataset included video recording and the field notes from non-videoed visits. I used five criteria for selecting important data for analysis. These five criteria for data reduction are presented and described in a chart below.

Table 5.3: The criteria for data selection from the overall dataset

1. Relevance	South Asian children's use of digital technology, reflecting knowledge transfer between home and school, literacy, languages and cultures.
2. Variety	Varied in terms of the cultural and language diversity of families of South Asian origin and in the type, ability level and use made of technology.
3. Commonalities	All participants to be observed in their home while using technologies. School connected activities to be observed in the home.
4. Video quality	The sound quality is sufficient to be able to transcribe participant's speech. Camera focus gives primacy to viewing children's screen-based activities. Lastly, if required, to get additional data relating to gesture, posture and gaze.
5. Participants	Consent given by all participants, no focus on gender so mix of boys and girls across the events. All activities to be participant centred without regard to the ability range of children. Older generations free to get involved at their own and children's discretion.

Relevance: When I looked at the dataset as a whole, I was looking for examples of when the children were using digital technology. The central focus of my study required prior knowledge of the children's digital literacy practices and the digital resources available to them in the family home. Discussion with parents identified what digital resources were available to the families and, together with the parents, I marked these off on a list. Appendix 2 presents a list of the digital resources identified in all participants' homes. I also prepared a clear list of open-ended questions (also presented in Appendix 2) around issues related to my research topic. This allowed my interviews and interactions to be flexible and also helped to promote awareness of the family profiles.

Variety: When I read through all of the field notes and looked at the videos I found that there were a variety of different events and their associated activities observed in the three South Asian family homes, one each of Bangladeshi, Indian and Pakistani cultural origin. Each of these homes had British born children. The observed events were varied in term of language practices, which included Bengali, Hindi, Urdu and Arabic and also in terms of different cultural practices and beliefs. My study sought to understand how literacy and language learning for these children was influenced by their multi-lingual and multi-cultural heritage and to understand the use made, and support obtained, by digital technology. Therefore it was necessary to ensure effective coverage and selection of events to reflect the variety of practices and resources that I had witnessed in the home during my research study. I selected around two-thirds of the data because it was very rich in relation to my study.

Commonalities: All events related to children using digital technologies were multi-lingual and multi-cultural. I was looking for patterns across the data in order to look at the ways in which home and school were connected. I therefore selected some episodes in which this was a factor in the data.

These events had to be school connected in some way as the research questions were concerned with the relationship between home and school in terms of learning, with particular reference to the use of digital technology. Ages of the children were between 4 and 13 years.

Video quality: I needed to ensure that video recordings were of sufficiently good quality to be usefully transcribed. In some cases background noise in the home by the members of the family made recordings unfit for purpose. For example, in one event quite a number of children including my participants and their friends were talking and dancing together while playing generator REX, Tom and Jerry on the Sky TV game. They were all talking together very loudly and it was not clear who said what. The data obtained under such conditions was unreliable and inappropriate for the purposes of my research. Although the camera was positioned behind the children, this event was also excluded because ethical permission for my participants' friends had not been obtained. Due to unclear recording, lack of ethical consent, and research participant drop-out, I discarded seven video clips.

Participants: One of the criteria was to receive the full consent of both children and parents. I had spent a considerable amount of time with both children and parents as mentioned earlier in section 5.1.1. The final data set included three families with diverse backgrounds and shared commonalities all of whom met my selection criteria.

The overall video based dataset and its relationship with five selected video examples:

The purpose of this section is to introduce the overall video-based data set and explain its relationship to the five sets of selected video examples. As mentioned earlier, through the visits of three families I identified what kind of digital resources were available to them and what they did with it. I then decided to use the video camera for collecting data while children engaged with digital technology. I did not conduct any video recording when conditions were inappropriate, when, for example, the children were not in a co-operative mood for whatever reason or there was too much noise or activity interference from other sources. Most of the children were regularly attending the mosque and therefore most of the visits were arranged for the weekend, evenings after 5.30pm and during school holidays. Prior to a visit I always confirmed by telephone that it was still convenient for me to visit the family and made alternative arrangements if necessary. Phoning was also a useful way of maintaining contact and rapport with the family members.

My data was obtained mainly by video recording and field notes which collectively contextualised the data so that the family environment and children's digital activities were not only captured by the video camera but, together with other associated issues, were witnessed by me (as researcher). The duality of this process was essential as attention to the context and variety of the data is central to understanding the event being witnessed. The field notes consist of the date, the length of the interaction and the background information before transcribing video clips.

In order to ensure the observance of my selection criteria I needed to familiarise myself with all of the data collected by reviewing the nature of the data, reading field notes and listening to and observing the video clips repeatedly. In order to select data that met the criteria described above, I explored connections and relationships between my overall data set, existing literature and my research questions. This involved a constant revisiting and reviewing of connections and relationships.

Now it is important to describe how I organised the video based data set. Once the children's activities were video recorded, I transferred them to a computer and logged each tape on the same day. The list of all the video clips collected is provided in table 5.4. I also wrote up my field notes on the same day that the video data was collected, while the non-recorded issues were still fresh in my mind. The field notes included the time and day of the data collection, background information for each video clip or issues that the video camera did not catch. Before transcribing the video data I watched and listened to each video clip several times. A list of all the transcribed episodes with dates is provided below in table 5.6. I needed to do this in order get an overview of the ways in which the children communicated and interacted with digital technology and to ensure, as far as possible, that nothing important escaped my attention. As I collected a large amount of qualitative data I needed to organise it for sorting, selecting and categorising in order to retrieve it without difficulty. I therefore created a folder for each family. These are BD (Bangladeshi family 1), IN (Indian Family 2), PK (Pakistani family 3) and Half BD and PK (Half Bangladeshi and Pakistani family 4). It is worth mentioning that the family 4 dropped out and as a result is not included in the study. Then I kept all video recorded film according to the family identity and then named all the video films according to children's digital practices (for example Nintendo Wii, Nintendo DSi, computer games, PowerPoint presentation and so on). In total, sixteen video clips were taken among four families. This includes the dropout family. Two interesting video clips were taken from the half Bangladeshi, half Pakistani family, concerned with Asian dance, and the girl was learning to dance by downloading South Asian dance routines from the Internet in her home but this event is excluded as the family dropped out for cultural reasons. In one example of video recording in the Indian family, the child Raju's activity with installed software was videoed but this recording was not clear in terms of speech and camera positioning, and therefore I didn't select this event. I have selected one of the examples of the video clips where Raju was learning and practicing the Hindi language supported by using the Internet. This example was much clearer as compared with the previous video clip.

There were nine video clip examples taken from the Bangladeshi family. Four examples of video clips were not selected due to not meeting the given criteria. These were: Amin, Bablu, Rumi and their friends were randomly playing games on Sky TV. I was watching them just to understand what they were doing, however I realised that I

did not have their friends' ethical permission. Due to ethical reasons this event was not selected. While selecting data I was aware of balancing the number of times each participant was videoed, while also making sure that the recorded activities were relevant to my research questions. Therefore, I did not select the clip involving the Star Wars II computer game. Amin, Bablu and Rumi played the same Nintendo DSi game randomly on several occasions. As a result, I needed to give priority to selecting one episode with the Nintendo DSi game. Three examples of video recordings were selected from the Bangladeshi family and these included four different digital resources (Nintendo DSi, computer use through the Internet, and mobile iPhone 4). These were sorted according to each child's digital literacy practices. It also includes sibling sharing activities while using digital technologies. There are four examples of video clips that were taken from a Pakistani family and these included a Pakistani wedding PowerPoint presentation for use in the school (two part). The clip depicting the Nintendo Wii game, played by a young boy called Miran (5 years), unfortunately could not be selected due to the involvement of his cousin and friends who were talking while he was playing and their consent had not been previously obtained. 3 year old Rubi videoed his brothers' activities but unfortunately it was not recorded properly and this was a very small clip (2 minutes duration). This was not selected. I have described which data were not selected and why. These are also indicted in the table (5.4) below.

Selecting criteria for data reduction allowed me to observe, over time, a specific example of a particular digital practice in a particular cultural setting. Each example involved several recordings spread over several visits as they related to the continuation of the same digital practices. The time and date for each visit were recorded in the field notes and the total time for each video clip was recorded electronically. For the purpose of analysing children's activities, all the still images were captured from the video footage. In total 40 images were captured from five clips. The overall process of sorting, selecting and categorising helped me familiarise myself with the data so that the overall data could be easily accessed. In total, I video recorded seventeen events involving children working with digital technology and from these I selected the five examples which consist of 10 events, detailed in table 5.4.

In total, five examples were finally chosen (see table 5.4) from the data source provided by the three South Asian families according to the criteria already discussed. These five examples were very important to this study as they formed the substance of

the data used to answer my research questions. These are presented below mainly by reference to video recordings. Example 1 consists of two events entitled 'Creating a PowerPoint presentation on a South Asian Wedding at home'; example 2 consists of one event 'A young child's use of Google translation for learning Hindi literacy in a South Asian home'; example 3 consist of three events 'A young child's use of a mobile i-Phone 4 in a South Asian home'; example 4 consist of three events 'A young child's use of a Nintendo DSi Brain training game played in the home environment and twin brothers spelling test from their school' and example 5 consists of one event 'A young child was searching Qur'anic literacy through the use of Internet in a South Asian home'.

The chart shown below (5.4) presented the overall video data set where the five selected examples are marked in green. The title of each of the five selected examples is presented in this table. The yellow set indicated 'not selected' and the grey set indicated that the family dropped out. In order to draw the distinction between the 'selected' and the 'not selected' I employed these colour codes. This chart, together with the other charts in this section provided the means by which I was able to identify significant themes consistent with the data and which could be used to interpret that data.

Table 5.4: Data Source Summary Chart for all video clips of an ethnographic study

Date	Video recording	Digital Resources/ home work from school	Participant's Name & Age	Ethnic origin
9/11/2011	1. 15 min 9 sec	Installed software, to get internet access. This event recording was not clear.	Raju, 11 years old	IN
10/11/2011	2. 1 hour 10 sec	Sky TV Games: Generator REX, Tom and Jerry. Not selected due to ethical reasons	Amin, Bablu, Rumi and their friends	BD and others
20/11/2011	3. 24 min 14 sec	iPhone- 4 (word game)	Rumi, 4 years	BD
4/12/2011	Semi-structured interview regarding video: 30minutes app.	With Rumi regarding his word game		
6/3/2012	Semi-structured interview regarding video: 30 minutes app.	With Rumi's mother regarding his word game		
7/3/12	4. 1 hour 30 sec	Nintendo DSi showed interest	Amin, 7years	BD
18/3/12		Nintendo DSi (spelling, colour and drawing game)	Amin, 7 Years	BD
19/4/12		Spelling from school to home	Amin and Bablu twins brother, 7 years	BD
4/1/2012	5. 10 min 3 sec	Star War II computer game (Not selected due to the number balance between the twins)	Bablu, 7 years	BD
15/02/2012	6. 55 min 10sec	Computer and Internet used for creating PowerPoint presentation on South Asian Wedding.	Amina, 11 years and Sima 13 years	PK
19/02/2012		Nintendo DSi (Match game) Not selected due to balance	Bablu, 7 years	BD
10/4/2012	8. 13 min 5 sec	Nintendo DSi Brain training (colour game) Not selected as same activity included in example 4	Amin, 7 years and Rumi 4 years	BD
6/5/2012	9. 12 min 38 sec	Hindi language learning through the use of Google Internet search.	Raju, 12yrs	IN
2/03/2012	10. 10 min 50 sec	Big brain academy (Geometrical shapes) Not selected due to unclear video recording because his cousin and friends who were talking while he was playing.	Miran, 5 Years	PK
10/03/2012	11. 2 min	Rubi videoed his brother. This was very small clip. Not used in this thesis due to short duration	Rubi, 3yrs and Miran 5yrs	PK
19/5/2012	12. 17min 14 sec	Qur'anic literacy practices through the use of Internet (selected)	Bablu 7 years	BD
15/4/2012	13. 15min	South Asian dance (not selected due to drop out)	Sazu, 13 years	Half BD and PK
29/5/2012	14. 30 min 45 sec	South Asian dance (not selected due to drop out)	Sazu, 13 years	Half BD and PK

Total visits for video recording: 19 (5 examples selected over 10 visits)

Total time for 5 examples (consisting of 8 clips) = 3 hours 48min 46 sec

*BD = Bangladeshi; PK = Pakistani; In = India. All of these children are British born and their parents are from South Asian origin.

Table: 5.5 Five selected data sets (consists of ten events)

Examples/ Children's name	Video data taken	Languages used in episode	Children's use of digital technology
Example 1 (Sima and Amina): Creating a PowerPoint presentation on a South Asian Wedding at home.	15/02/2012 and 19/02/2012	English and Urdu. The episode focused on literacy and culture	PowerPoint presentation and Internet
Example 2 (Raju): A young child's use of Google translation for learning Hindi literacy in a South Asian home.	6/05/12	English and Hindi. The episode is focused on language and culture	Laptop and Internet
Example 3 (Rumi): A young child's use of a mobile i-Phone 4 in a South Asian home.	20/11/2011 Semi-structured interview: 4 th December 2011 and 6 th March 2012.	English and Bengali. The episode is focused on English literacy learning.	Mobile i-Phone 4
Example 4 (Amin and Bablu): A young child's use of a Nintendo DSi Brain training game played in the home environment and twin brothers spelling test from their school.	7/3/12, 18/03/12, and 19/04/12	English and Bengali. The episode is focused on language and literacy learning.	Nintendo DSi Brain training game
Example 5 (Bablu): A young child was searching Qur'anic literacy through the use of Internet in a South Asian home.	19/05/2012	English and Bengali. The episodes are focused on language, literacy and culture.	Used computer, Internet browser and YouTube.

After the selection of the five video data examples, I realised that I needed a process for describing this data.

5.3 Process of data description

The next step in the process was data description and interpretation which was intended to support the emergence of viable research themes. The transcription of the data helps to describe data for the purpose of interpreting and then analysing it. Wolcott (1994) described the process of data analysis by introducing three terms in qualitative inquiry. These are description, interpretation and analysis. He stated that

'description addresses the question, what is going on here?'; 'Interpretation addresses processual questions of meanings and contexts'; 'Analysis addresses the identification of essential features and the systematic description of interrelationships among them - in short, how things work' (p.12). I observed the video based raw data slowly and closely, moment by moment, unfolding each of the episodes. In the light of my research questions this brought in different concepts of transcribing and describing data in the provisional stages. This was the initial exploration just to see whether they could help to illuminate what was going on. For this immersion process, I tried to work out a set of principles by thinking rather than writing. I spent hours and days characterising interactional meaning-making by the children. In order to do so, a multimodal process of transcription was required. Multimodal transcription helped me to constitute the data as descriptive resources, to refine my interpretation and analysis. In addition to video data, some descriptive account is also needed of the data obtained through my social visits. This data also required organisation and interpretation (described earlier).

Since so much of my research relevant data is video based, consisting of both visual and speech communicative modes, which involved multiple modes of communicative practices, I decided to address my video based data using multimodal transcription. This supported a rich representation of the continuous interaction between method, data analysis, and theory. Norris (2004) and Flewitt (2006) suggest that, in order to describe the nature of the video based data, multimodal transcription is required. Flewitt (2006) acknowledges that video recording produces rich data for ethnographic study although the researcher needs other supplementary methods, such as field notes and interviews.

Flewitt (2006, p.39) states that:

This multimodal matrix reveals more about the sequencing and simultaneity of speech, gaze and movement. The separate columns display how different modes operate simultaneously as interwoven rather than sequential separate elements in the discursive practices of the setting.

Flewitt acknowledges that while different modes are displayed in separate columns in the multimodal transcription they are not separate elements to consider in the context of meaning. It is also problematic for the researcher in deciding which and how many modes to include in the descriptive transcription.

I also took the precaution of checking with the children my interpreted meaning of the transcribed data of their digital practices. The stages I followed in order to transcribe the video data are presented with a small sample example in table 5.4.

Stages of transcription of video recording data:

In my study, I transcribed video data from my observations and also incorporated the participants' views. Transcribing video data is complex as it involves multiple modes (gaze, gesture, posture, spoken language, colour, screen-based text) of communication. This multimodal transcription requires translating both visual and audio aspects of data. There is no single prescribed way to carry out this multimodal data analysis process (Flewitt et al, 2009). It is however useful to describe how I experimented and analysed video data to deal with audio and visual aspects (images, gaze, gesture, posture, symbols, and screen based text) of children's interactions with digital technologies. This was helpful for me in understanding the process I was using to transcribe and then describe my data.

Goodwin (2001) also made the point that representing modes other than language needs multimodal analysis and, at the same time, multimodal transcriptions need to be accessible to the reader. My multimodal transcriptions are included in Appendix 3. In Appendix 3 the transcription symbols for the participants speech following: '..' indicates a pause and '...' indicates a long time pause (approximately 2 to 3 minutes). In Chapter 6 and 7 the transcription style used for participant speech is indicated by inverted commas and is italicised. In some cases data was in a different language, this appears in italics with an English translation following in brackets. Mixed language was also in Italics. In the appendix, different speech (not English) appears in Italics as I needed to translate it in English. Occasionally, in the speech column, non-verbal communication is described in brackets – this should not be taken for analysis or commentary (for example see table 5.6 (the child holds the DS as if it were a book). Reported field notes are indented (see section 5.1.2 as well as in Chapter 4, section 4.5.3).

I have presented in Table 5.6 below a small example to describe the process for multimodal transcription. For each transcript I used the same framework features for all modes in the video regardless of modal density (that is, the frequency or emphasis of

particular modes or actions). Stages of transcription of video recording data _consist of turn, speech, screen-based action, gaze, gesture and posture.

In my study children's screen-based communicative practices are mainly mediated by their use of computers, mobile phones and Nintendo-DSi game play. These are described in the next process of data analysis where possible themes emerged.

My main focus of the data analysis process is to observe children's screen-based activities while using digital technologies. Therefore, the video camera positioning was mainly focused on children's screen-based activities. It was not always possible to present visual images of the facial expressions of each of the children in the thesis. Part of the reason was my research interest was directed towards the capture of screen based activities. The digital technology mediated interactions of children were the central focus of my research.

I divided these interactions into six columns in the transcription grid presented below in table 5.6. These are turn, speech, screen-based action, gaze, gesture and posture. The first column is simply a numerical reference number of each individual activity in the video film. Each individual activity is a child's communication act as part of the overall activity in the total event on the video recording. The next column is 'speech' engaged in by participants during the digital activities. The column 'screen-based action' describes mainly the children's activity and performance in relation to their specific digital practices. The multimodal element of gaze relates to the child's concentration and point of attention on the screen. Gesture was related to the signals that the child was using in order to carry out and communicate regarding their activities. 'Posture' was to indicate that whether positioning was important to carrying out activities. I have considered these modes in order to understand the ways in which children construct meaning, in what way does this meaning contribute to children's literacy learning and how do these children learn through their use of digital technology at home?

In the context of multimodality Norris (2004.p.109) discussed modal density as 'the number of modes utilized does not give insight into the level of attention/awareness that an individual in interaction employs to construct a specific higher- level action'. This means that modal density is not the only contributor to the level of interaction. In

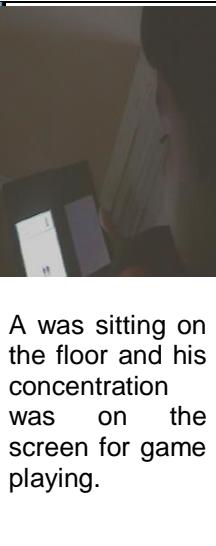
my study the depth of children's meaning-making can also be significant, regardless of its modal density. Therefore, I have not used the term 'modal density' in my thesis to describe children's interaction. I used the concept of multimodality that involves a combination of images, animations, texts and sound (Jewitt, 2009; Gee, 2003; Kress 2003; Norris, 2004). This contributes to the analysis of digital data and environments within social research. This is described in greater detail in the literature review chapter in section 3.7.

The basic assumption of multimodality is that meanings are made, disseminated, interpreted and interacted through many representational and communicative modes - not only through language or writing. I looked at the construction of multimodal texts on screen created by children through their digital practices. The data analysis focused on children's communications while playing computer games and video games and different communicative modes (language, gestures, gaze, images, written texts, music, and drawings) in relation to multimodal interaction. According to Norris (2004) a mode has no clear boundaries. Modes of communication are not a fixed set of rules because they are created through social processes. Social semiotics are an approach to communication that is associated with rules in order to understand texts as complex signs in particular social settings (Kress and Van Leeuwen, 2001; Kress, 2010). With this emphasis, a key question is how people make signs in the context of interpersonal and institutional power relations to achieve specific aims. Kress (1997; 2003; 2010) and Gee (2003) highlighted that on-screen digital practices are multimodal, involving sounds, colours, written texts, images and icons.

O'Halloran (2009) pointed out that digital technologies have a widespread scope for multimodal facilities. My study recognises how technology and multimodality relate to each other. Multimodal research has been conducted on digital practices and communication in order to theorise the nature of images, texts, on-line communication, digital narrative and literacy practices (e.g. Marsh, 2005, 2006; Lankshear and Knobel, 2003; Cope and Kalantzis, 2000; Jewitt, 2002, 2005). My research explored the ways in which children's multimodal communicative practices have significant impact for learning through their use of digital technologies with a particular reference to South Asian families and their children.

Jewitt (2009) proposes that multimodal analysis is essential in order to understand children's multiple modes of communication (through images, sound, and music). This is the reason I conducted multimodal analysis as a means of transcribing my video recordings. Digital technologies are also a mode of hypertext, which embeds writing, images, and sounds into layers of information on webpage or as part of game play. These presentations enable children to make meaning within the literacy learning process. I have presented an example below of multimodal transcription from a small video clip.

Table 5.6: Small example for multimodal transcription grid

Turn	Speech	<u>Screen based-action (relates to the use of digital technology)</u>	<u>Gaze</u>	<u>Gesture</u>	<u>Posture</u>
18 th March 2012	A: This is a Nintendo DSi play. My dad brought this for me in my birthday. I am going to play Brain training. I have to hold like this way (the child hold the DS like the way open the book). P: OK, hold it the way is right to play. A: Yes, and the whole game called, 'Dr. Quashi'				

NB: R is the child who was playing and P is the researcher.

I made a detailed multimodal interaction study (Norris, 2004; Jewitt, 2011) of 12 examples of children's communicative practices through their use of computers, mobile phones and the Nintendo DSi. My data analysis process focussed on how different modes work together to create meaning in different media and how they are linked with technologically mediated worlds. I have considered embodied modes such as language, gesture and gaze, and disembodied modes such as images, written texts, music, drawings and other semiotic resources used by the children while they worked with computers or played with digital games. I worked with these modes of communication but also incorporated supplementary methods such as semi-structured interviews (Spradley, 1979) and field notes (Wolcott, 1994) in relation to the video recording. This supplementary method is useful to gather relevant information that was not captured through video recording.

Stages of data description:

Flewitt et al (2009) acknowledge that multimodal data presents a diversity of modes that requires transcription, description and analysis. This concept also supports my study in that I needed to provide an in-depth description of the examples I selected. Wolcott (1994, p.57) also pointed out that a descriptive account is required for the purpose of analysing data: 'Whatever is to be included in a descriptive account needs to be assessed for its relevance and contribution to the story being developed'. My descriptive accounts were to describe the context and ethnographic observation and to demonstrate the cultural context for each of the examples of the video data I collected. Video observation was described together with multimodal data description. In total it aimed to show how primary themes emerged from the descriptive accounts which are now presented in Chapter 6. Following this I present an analytical discussion where I draw these examples together with the emerging sub-themes in Chapter 7. The findings and conclusions drawn on the basis of each theme are then presented in Chapter 8.

Throughout the process of dealing with data, I slowly reviewed the video clips and improved upon my strategies to identify the best possible ways of analysing the data. I reflected upon the process and learned while doing this. Dey (1993, p.78), explained that qualitative researchers 'learn by doing'. While Cresswell (1998,p.140, 142) made the observation that 'no consensus exists for the analysis of the forms of qualitative

data ... There is no manual on how to do this; it is “custom built...”. In my view this does not imply total freedom. Whatever analytic process is adopted, there is a need to establish credibility and terms of reference for that choice. My response to this responsibility is to make explicit the guidelines I followed in performing analysis; to address the analytic processes to be followed within those guidelines; finally to present a conceptual framework to show the relationship between my research materials and the analytic processes. The next section will explain how thematic analysis was employed in my study in order to reach viable conclusions.

5.4 Thematic analysis process

It is important to describe the framework for how I analysed data under the themes that were emerging from the data description. Thematic analysis is an exploration of themes that emerge as being important to the description of the events (Daly, Kellehear, & Gliksman, 1997). The identification of themes is a process that involves ‘careful reading and re-reading of the data’ (Rice & Ezzy, 1999, p. 258).

I used the thematic analysis as a process across the five data examples in great detail in chapter 7. In this context, I also will incorporate my observations and semi-structured interviews within the five sets of data. This process is seen as a hybrid approach of qualitative and thematic analysis which includes both the data driven inductive coding approach (Boyatzis, 1998) and the deductive coding derived from the philosophical framework (Crabtree and Miller, 1999). A theme is defined as ‘a pattern in the information that at minimum describes and organises the possible observations and at maximum interprets aspects of the phenomenon’ (Boyatzis, 1998, p. 161). Thematic analysis is widely used, but there is no clear agreement about what thematic analysis is and how to go about doing it (Attride-Stirling, 2001; Boyatzis, 1998; Tuckett, 2005). As Ely (1997) states, ‘If themes “reside” anywhere, they reside in our heads from our thinking about our data and creating links as we understand them’ (Ely et al., 1997: 205-6). As mentioned earlier, I needed to organise data for sorting, selecting and categorising in order to retrieve it as well as transcribe it. These are thinking processes that exist in our brain. These processes helped me to identify the nature of the practices undertaken by the children. The nature of these practices also gave me a signal of the themes emerging at this early stage. A chart is presented below to demonstrate the nature of children’s digital practices in their home. My video

observation and data transcription gave me an overview of various emerging issues (see table 5.7).

Table: 5.7: Emerging issues viewed in observation and transcription

Participants activities	Literacy	Language	Culture	Home-school relationship	Multimodality
Sima was creating PowerPoint presentation	Written cue card and creating PowerPoint presentation required certain level of literacy skills.	Communication between daughters and mother. Used Urdu words in English sentences.	Pakistani wedding	Written draft document in the school and developed cue card at home. Shared cultural knowledge from home to school.	Online and offline reading and writing practices were undertaken including the design of the page (font size, colours, shape). Written texts were incorporated with images and a video clip was also used as part of the presentation.
Raju was learning Hindi language (used Google translation)	Online reading and writing required certain level of literacy skills.	Used translation process (English to Hindi). Communicative practices were Hindi and English between the mother and the son.	Learning heritage language to access to culture.	Used Google translation for Spanish learning at school and then used it for Hindi learning at home.	Written texts were incorporated with sounds which including the design of the page (font size, colours, shape).
Rumi played word game (used i-Phone 4)	Learning phonics (how to construct words)	Phonics is a method for learning reading and writing the English language.	Parents were communicating mainly in Bengali.	Learning alphabet in school and playing a word game in the home. Also inspired by the eldest brothers school works.	This mobile phone based online interactive learning was consisting of images, sound, and colour that reflect the word meaning.

Participants activities	Literacy	Language	Culture	Home-school relationship	Multimodality
Amin and Bablu's Spelling test (used Nintendo DSi)	Memorising spelling, screen-based reading writing	Mainly communicative practices between the two brothers were in English.	Occasionally, when excited Amin and Bablu insert Bengali words in their English communication.	Amin and Bablu's spelling work from school connected to their spelling practices through the use of Nintendo DSi.	Screen – based reading, writing and memorising words consist on page design, colour, and sound.
Bablu's Qur'anic literacy learning	Bablu's online searching activities reflected his literacy development skills.	His communicative practice was mainly in Bengali and English. Searching Arabic was specific religious language.	Learning Qur'anic literacy for cultural reason.	Bablu gained online searching skills by doing school work. Then the skills used to search Qur'anic literacy at home.	Screen-based online reading writing consists of page design, colour, and sound.

5.5 Limitations of field work and research

Over the course of a year of data collection it was possible for me to identify emergent ideas for my study from the field work. Having collected an appropriate amount of data, my study contributed an understanding of the depth and richness of British South Asian children's language and literacy learning. An additional understanding of intergenerational practices around digital technologies was also obtained. Therefore the study added value to what was already known from such earlier studies.

During the fieldwork with the four families one challenging task was to manage the parents' and children's interview timetable. I was aware that visiting time should be convenient for both parents and children. The Pakistani family's parents were only available at home when the children were at school but the parents also had work commitments. This family's children were mostly attending mosque after school hours. The video recording data was taken mostly at the weekend or during school holiday time. This is why, due to time constraints, data collection took longer with some families than with others. I needed to visit participants several times but the number of the visits was not the same for all of them. The mother of the Bangladeshi family was working

as a classroom assistant; therefore was available after school with her children also back from school. She mostly preferred me visiting them after school or at the weekends, if necessary. The Indian family's mother was a single parent. She was also mostly available after 4.30pm on working days.

I gave a briefing to parents in all families about my research through social visits, before I started to collect any purposeful information. I also made them aware of my research objectives and the confidentiality about their personal details. I mentioned that parents could stay with their children while I video recorded their activities. The mothers were willingly involved during their children's activities with digital technology. It may be argued that my study reflects only the voices of children and their mothers. The fathers were however, normally working during the time I visited; as a consequence the fathers' voices were less influential in my study. During the children's activities, I observed that the mothers were encouraging their children. As a South Asian woman, due to cultural reasons, it was not easy to approach fathers unless they enthusiastically showed involvement with their children's activities. In my visit to each family, the presence of one of the parents in the home is adequate. As my research was not mainly focused on getting father's voices, I didn't give much priority to approaching fathers. I also got the impression that fathers preferred to just to greet me and leave it to the children's mother. Goldman's (2005) research on fathers' involvement in children's education suggested that fathers are less likely than mothers to read with their children and some men see reading as women's work. The bond between mother and child is a special and somehow supernatural connection which transcends mere relationship (Mitchell, 1995). In this specific context, it can be argued that the mother's influence is much stronger than the father's. Drawing on the article by Macleod, (2008) which recounts fathers' reluctance to engage with locally based family learning groups. It can be argued that this means family learning is seen by fathers as 'mother-centred' education.

In terms of selecting the sample size for my study, three families and six children seemed adequate but I understood the dropping out one family to be a limitation of my study. This family's children were mixed race in the fact that their father was Pakistani and mother was Bangladeshi. This study illuminates children's digital multi-cultural communicative practices. I understand that these communicative practices could provide new insights into grammatical construction involving two different languages

(for instance, in the combination of Bengali and English in children's communication). However I did not focus on mixed race South Asian children's use of mixed South Asian languages (for example the combination of Bengali and Urdu in their communicative practice). My study was purposefully restricted to the interaction of a South Asian language and English, and the nature and use of hybrid language in communication within South Asian families in England.

There were also issues related to the understanding of the interviewees regarding the subject matter of research. In addition there were constraints related to ethical issues and confidentiality, as most of them did not have an understanding of disclosure of information in the context of research work, I had to ensure that they understood the importance of their permission to participate in my research. The details of this are provided in the methodology chapter.

It can be argued that this area of research is selective. Firstly, I worked with three South Asian families with six children and three parents. Secondly, it may be argued that this study reflects only the voices of those children privileged enough to have access to digital technologies in the home. As a consequence there are limited opportunities for children from disadvantaged backgrounds although research suggests that they still find a way to play. According to Gee (2003, p.10):

And, yes, poor children and teenagers do play video games, even if they have to find a computer or game console at school, in a library, or community centre, or at a friend's house.

Evidence suggests that a 'digital divide' exists between socio-economic groups (Karsten, 2003), however in this contemporary, 'digital native' (Thomas, 2011) world, economic status does not deny children access to digital technology entirely. Nowadays, young people have digital technology and the Internet as a normal part of their everyday life activities as home access to these has risen over the past decade (BECTA, 2009; Ofcom, 2008).

It also can be argued that children's learning through digital games is often not 'good' learning. For instance, children can learn morally questionable things through playing violent video games (e.g. shooting and killing in games, representations of crime). Many people who know little about digital games may not be aware of their children's

learning through play and might think playing digital games is ‘just play’ or a waste of time. In this sense, I agree with Kress, who stated (2003, p.164):

Those who have been socialised into the contemporary media world may be disposed to see the screen as their point of reference for strategies of reading; those who were socialised into the former media world may see the page as their point of reference.

This can be defined as a shift in the communicative power of the medium within which text is located, for example a shift from paper based to screen-based text.

Some difficulties were encountered with participants responding to other members of the family while conducting unstructured interviews and using the video camera for data collection. This is hard to avoid in domestic situations. In order to overcome this problem, I revisited the same home as often as necessary to take additional video recordings of events to ensure that clear data records had been obtained.

The qualitative research strategies that I utilised (social visits and semi-structured interviews, participant observation and video recording) resulted in a large amount of data that was very complex to analyse. My data consisted of diversity in terms of children’s culture, age range and practice in the home environment. The children’s heritage languages were Bengali, Hindi and Urdu. Therefore apart from English, data consisted of Bengali, Hindi and Urdu. The children’s age range was 3 to 13 years, therefore the level of data was linked with early years, primary and secondary education. The three diverse South Asian family home environments were different in terms of practice. The Bangladeshi and Pakistani families’ religious practices were Muslim and the Indian family’s religious practice was Hinduism. The collected data can only be interpreted in relation to children’s literacy, language and cultural practices as reflected by their families’ backgrounds. Data sorting, categorising and selecting were complex procedures. Additionally, the video recorded data contained complex observations of multiple modes of communicative practice. Due to the boundaries of my research study, it was not always possible to capture all modes. For instance as my study focused closely on children’s screen based action through their use of digital technology, this meant that I mostly missed their facial expression. I found that if my camera was positioned towards children’s faces then I would miss their meaning of their on-screen digital practices and their speech in relation to on-screen digital actions. Children’s speech in relation to their on-screen digital activities helped me understand the meaning of their digital practices. At the beginning of each activity I captured their

facial expression just to make sure they were happy with me videoing them. I was not investigating children's emotion with regards to their digital activities, and so did not use two video cameras (to capture simultaneous action and reaction).

The children also had access to a diverse range of digital devices. These lead to a diversity of practices in supporting knowledge transfer between home and school. Questions might arise regarding the location of my research (being based in home settings) and how knowledge transfer between home and school is evidenced in that setting. This was continuously made a requirement during my interpretation of research data drawn from the observations of the children's digital literacy practices. I also asked children about their activities and whether they performed them in their school. I looked at the context of home-school relationship in terms of how children exchange knowledge from one domain to another. I particularly considered the issues of how children perform their homework (set by the school) using home-based digital technology and the associated home-school knowledge transfers. I also found out that their school homework connected to their heritage culture. Further research to involve school teachers, children and parents can be proposed on the basis of the identified potential of children's multi-cultural knowledge transfer connection between home and school. The established boundaries and objectives of my research impose natural limits, for example, although I noticed children's math practices during their use of digital technology this was not considered for analysis as it is beyond the scope of my research.

Due to the complex nature of this research which involved diversity of language, tradition, religion, social settings and values within South Asian culture, my study was limited to a small number of carefully selected families with a limited number of children. The complexity was further increased by the inclusion of the multicultural implications for South Asian families living in England.

The diversity of the data and the analysis process revealed further complexity and limits. These complexities covered various contexts: in language terms (translanguaging, syncretism and hybridity), the symbiotic nature of the knowledge transfer relationships between home and school and multimodal forms of learning in terms of literacy and language. All of these required longer periods of time to format and interpret and understand my research data. Even as a South Asian researcher in

largely South Asian context I found my own understanding of this complex multicultural situation was significantly adjusted and extended. This realisation may have beneficial implications for others who are active in multicultural environments.

5.6 Summary

This chapter has focused on the process of data analysis. I began this chapter with a clear introduction to the whole data set that includes all of the introductory visits with the families for the purpose of rapport building and context setting. This included eating meals, watching children's activities, semi-structured interviews and visits to the café; these visits were part of the data which supported and contextualised my research but were not included in the data for analysis. I then described the overall video based dataset and explained that some of the data was not included for reasons of clarity. Therefore, I needed to set up criteria for the data selection process. The outcome of the selection process helped me to identify five top quality episodes of video recording from the whole data set that would help me to answer my research questions. Children's activities were naturally occurring in the various families. I have presented here the diversity of the five examples of video recording selected for my research. In my research, the descriptions contained in the five examples were then interpreted in order to promote a thematic perception appropriate to the data set and my research interest. The multilingual diversity issues recorded in table 5.7 required that analysis must be conscious of the multilingual and trans-language features. These features are defined in the literature review chapter 3 in sections 3.4 and 3.5 and also in the Glossary. In Chapter 6 I will describe five examples from my data. The emerging issues will be interpreted in Chapter 7 (data analysis). The conclusions will be presented in the Chapter 8.

Chapter 6

Data description

6.1 Introduction

Having introduced the five examples which form the main data for this study, this chapter presents a detailed description of those events, while Chapter 7 presents a more detailed analysis of this data. These examples provide a detailed insight into the ways in which these families drew upon their own cultural practices in their use of digital technology in the home.

Three initial themes emerged from the data, following the analysis process described in the previous chapter; these themes are 'literacy-language in a cultural context', 'home-school relationship' and 'multimodal digital literacy practices in the context of learning literacy and culture'. These themes are further analysed and their connection with my research questions are addressed in chapter 7 and 8.

Six children were filmed within their home as they used digital technologies in their daily literacy and language practices. They are Rumi, four years old; Amin seven years old; Bablu, seven years old; Amina, eleven years old, Raju, twelve years old and Sima thirteen years old. The criteria according to which the children were selected were detailed in the previous chapter. Chapter five also described the process I used to select the five examples for my research which is focused on children's language and literacy learning and their use of digital technology in South Asian families. It was additionally concerned with exploring how their digital practices extended to include multimodal digital literacy practices and the nature of their home-school relationship.

Five examples:

Example 1: Cultural knowledge transfer between home and school through a PowerPoint presentation about a South Asian Wedding.

This example focused on a PowerPoint presentation on South Asian weddings. The PowerPoint was created by the eldest child of the family as homework for school. The children in this family are British born with Pakistani heritage. The main participant was

Sima and she also involved her younger sister, Amina in the process of creating the presentation. Their mother was also involved in giving some information about traditional weddings in their cultures.

Example 2: A young child's use of Google translation for learning Hindi literacy in a South Asian home.

This example was a recording of an interaction between a bilingual child called Raju and his mother during their Internet searches to find ways of learning the Hindi language. The child is British born of Indian parents. He is an only child.

Example 3: A young child's use of an i-Phone 4 in a South Asian home.

This example was focused on Rumi's word game play through his use of a mobile phone technology.

Example 4: A young child's use of a Nintendo DSi Brain training game in the home environment and twin brothers' spelling test from their school.

This example 4 consists of two parts. The first part was focused on Amin's play activity on the Nintendo DSi brain training game. The second part involved the twin brothers (Amin and Bablu) and focused on their spelling test from school which was connected with the Nintendo DSi spelling game.

Example 5: A young child in a South Asian home using the Google search engine to develop his Qur'anic literacy.

This example focused on the interaction between Bablu and his grandmother during Internet searches for information about Qur'anic literacy and the resulting reading practices.

Examples 3, 4 and 5 were carried out with a Bangladeshi family. Three children (boys) of this family were my participants and included twin brothers Amin and Bablu and their younger brother Rumi. The children were born in England and their mother tongue is Bengali; they are at an early stage of learning English. They are also at their early stage of learning Arabic for religious purposes.

These five examples are relevant to my research because they explore the cultural context in bilingual or multilingual children's learning processes specifically in relation to children's digital literacy practices. It is indicated in the literature review that there is a shortage of research relating to this area (Marsh, 2005; Levy and Marsh, 2011). This ethnographic study enabled me to observe and understand the ways in which specific cultural and intergenerational practices occurred in children's daily lives in their home. As already discussed in my positionality chapter, intergenerational communicative practices are a recurrent feature for parents and children as they need to maintain contact with their relatives in other part of the world (their parental home country). My study revealed that parents and grandparents helped children in their early language and literacy learning; in addition I observed that siblings helped each other. These languages and literacy learning practices were technologically mediated as children interacted with digital literacies as part of their daily routine. As already discussed, the data for each example in the study was collected mainly through video recordings of the children's activities together with informal dialogue and semi-structured interviews between children, parents and myself.

The stages for video-based multimodal data description process were also provided in chapter 5. Video recording started at the middle stage of data collection from November 2011 and finished in the middle of 2012. From the wider data set five examples are described below (in Table 6.1). These were selected to illustrate the variety of children's activities in the context of their culture, their ethnicity and their use of technology.

A chart of the five examples is given in Table 6.1.

Table 6.1: Chart of the five examples in the ethnographic study

Examples	Focus	Ethnic Origin, Languages used in episode	Children's use of digital technology
Example 1: PowerPoint presentation on a South Asian Wedding conducted for school work at home. Video data taken: 15/02/2012 and 19/02/2012	Language, literacy and culture	Pakistani, English and Urdu	PowerPoint presentation and internet
Example 2: A young child's use of Google translation for learning Hindi literacy in a South Asian home. Video taken: 6/05/12.	Language and culture	Indian, English and Hindi	Laptop and Internet
Example 3: A young child's use of a mobile i-Phone 4 in a South Asian home. Video taken on 20 th November 2011, Semi structured interview: 4 th December 2011 and 6 th March 2012.	Language	Bangladeshi, English and Bengali	Mobile i-Phone 4
Example 4: A young child's use of a Nintendo DSi Brain training Game plays in the home environment and twin brothers spelling test from their school. Video taken on 18/03/12 and 19/04/12	Language and literacy	Bangladeshi, English and Bengali	Nintendo DSi Brain training Game
Example 5: A young was searching Qur'anic literacy through the use of Internet in a South Asian home. Video taken on 19/05/2012	Language, literacy and culture.	Bangladeshi, English and Bengali	Used computer, Internet browser and YouTube.

The remainder of this chapter is concerned with presenting a description of these five examples. This is followed by a more detailed analysis of this data in Chapter 7.

6.2 Example one

Cultural knowledge transfer between home and school through PowerPoint presentation about a South Asian Wedding

6.2.1 Context

This example is focused upon Sima's school work being conducted at home. The homework was given by her English teacher - to bring a presentation that reflects the child's culture. Sima decided to create a PowerPoint presentation on South Asian weddings. This homework can be considered as part of school literacy practice. The participant Sima (13 years old) was working with her younger sister Amina (11 years old) to research and prepare the presentation with the help of her teacher and mother. In order to conduct her own research Sima spoke to her mother about the culture of Pakistani weddings. She then wrote a cue card using the information about weddings. The mother was involved in providing some information about weddings within their culture. Amina (Sima's younger sister) expressed an interest in the process of preparing the PowerPoint presentation. Sima also carried out research with her younger sister by doing a Google internet search.

6.2.2 Ethnographic observation

The activities related to the PowerPoint presentation took place at the downstairs lounge workstation where a computer was located in the corner of the room; a television stands in the other corner. The siblings use this space for working on the computer, watching TV and playing console games.

In February 2012, during the half-term holiday, I visited the family while Sima was preparing her PowerPoint presentation for homework. Sima was talking to her mother and younger sister about her homework whilst I was present. She said that her English teacher told her to create a presentation about her culture. She decided to create a presentation on South Asian weddings as she thought this would be a unique and interesting topic. She also asked me whether I could make use of this for my research study. My presence encouraged Sima. She was enthusiastic about showing her activities to me. I acknowledge that there is a degree of 'showing off' here, which is

helpful for me as a researcher because it allowed me to gather richer data on Sima's activities.

I videoed Sima and her sister's activities for fifty five minutes and ten seconds. I have chosen this activity for three primary reasons. Firstly, Sima herself chose the specific topic of South Asian weddings for her English homework. Secondly, the children's cultural learning activities were taking place in the home via the internet through the use of Google to gather further information. Finally, I have chosen this case because it involves cultural linkages between school, home and technology and therefore fits with my research agenda. Sima produced a PowerPoint presentation about Pakistani weddings as an example of a cultural phenomenon. It gave the school a picture of her South Asian cultural practices. Sima's method involved four steps in order to create the presentation. These were to make a list of activities with the teacher, gather information from family members (mother and sibling), conduct a Google internet search for further information and use the computer for giving the presentation in PowerPoint. In the process of the child's creation of a PowerPoint presentation, I was looking at the communicative practices between siblings and their mother regarding online and offline text-making practices and understanding how they convey cultural meaning.

6.2.3 Data description from the video observation

This description is drawn from the video transcription and also field notes.

Creating and practicing PowerPoint presentation for school homework (Asian Wedding): Video taken on 15/02/2012 and 19/02/2012 (see details in Appendix 3: Transcription number 1).

At the beginning of my video recording I observed that there was a piece of paper that Sima was holding; she was waving it to show me and said,

S: *Can I use it?*

P: *What is this?*

S: *This is about Asian wedding.. home work.*

P: *Right, are you going to do it for your school work?*

At this point she told me that this is her school work and she asked if she can use it for my study (See the image in Figure 6.1).

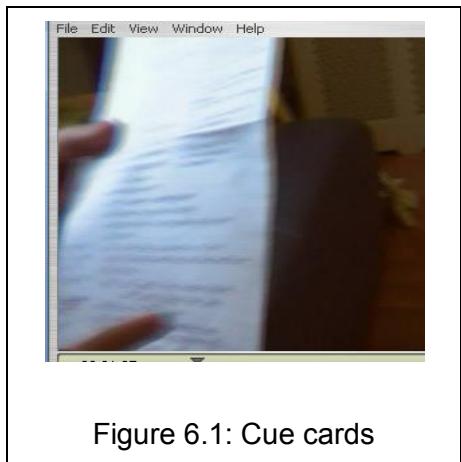


Figure 6.1: Cue cards

Sima's sister gave her some ideas about bringing photographs of family members in order to do the presentation about South Asian weddings. Sima also thought of incorporating some photographs of their family members who had recently been married. She used Urdu words whilst she mentioned two members of her family, 'like *Popo* (dad's sister) and *Khala* (mum's sister)'. Sima said: '*Yes, I am doing just home work for my English home work to present for my English teacher after the holidays. And I am doing about Asian wedding. I gona have bring photographs of wedding.*

A (younger sister): *Do you think to bring some photographs about families?*

S: *Yes I'm gona bring some ... like popo (dads sister) and khala (mums sister).. on the girls side they usually get big hall. They hire big hall//* [extracted from the video transcription].

This showed that the children were drawing on their dual identities (British Asian) and were moving between languages (English and Urdu) creating a hybrid space of practice (Bhabha, 1980). These practices qualify as hybrid in that specific Urdu words were being used in an English sentence in order to describe family relationships in their own cultural terms.

As it turned out, Sima did not use her family members' photographs. She understood that she needed permission from her family members. She then decided to download some images of weddings from the internet as an alternative choice for making her presentation. I noticed from the video observations that both siblings' conversation in relation to the PowerPoint presentation contained many repetitive practices: for instance, Sima said, '*on the girl's side they usually get big hall. They hire a big hall*'. Her younger sister added by asking: '*Do they have it decorated or just plain normal?*'

Sima replied, ‘Yeah, decorated’. It is possible to connect this repetitive practice with Barton and Hamilton, (2000, p.8) who state ‘the word practice is used to mean learning to do something by repetition’. This repetitive practice was used by Sima to emphasise the point that she was making.

I observed that Amina was playing a supportive role in the preparation of the PowerPoint presentation. Here the children’s purposes were twofold. First of all, they needed to collect information about South Asian weddings. Secondly, the siblings were creating and practicing a PowerPoint presentation for school. This PowerPoint presentation exercise encouraged both siblings to learn about their cultures. Here in the home, the siblings participated in the same activities relating to the PowerPoint presentation and exchanged ideas and views with each other. This is consistent with the work of Eve Gregory (Gregory, 2001; Gregory *et al.*, 2004) who also identified that young children learn a range of literacies from siblings, parents and grandparents.

It is common that, in the same family, siblings often participate in the same games, usually attend the same school and watch the same TV programmes. As a result children can play a mutually beneficial role in their siblings’ learning. In this example, learning practices in the home occurred between siblings and their mother through their use of online and offline resources. For example it was noticeable in their practice session that when Amina gave her sister some suggestions as to what to include in the presentation, *Sima placed her finger on that piece of paper and said: ‘I am gonna explain it in a bit’*. She did not stop describing her points, but carried on with her description. She was following the written instructions on a piece of paper. Sima was integrating her points and when she found that she already had this information, she referred to it by saying that she would explain it later. When she found that the information was missing she incorporated this by revising her cue card. This repetitive process of practice and revision occurred frequently as the children developed the PowerPoint presentation. This process also involved collaboration between siblings and their mother in the home. It is possible to understand from my observation that Sima’s activities for creating the PowerPoint presentation were socially mediated by family communicative practices (Davidson, 2011). These communicative practices were between the siblings and the mother, providing home cultural knowledge. The children were combining the knowledge with their technological expertise.

6.2.4 Multimodal data description from the video observation

A video camera was used to record aural and visual aspects of the participants' multimodal interactions that go beyond language. From the video observations I noticed that sometimes Sima used non-verbal communication such as pointing fingers, gestures, gaze and posture and collectively these are termed multimodal communicative practices (Norris, 2004).

An example of Sima making meaning in her own way can be seen when she was describing a bride's dress and jewelry. 'Sima said: '*The dolon (Bride), she wear mendi on the her hands, it's like a pattern, for example it's like that and [she then held her palm up to the camera], but there's.. bit better. It can reach up to there.*' [See the full multimodal transcription Appendix 3, example one), for more detailed information]

		
<p>Figure 6.2: Palm on the screen</p>	<p>Figure 6.3: It can reach up to there</p>	<p>Figure 6.4: Bun with your hair with flowers</p>
		
<p>Figure 6.5: symbolise how big the necklace was</p>	<p>Figure 6.6: Earring is really long</p>	<p>Figure 6.7: Bride cries</p>

Sima described that the bride wears mendi on her hand. This is the paste made from mendi (a green leaf) that people can make a pattern with on their palm. It was captured from the video observations that she showed her palm and there was a shape of a circle upon it. The circle was red in colour (see Figure 6.2). She mentioned that the design used in weddings was better than the one she had. She indicated her left elbow by touching it with the fingers of her right hand and said the pattern could reach up to the elbow (see Figure 6.3). She then bent from her sitting position to show her foot and mentioned that people could do the pattern on their feet as well. In this stage she shifted from the written texts to semiotics that together take advantage of modalities to function simultaneously to make meaning (Kress, 2003; Jewitt, 2011). The term semiotics refers to a use of signs which Sima used to make meaning. These signs can be seen as codes of language and communication and are formed by social processes. The different meaning making channels (e.g. visual, verbal, written, gestural and musical resources) for communication are known as semiotic modes. These multiple modes are together known as multimodality (Kress and van Leeuwen, 2001).

Sima's hand and finger movements were related to her speech which included the combination of gesture and posture. The combination of these modes created a meaningful multimodal communication of how people use mendi in South Asian weddings.

After this Sima said, '*They have food*'. Amina asked: '*What type of food, English food, or Asian?*' It seems Amina realized that more information was needed about food, and that to simply state they had food at the wedding was not enough information as food is an important aspect of all cultures. Sima did not appear to feel interrupted, rather accepting her sister's point and mentioned that it was on her list and said that '*I am gonna say that later*'. This indicated that children were thinking about food as a marker of their cultural identity (Highmore, 2008; Douglas, 1966; Blumer, 1966; Levi-Strauss, 1969). It also appeared that the siblings' interaction was an example of the interplay between literacy and technology that was specific to their cultural context.

Sima also realized that she should add Indian images of dance; she then said, '*They do dance, like they do Indian dance.. normally some people do Indian dance..*' Amina appeared to be questioning her sister in order to add more information and thus improve the presentation. Amina responded, '*Do they do some mixed dance, like boys*

and girls?'. I wondered if this statement was influenced by the fact that like many other South Asian families, Sima's families were also observed watching Indian dance movies. Hindi movies are very popular in Bangladeshi, Pakistani and Indian communities. I observed in my social visits that Sima's mother was watching Hindi films with Sima's youngest brother and sisters. This could be the reason that Sima was searching Indian images of dance in the Internet in order to adding in her PowerPoint presentation. I viewed this activity as cultural syncretism because Sima and her sister were learning in a cross-cultural context. These children were living between and within two different linguistic and cultural settings (English and Urdu); as a consequence the literacy practices in creating this PowerPoint presentation could be defined as an example of transformed syncretism.

Sima mentioned that a photographer takes pictures of the bride and groom (dulan and dula) on the stage with their family and friends. She was holding the piece of paper with her left hand and touched her hair with the fingers of her right to suggest the hairstyle with some flowers in it. She wanted to show that the Bride's hairstyle is different from the Groom's. She also mentioned that make-up would be professional, she showed her wrist to represent the bracelet, and then showed her neck to symbolize how big the necklace is (see Figure 6.5). She then touched her ears with her right hand to symbolise an earring (see Figure 6.6). These are termed symbolic gestures (Jaworski and Thurlow, 2011), performed and made meaningful in relation to a particular situation. Although at this stage the girl was practicing the presentation of a PowerPoint she was aware that she needed to show her audience how the bride wears jewellery. In this context she found symbolic gestures were significant elements in creating meaning for her audience.

S: '*It's really big kan ta (earring is really long), usually the dolan cries because she is leaving her parents.*'

A: '*Is there any of their family people cry or they are just fine?*'

S: '*Families also cries obviously. She wears a red scarf so nobody can see her face.*'

A: '*But why she do that?*'

S: '*Because she was crying and it's bit embarrassing when people see her crying. She is a dolon (Bride).*'

Here, Sima provided information about their cultures. She mentioned that the bride cries because she is leaving her parents. Sima interpreted the wearing of a scarf as a sign that the bride was trying to hide her tears. The girl raised her hand and put her fingers near to her face while describing the bride crying.

Throughout the exercise Sima and Amina repeatedly offered important information about traditional South Asian weddings. For example, they discussed the well-decorated limousine car that is hired by the groom, whilst Sima mentioned the sitting positions of brides and grooms. She said, '*big fancy cars, the dolon sits in the middle yes, and the husband sits in the front, in the passenger seat, and the dolon's parents sit next to her or her sisters*'. Then Amina enlarged upon this topic by asking whether the bride can ask her friends to go with her. Sima replied 'Yeah'. She continued immediately, with this point and said, '*The guests follow the car to the boy's house*'. She also mentioned that when the guests arrive in the groom's house, they are served sweets. The bride wears a red coloured dress and the groom wears sherwani. Sima downloaded some images of South Asian weddings to use in her presentation. Her descriptions of traditional wedding dress and foods are reflected through these images. Here the relation between images and language shows how visual and verbal modes interact to allow Sima to construct meaning in multimodal texts. These multimodal texts are analyzed further in Chapter 7.

The siblings were continuously talking in order to add more points for describing a wedding to the audience in the classroom. The mother was also giving advice on South Asian marriage agreements to Sima. She explained that there is a book that the priest has to sign; the bride and groom have to sign it as well and they then need to read an extract from the Qur'an. The following day the groom organizes a party called the *olima* (groom's party) and on that day the couple wear rings to show that they are married. Sima also added more information about costume in the groom's party and said that:

'They wear different clothes like, lahanga, churi, pajamas and frocks'. Then the boy pays for the Honeymoon to treat his bride'. She was pretending that she was presenting in her class, therefore she said, '*now we are going to show you a video*' (see Appendix 3 Example 1).

Throughout the conversation between Sima and Amina they offered cultural funds of knowledge (Moll *et al.* 1992; Gonzalez *et al.* in 2005) about the traditional South Asian wedding and Sima used multimodal communication (figure movement, gesture and body movement) in order to convey meaning of the ornamentations of the bride in a Pakistani wedding. Digital technology also contributed to this process of communication. For instance, Sima downloaded some images of traditional dress and foods and also a video clip on marriage agreement in order to create the PowerPoint presentation. This can be seen as digital multimodal communicative practices mediated by the affordance offered by the technology. During the construction of the presentation, Sima was conveying to Amina her intentions about what she was including; in return Amina was drawing attention to the need for additional information about the content. In this way the two children were providing mutual support in creating a fuller picture of the nature of Pakistani weddings. This mutually created PowerPoint presentation about a Pakistani wedding was developed in the home to present in the school. This was homework given by the school. The idea was carried from the school to the home in order to be further developed as a cultural fund of knowledge. Sima brought this as a PowerPoint presentation to the school and presented it in the classroom. There is, therefore, a cultural knowledge transfer from school to home and then from home to school. Sima's cultural learning relationship occurred between home and school. Throughout the event I observed that Urdu words were used by the siblings in their English conversation, when they discussed family members, traditional food and costume. English was however the dominant language as the siblings were being educated in the monolingual culture of the English state school system. I noticed that Sima used the word Dolon and Dula mostly instead of Bride and Groom and also used the words Popo and Khala instead of Uncle and Aunty. When discussing food she used words like, for example, jabor, chapatti, kabab, naan, porota and halua. She also used the words lahanga, churi, pajamas, salhowar and frocks for costume (see details in the transcription Appendix 3, example one). The use of these dual language practices can be seen as syncretised language that children take culturally and linguistically from their families (Gregory *et al.*, 2004).

On the basis of my understanding of this data description several possible themes are apparent. Themes could include a cultural theme, home-school relationship and the significance of digital literacy. Cultural themes are represented by the sense that Sima's home work practice reflected her heritage culture. The home-school relationship

- in the sense that she shared her culture - suggests knowledge transfer between home and school. Sima's knowledge transfer activities can be described as an example of culture-as-activity or 'culture as a verb' (Street, 1993, p.25).

The nature of this knowledge transfer was children's language and literacy practices with siblings, mother and the school teacher. Digital technology was the mediator, as Sima was creating a PowerPoint presentation regarding South Asian weddings, reflecting their cultural event. Sima's product (PowerPoint presentation) creation was a process associated with the construction of a multimodal text because it consisted of literacy, images, sound and screen-based design and colour combination.

6.2.5 Summary

I observed that the learning process was essentially shared between school, the children and the mother in the home. Each took responsibility for specific features of the task involved in creating the PowerPoint presentation. The school set the child the task of creating a culturally based presentation, the children took control of selection and development of the cultural presentation by the affordance offered by the technology. For example, the selection of design in the PowerPoint software and selection of images and video clips downloaded from the Internet. The mother observed what the children were developing and intervened to ensure its accuracy and cultural integrity.

Finally, it is noted that the creation of a PowerPoint presentation is itself digital literacy learning. During the process of making the PowerPoint presentation the siblings resorted to making use of multimodal communications in order to convey the meaning of some aspects of traditional South Asian weddings.

6.3 Example two

A young child's use of Google translation for learning Hindi literacy in a South Asian home

6.3.1 Context

This example is focused upon the interaction between a child and his mother during their Internet searches for assistance in practicing and developing his Hindi language.

The child, Raju, was 12 years old. He was the British born child of Indian parents. His first language was English and he was learning mother tongue Hindi for cultural reasons. The mother initiated the activity. The mother and I (researcher) shared many common experiences of language and culture. On this occasion the mother was talking to me about her son's use of Hindi while they were in India. The child's family generally visits India once every two years. This discussion about bilingual practices occurred naturally whilst I visited this family. The discussion was made possible because of our South Asian cultural commonalities of language, religion and history.

6.3.2 Ethnographic observation

This ethnographic observation was carried out with a British Indian family living in Northern England. It was 6th May 2012 and during one of my visits to the family, while talking to the mother, it was revealed that the child and his mother had just got back from holiday in India. Myself (researcher) and my participants (the mother and the son) of this family share Hindi and Bengali between ourselves as there are some similarities in terms of pronunciation and also the construction of the sentences in both languages. This event indicates the comfortable relationship that was developing between the participating family and myself.

Raju's mother said that Raju had communicated with his cousins and grandmother in Hindi while he was there and learnt some new words and how to construct Hindi sentences. The mother also mentioned that Raju had found a Google translation program on the Internet for learning the Hindi language and thought learning some Hindi would help him to communicate with Indian people when they go to India on holidays. He had used it to improve his Hindi before his recent trip. I had not seen it

on my previous visits so I asked Raju whether he had downloaded the software. The child replied that it was a free download. I observed that Raju was keen to show me how to practice Hindi through the use of Google translation. The laptop was on the coffee table and the mother asked him to open the Google translator to show me how he practices Hindi conversation. The child was sat down on the floor facing towards the laptop. The mother sat on a sofa on the other side of the coffee table. The activities took place in the lounge. While Raju was searching words on the Internet the mother reminded him, in Hindi, about the Hindi conversations he had with his cousins whilst they were in India. Raju regularly uses this space for working on the laptop for school work and also sometimes for playing console games connected to the TV.

On this occasion I asked how he first came across this Google translation. On one of the initial visits, I observed that Raju had used it before but it was not my intention to collect data in the early stage of rapport building. Raju mentioned that he had used Google translation before for learning Spanish as a foreign language at school. He had also used the Google search engine to obtain information for his schoolwork.

As he started the Google translator, I asked whether I could video his activity. The mother and the son were very happy for me do this. I videoed Raju's interaction while he was searching the Google translator on the Internet. The activities were recorded for twelve minutes and thirty eight seconds. I have chosen this activity because it involves technologically mediated literacy learning practice in the South Asian family and is therefore consistent with my research agenda.

6.3.3 Data description from the video observation

I recorded how Raju was searching, writing, listening and repeating Hindi through the use of the Google translator on the Internet. Raju began to explore the internet using the Google search engine in order to find the Google translator. First, he typed 'Google translate' and he was navigated to a different screen which gave him a list of options. He selected 'Hindi-Google translates' which is Google's free online language service which instantly translates text. He sat in such a way that he could easily look at the screen and get back down into a comfortable typing position (see the multimodal transcription for full details in Appendix 3, example two). He was typing English and was listening to the Hindi translation in response to his typing in the Google translator,

and at the same time he was responding to his mother and sometimes to the researcher (myself).

The description below presents the conversation between Raju and his mother while writing, listening, searching and learning Hindi script on the Internet (Hindi is written in italics with English translation in brackets). I was observing his activities through the video lens. The mother sat on the left side of the coffee table facing towards her son. She took this position so that she could see Raju and maintain eye contact during their communication. The mother was sometimes reminding Raju about when he was talking in Hindi with his cousin in India.

For instance, she said to her son, '*can you remember your grandmother said to you, Shuru koro Hindi (let's start Hindi)*'. The mother: '*you said to the little boy, ah. What's his name?*' R: '*ahhh Amat*'. The mother: '*Yeah, what did he say to you? Bahar cholo (lets go out)*'. R said: '*I said, no chop roho (shut up), it's too hot*'.

I (the researcher) was also communicating in Hindi, as I was aware of, and sensitive to, the purpose of the literacy practice that I was observing. This conversation in Hindi was indicative of a real-life literacy practice that would occur naturally in an Indian origin family home. Raju was moving the cursor frequently by using the mouse while staring intently at the computer screen. The child's concentrated gaze and action were indicative of his commitment to finding specific Hindi script translations (see table 6.2).

The mother asked him to start the Google translation and, while Raju was navigating the Internet, I asked him whether he had a nice holiday. Raju told me about the holiday and said it was fine and it was too hot. He also mentioned that it took nineteen hours on the flight to Amritsar. Throughout this conversation his gaze was on the computer screen and he mentioned 'new languages stuff' while searching, by which he meant Hindi language. I wanted to know about his learning in Hindi. Raju replied that he learnt a few words and as an example he said '*dost dost nahi hu*'. Then, he wrote in English (I am not your friend) on the left side divider of the Google translation and the Hindi sentence came up on the right side divider, which was '*mai apne dost nahi hu*' (I am not your friend). I repeated this by saying '*mai apne dost nahi hu*'. Raju also repeated it and said 'this one is a Hindi word' by highlighting this sentence. The whole sentence was '*mai apne dost nahi hu*' (I am not your friend). He initially said this but the two

words ‘mai’ and ‘apne’ were missing from the correct sentence and he also repeated ‘dost’ twice. His single mother was mainly encouraging him to learn Hindi. He was not surrounded by his extended family, and so was still in an early stage of learning Hindi at the age of 12. As a result he sometimes missed words while talking. I noticed he found it interesting to write English and listen to the Google Hindi translation. Then he wrote ‘shut up’ and this was translated by the Google translator as (‘chup roho’). Raju had chosen these particular phrases as he learnt these from other children whilst he was in India. Then Raju repeated (‘chup roho’) and said that he liked this. His repetition of these sentences signalled that he was trying to learn Hindi by repetitive pronunciation of his chosen phrases. I observed Raju’s mother was encouraging him to learn Hindi and when Raju said, ‘this is ‘runa na’ and means (don’t cry)’, his mother said, ‘yes ‘runa na’ means ‘don’t cry’’. I said, ‘yes’. Raju wrote in the Google translator, ‘too hot’ expressing his view about his holiday in India. The Google translator said ‘bohut goram’. Raju then typed in English at the left divider ‘it was too hot in India’. The sound came up from the Google ‘E vi bharat may bohut goram tha’. Raju repeated by saying ‘E vi bharat may bohut goram tha’ and then the mother also repeated the same sentence with correction. The mother said, ‘Bohut gormi thi’ (It was too hot). Raju said, ‘I think this is Punjabi’. The mother said, ‘no this sentence is the same in Hindi’. I said: ‘Yeah, just the tone is different’. In this context the mother said, ‘we use the word ‘gormi’ to express weather it is hot but ‘goram’ means like hot water but Google translation could not differentiate between these two words with alternative meanings’. Then Raju typed up ‘come on’ (Google said, ‘Para ate hai’, and the mother repeated it ‘Para ate hai). Raju also repeated it (‘por ate hi’).

The mother then said ‘Hi rabba, you learn that one as well, didn’t you?’ Raju then typed ‘oh, my god’ in English and on the right hand side it came up in Hindi ‘he mere vhagaban’. The mother said, ‘how are you?’ Raju typed accordingly: Google said: ‘Ap Kaise hai’ and the mother said: “say this when you meet someone ‘kishi sai milna” The mother said to Raju, ‘just say it: ‘Ap Kaise hai’. Then Raju repeated by saying it (‘Ap kase hai’). He then wrote: ‘Stop’ and the translator said ‘roka’. Then he wrote: ‘I am not your friend so go away, I am joking’ and the translation came up ‘mai apne dost nahi hu, isli e cale jao, majak kararaha hu’. Mother asked him to say it in Hindi. Raju said, ‘mai apne dos nahi hu, isli e cale jao, majak kararaha hu’.

It seems to me he was playing with online assisted instruction and having fun with his mother while learning Hindi in a playful way that was enabled by the Google translation technology. The language practice was relaxed between mother and child and this could allow learning to be fun. This also facilitated interaction between the two languages, to create an experience which encouraged the child to experiment with mixing English and Hindi. In this process he was developing his ability to communicate in Hindi. This is seen as an experimental feature involving both languages.

Then Raju wrote: 'India was too hot and less developing' (and he said in Hindi: '*Bharat kub goram hey*' and '*com developing*'). I was watching on the screen that he wrote: 'In 20 years India will be developing with computers, console games and mobile phones and other stuff' Google translation said: '*Bharat Ko Bis sal may computer, console Khela aura mobile phone aura an-ya samana ke satha vikasita kiya jae ga*'. Then the mother asked her son, 'say it in Hindi' and Raju repeated the sentence differently by mixing English words with Hindi language '*Bharat Ko Bis sal may computer, console Khela aura mobile phone aura other stuff ke satha develop kiya jae ga*'. This demonstrated Raju's syncretic flexibility in creating hybrid language communication. It also indicated that his first language was helping him to develop fluency in his second. While Raju's mother was encouraging him to construct whole sentences in Hindi, it seems that Raju was inserting English words with his mother tongue (Hindi) in order to enhance communication with his mother. Here the child consciously used hybrid language (Bhabha, 1994). The event involved the combined interplay of pure Hindi, pure English and a conscious combination of both languages to create hybrid language communication.

It was also interesting to note that Raju was also enthusiastic about the future role of technology in India, evidenced in his comment that 'India will be developing with technology in 20 years'. This suggests that he personally is very comfortable with technology such as computer console games and mobile phones and, recognised the support offered by digital technology in his acquisition of a second language (Hindi). Then the mother and son started talking about greetings.

The mother said that '*it used to be said like that, 'Om nomo Shiva'*. *Om is the name of the God, Om adoration to Shiva and Shiva is the power of God*'. The mother said to

the child: ‘Say it in Hindi. Say the greetings and Namaste. Namaste is the most common form of such a salutation in India and Om nomo Shiva’. The researcher (myself) and the mother repeated this for the child and the child also repeated at the same time with his mother. The child said, ‘kia hal hey’. Mother said: ‘type here, how are you?’ kia hal hay’. The researcher: (myself) ‘yeah, type please, how are you?’ ‘Ap kese hay’ and the mother replied, ‘dik hay’. The child said, ‘fine’. Then the child moved to Google images and was looking for some images of places of that he visited in India. Raju: ‘*This is the Indian Flag*’. Then he opened a set of images that represents various important places in India and clicked on the Taj Mahal. The mother said, ‘dhakao (show) the Golden Temple’. The mother said, ‘Do more’. Raju: ‘ahh like population in India, it’s more than the UK and Pakistan’.

In this example, it is possible to recognise digital technology playing an important role in the meaningful interaction between mother and child, where the objective was to encourage the child’s learning of Hindi. I also observed that Internet resources provided multiple facilities that included repetitive process of language learning. Throughout the Google translation language practices, the child was using repetition for learning Hindi sentences. This repetitive process for language learning can be connected with the concept of word learning through repetition (Barton and Hamilton, 2000).

For example, Raju repeated one of the sentences in Hindi ‘*E vi bharat may bohot goram tha*’ and questioned whether the sentence produced was in Punjabi. This showed that Raju understood elements of Punjabi and was surprised when the sentence appeared on the translator and the mother mentioned that the sentence is the same in Hindi. The mother made the correction for the word meaning of ‘hot’. She said, the word ‘gormi’ to express weather that is hot but ‘goram’ means like hot water. She found that Google translation could not differentiate between these two words meanings. It is apparent that the technology facilitated an important discussion between mother and child about elements of the similar Hindi and Punjabi languages, also the word ‘hot’ carries two different words in Hindi. This kind of hybrid language practice in the family illustrates the emerging theme of literacy and language in cultural contexts.

6.3.4 Multimodal data description from the video observation

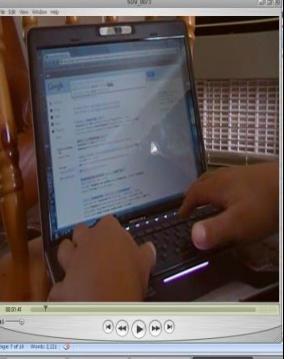
The conversations between the mother and the son were mainly in Hindi and English. There were some English sentences that Raju had to write online in order to access information on Hindi translation in Google. Firstly, he was practising some Hindi that he learnt when he was in India. He responded to his mother through a process of repeating phrases as she instructed. He listened to the Google translation and sometimes his mother helped in order to construct the whole Hindi sentence. The mother understood and she frequently prompted him and encouraged him to read these (Hindi scripts) on the screen. Here, the child syncretised languages (Gregory et al. 2004) in order to communicate with his mother about his online searching activities. Sometimes the mother asked him to repeat Hindi words from memory. And sometimes she was encouraging Raju to learn some cultural greetings. She also gave him encouragement by saying '*hi rabba* (oh my God), *you learnt that one well, didn't you?*' Then she discussed how 'Om' is the name of the God, Om adoration to Shiva and Namaste is the most common form of such a salutation in India. They also discussed some general knowledge about India and some of the popular places they had visited.

Raju was using online resources while he was practising Hindi with his mother to demonstrate his experience of using the computer and the Internet in the home. He also used Google translator in school for learning Spanish (see the field notes extracted from one of the social visits in chapter 5 in section 5.1.1). It seemed that the transfer of his use of Google translator for learning Spanish in the school allowed him to develop Hindi language learning in the home. Raju found the English translation of the Hindi language (the description of the translation is provided earlier) in Google translation. The conversation between the mother and the son indicated that the mother wanted him to learn Hindi through translation. She mentioned that there is no facility for learning Hindi in the mainstream English school. Raju had just finished his primary school and was learning the Hindi language through the Google translation as well as with family members. In total, this practice is an indication of parental influence that encouraged the child to practice language and literacy from their heritage culture. Online resources were being mediated by the child, carrying out these language and literacy activities in the context of heritage culture with his mother. This issue is discussed further in Chapter 7 to show how digital technology in the home was being

used to meet the needs of this particular family, especially as there was no facility to learn Hindi at school but Google translator supported the child for their home language learning.

The multimodal steps captured from this video clip example are shown in Table 6.2 below, and further details are provided in appendix 3.

Table 6.2: Google search on Hindi script

Gaze	Posture	Gesture	Resources
			

Raju was moving the cursor by using the mouse and staring at the computer screen.

Raju was sat in such a way that he could easily look at the keyboard in a bending position.

His fingers position on the keyboard indicated the sign of typing the words for Google translation for Hindi.

Raju typed Hindi in Google translate and then clicked. A list of options of languages came on the page, then he clicked on the Hindi.

6.3.5 Summary

It is evident from the above description that interactions between the son and the mother are both technologically mediated and multimodal. I observed that the child was interacting in multiple modes with the provisions offered by digital technology. These included Hindi and English written text, images, design features incorporated in the Google translate page, and sound effects. The child's communicative practices also involved multiple modes, such as his speech, gaze, gesture and posture, to demonstrate how he used both literacies (Hindi and English) online. The mother also

used instinctive hybrid language when inserting English words within their mother tongue (Hindi). This syncretised language practice became increasingly evident as case study material was accumulated. Throughout the description of the above mentioned practices, the following themes emerged from the data example: Firstly home-school relationship, as the child transferred his school experience for learning Spanish to his home experience for learning Hindi, Secondly, the nature of this literacy-language learning reflects the child's cultural heritage and multimodal digital literacy practices of screen based learning in the context of culture. These are analysed in Chapter 7.

The above description is supportive of the possible themes emerging in the example of Sima's PowerPoint presentation. Sima's homework practice suggested cultural knowledge transfer between home and school. Similarly, Raju used Google translation for practicing his heritage language (Hindi) in the home. He stated that he used Google translation in school for learning Spanish. Although Hindi and Spanish are two different languages, Raju transferred the same learning process while learning Hindi at home. Again, screen based flexible facility provided by technology helped Raju to switch between the two languages (Hindi and English) for language learning and at the same time he was dealing with screen-based multimodal texts. In Sima's language practices, she used some Urdu words when she described food, dresses and family relationships. This reflects that she is using these words in the family which disclose their culture.

In both cases, I have seen the combination of both languages (English and heritage language) in the form of translation and syncretism. This underlines the importance of recognising the interplay between literacy, language and culture together and how these factors are influenced by home-school relationships and screen-based media.

6.4 Example three

A young child's use of a mobile iPhone 4

6.4.1 Context

The focus of this ethnographic example was a young child (Rumi) playing a word game through the use of a mobile iPhone 4. Three children (boys) of this family are my participants. They were born in England. Rumi was the youngest of the three children of the family. He was 4 years old and attending in a primary school in the North of England. Rumi is at an early stage of learning English and he speaks his mother tongue, Bengali, at home. In this example Rumi was communicating in Bengali with his parents whilst he was playing a word game in English. His parents were encouraging him in Bengali so he could play the game successfully because he didn't fully understand English. Their communicative practices in Bengali and digital practices (use of mobile phone) in English demonstrated a complex form of literacy learning practices.

6.4.2 Ethnographic observation

The preliminary discussions about my research with Rumi's mother began with a few social visits to their home. On one of these social visits, while I was talking to his mother, I heard the mobile phone make sounds: 'ah..try again', 'great, excellent'. I wanted to know about this and his mother said that he was learning English words by playing word games on his father's i-Phone 4. I then moved closer to the child and I watched him making words by using letters of the alphabet presented to him by the mobile phone. I found that his activities were interesting and relevant to my research. I decided to collect further information and therefore I videoed (on 20th November 2012) Rumi whilst he was playing the word game on the mobile phone. His activities were videoed for twenty four minutes and fourteen seconds.

In order to gain insight into the child's mobile phone activities I watched and listened to the video clip several times. Then I transcribed it by using a multimodal approach to make sense of and record the data. I also needed to go back to the child's home to acquire more background information related to my video observation. I made a visit on 4th December 2012 in order to obtain the child's reaction to the video and to obtain additional background information.

I was aware of the ways in which the child's use of digital literacy technology was linked to and supported the nursery school's constructions of literacy practices (for example phonics and language acquisition). After seeing this link, later I explored this further. This was mainly to understand how Rumi was influenced to play the word game on his father's mobile phone. I also collected the mother's comments regarding my video observation on the child's use of the mobile phone. The transcription details are in appendix 3.

6.4.3 Data description from the video observation

In this example, I sought to understand what kind of creative process the child developed while using mobile technology to play the word game in the home setting. He sat on a sofa while he was using his father's iPhone 4. His father noticed what sort of game he was playing and said 'show her (researcher) your spelling work.' His mum was asking him to do the spelling correctly as she was also familiar with the specific word game. At one point, Mother said to the child in Bengali: '*korcho na keno? Hoschey na to. Dik moto koro*'. (Why don't you do that correctly? It's not happening. Do it correctly). This narrative is signalling that the parents are actively involved in communicating in Bengali because it is the most efficient communicative mechanism with the child at his early stage of English language learning. This account can be seen as a creative process in that the child is practising spelling words in his own way through the resource offered by the digital technology. Rumi's parents' interaction with his word game play suggested that this was a regular activity taking place in the family home.

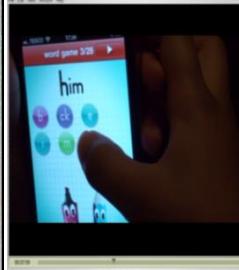
I wanted to know what kind of word game the child was playing. The child responded by saying in Bengali '*Eita?*' (this one?). Then I looked at the mobile and read the instruction that was written on the screen and it said: 'When I say a sound, touch it'. Although the child is not yet print literate he was able to use certain advantages offered by mobile technology to read the screen. These advantages include images, sound effects, colour combination and design to illustrate words. All of these offer major opportunities for the construction of words through trial and error. A set of letters were on the screen and the child was pressing on those letters by using his fingers. The mobile was making sounds representing those letters that were listed in a fixed order.

When the child made a mistake the suggestion came from the mobile ‘try again’. For example, when the child pressed ‘H’ then the sound invited to make the word ‘Him’. Through this meaning and spelling practice he was learning words such as him, cut, back, us, pick. This practice can be seen as literacy learning where Rumi, with the help of Bengali heritage language support, was starting to learn English. This bilingual practice demonstrates the emerging theme of literacy and language in a cultural context. Rumi’s use of mobile phone technology can be seen as an example of children’s popular culture. Similarly, Marsh et al., (2005) also considered one aspect of children’s popular culture their use of digital technology. I observed Rumi and his parents’ bilingual communicative practices in relation to his use of mobile phone based word game play activities as another example of Street’s (1993) contention that ‘culture is a verb’ (p.25). This is further defined in the literature review (section 3.3).

6.4.4 Multimodal data description from the video observation

I used a grid to present multimodal transcriptions from the home video which is included in appendix 3 (example 3). The sample below is taken from the multimodal transcription:

Table 6.3: Multimodal transcription

Speech (Sound from the mobile)	Gaze	Posture	Gesture	Graphical representation of the word 'him'	
<p><i>Mobile: ah, ah, excellent. Hey.....Ah.. Try again hm..hm.. Him wonderful.</i></p>	 	<p>His gaze showed that he was concentrating and absorbed by the exercise. His smiling face indicated that he was also enjoying playing the words game.</p>	<p>He sat on a sofa and looked at the mobile and started pressing the options buttons by using his fingers.</p>	 	<p>He was pressing the letters h, i, and m by trial and error.</p> <p>When he made it right on putting the correct sequence then the graphical representation of the word 'him' popped up on the screen.</p>

While Rumi was playing a word game on a mobile phone, he looked at the screen and stared pressing the options buttons by using his fingers. He put the mobile in his left hand and was pressing letters using his right hand fingers for a suitable position. He was holding the mobile by using both hands while searching for the options buttons and pressing by using his thumb. In order to play a word game successfully, Rumi was listening for phonic sounds, looking at the alphabet options for playing on trial and error, images that represent specific words. This practice is understood as digital multimodal literacy practices which are further discussed in chapter 7.

Through this screen-based multimodal practice he was learning about some words. In order to respond to my questions, he answered me in Bengali.

I said: ‘what are you doing?’ Rumi replied in Bengali with an obviously happy expression on his face: ‘*eita Babar mobile*’ (this is dad’s mobile). It seemed that he showed his emotional relationship with his father’s mobile, in other words he was using his father’s mobile he wanted to express this with pride. This expression can be connected with Rumi’s display of emotion (Lemke, 2005, 2013). Syllable sounds were coming from the mobile and Rumi was pressing a set of letters, by following the mobile’s speech sounds and images that represent the word meaning. Rumi suddenly moved to another exercise, he turned on the music in the mobile. I said: ‘what are you doing?’ Rumi said: ‘*chotodar boroder na*’ (He said that this music is for little kids not for adult). After a while Rumi moved back to the word game and he found the word ‘pick’ by pressing several letters. He then did it into two phonemes, first ‘Pi’ and then ‘ck’. It appeared that the child was moving from one activity to another due to multiple facilities offered on the screen of the mobile phone. The child found some other words by pressing buttons randomly, these were ‘but’, ‘get’, ‘rat’, ‘his’, ‘big’ and ‘hen’. While he was practicing, these words were pronounced by making appropriate sounds and graphical representations of the word presented on the mobile screen. I observed from this example that Rumi was confident in using digital technology for literacy learning, when facilitated by the mobile phone. This practice can be seen as digital multimodal literacy practice occurring during Rumi’s use of mobile phone technology.

The child showed his use of hybrid language, by inserting English words while communicating in Bengali with his parents and myself. The definition of hybrid language was provided in the literature review (section 3.5) and also in the Glossary. His parents were communicating in Bengali with him and trying to give him instruction on correcting the mistakes that he was making in English. Here, the child and parents used hybrid language as an aid to effective communication. Rumi was practicing literacy learning through mobile phone play. The mobile phone technology offered the child the opportunity to learn school constructed literacy through play. The child’s first language is Bengali and his communicative practice with the mobile phone technology is English. His digital game play can be seen as important in helping him with his English literacy learning for school and as an indicator of the theme of literacy and language within this particular family cultural context.

Data description and discussion with Rumi and Rumi's mother (Semi-structured interview, duration 1 hour approximately):

On 4th December I made a further visit in order to ask Rumi about the previous video recording made on 20th November and to get additional information about his use of the mobile phone. When I entered the house through the front door, I noticed that Rumi was colouring images in a page of a book. His older twin brothers were practicing spelling for a school test. The mother was helping them practice their spelling as their test was to be on the following day. They were in the lounge, Rumi sat on a sofa and his brothers sat at the dining table. When I played the video recording Rumi showed his immediate reaction by saying that '*eita ami*' (*this is me*), '*ami mobile like kori*' (*I like this mobile*). This showed his interest and his enthusiasm with regard to the mobile phone. I asked 'how did you get this word game?' '*Ami word games download korchi*' (*I downloaded the word games*), he said; then '*ora school er word spelling korchey*'. (*They are doing their school's word spelling*). By 'they' he meant Amin and Bablu, his twin brothers. I asked: 'do you do words spelling in your school?' He replied: 'no' and he immediately said, '*baba'r mobile kothai*' (*where is the dad's mobile?*). Their mother replied, '*Father is not in*'. This indicated that he was looking for his dad's phone to play with it. Then suddenly he decided to watch a DVD called 'Sonic Underground'. I realized that his attention had been diverted into a different activity as the mobile phone was not there in that moment in time. Therefore, I decided to have a discussion with Rumi's mother on another day about his playing the word game. The reason was that I still needed to acquire more background information related to my video observation.

I did not visit this family during the Christmas break. In January I visited this family twice to continue working with Rumi's brothers Amin and Bablu but I did not ask questions regarding previous video recording, as my ethnographic observation was still ongoing on this specific event. In the last visit on January 19th the children's mother mentioned that they needed to go to Bangladesh due to a family emergency. She was very busy doing some shopping for family members in Bangladesh. She also mentioned that they would be back at the end of February and that I should phone before I went to visit them. I had not finished working with the twin brothers. Therefore, I updated my visiting plan to continue working with them in order to obtain a video recording whilst they were playing games or other activities. On 6th March 2012, I again visited the family. The time lapse did not affect my data collection process because my

video recording was already completed for the specific case of Rumi's use of the mobile phone. I just needed to discuss with Rumi's mother to obtain some background information regarding his word game play on the mobile phone.

I had a discussion with Rumi's mother and I wanted to know the title of the application that the child was using in the word game. The child's mother said that the application is 'Pocket Phonic' and the website is called: www.appsinmypocket.com. I (researcher) also wanted to know who downloaded the game. I did not see his mother or father help him to download this game from the Internet onto the mobile. While he started the word game, the mother was working in the kitchen and his father was doing his own work next to the dining table. The child sat on the sofa while playing and I sat on another chair facing him.

The mother replied '*His dad showed him first how to download this word game.. by using mobile. Now when Rumi gets chance, he plays by downloading for himself.*'

I could see how it could be that Rumi was influenced by his brothers' spelling test work from school when his mother mentioned the reason for giving him the mobile to play games. Mother stated: '*Yes.. there is a reason behind it. When Bablu and Amin do their homework for school, sometimes Rumi watches them and tries to copy them but sometimes he interrupts their work. I let him play with the mobile phone just to keep him busy... now I came to realise this word game is helping him in learning English literacy.*'

I was able to understand through this how bilingual communication is a common practice in this family. In this context Mother stated: '*They are learning at home... learning for communicating with Bangladeshi people for when we go to Bangladesh on holidays. My mother visits England once a year. She taught them Arabic for praying and sometimes they use the Internet to learn language. I prefer children to start learning both languages before they start English school. Early years are suitable time for language development.*'

From the description it was again possible to observe a relationship between home and school. Rumi's literacy practices through word game play were influenced by the twin brothers' spelling work from school. I also observed that the practices of bilingualism,

mediated by his parents' intervention, naturally occurred. Digital screen based multiple resources offered by the mobile phone technology support the child to spell each word. These are images, sound and colour representing word meaning. This multiple mode of communicative practices is technologically mediated (Kress, 2003; Jewitt, 2011). These communicative practices can be seen as multimodal digital literacy. Therefore, throughout the description of the above mentioned practices, the themes emerge as a home-school relationship in terms of early years literacy learning. Secondly the theme literacy and language emerged in cultural context as the child and parents used hybrid (Bengali and English) language as an aid to effective communication for practicing spelling words. Finally, the multimodal digital literacy practices theme is seen in the context of screen based (sound, image etc.) learning through the mobile word game play. These are analysed in Chapter 7.

6.4.5 Summary

This example highlighted that the ways in which the child's use of mobile technology linked to and supported the school's construction of literacy learning through digital practice. Rumi used letters/sounds provided by the mobile application, together with the meaning of images and colour to help him to build words. This use of a phonics game was helping him in learning English literacy.

It was apparent that Rumi's literacy practice in the home was influenced by his twin brother's spelling work from school. This practice was mediated by his parents' intervention, as they encouraged him to play the mobile word game when his twin brothers did their spelling homework from school.

Throughout this event I observed that in my presence, Rumi and his parents used hybrid language (Bengali and English) between themselves. One of the examples can be used as a hybrid sentence, '*Yes, amra strawberry pick korchi* (yes, we did strawberry pick)'. Throughout the event Rumi and his parents used syncretised language as a habitual means of communicative practice and in doing so extended a hybrid culture of language practices. These involved new ways of thinking about Rumi's communicative practices in the context of learning (school constructed literacy). The use of hybrid language played an effective communicative role allowing him to play the game successfully. The child was in control using mobile phone technology. I

observed that the child encountered and used a variety of modes of communication (gaze, gesture, posture, talk, on-screen written text, etc.) while playing his word game on the mobile phone.

Once again this example drew attention to the cultural context of language and literacy in bilingual families. This was also showed a learning relationship between home and school in terms of literacy.

6.5 Example four

A young child's use of a Nintendo DSi Brain Training Game in the home environment and twin brothers' spelling test from their school

6.5.1 Context

In this example the participants were twin brothers. Their names were Amin and Bablu. They were in school year three, aged 7 years old. The twin brothers are British born from Bangladeshi origin. The first part of the case study focussed on Amin's play activities on the Nintendo DSi brain training game. The second part involved both brothers (Amin and Bablu) and their spelling test from school. Amin's initial and individual activities consisted of drawing pictures, playing a memory-dependent colour game and a significant amount of word spelling on the Nintendo DSi touch screen which again involved significant memory use. Amin's and Bablu's joint activities concerned a spelling test set by the school for them to practice in the home which also involved memory dependency. Collectively the study describes emergent school-constructed literacy practices between home and school.

6.5.2 Ethnographic observation

Amin showed interest in playing a game called 'Brain Training' on the Nintendo DSi while he was compiling and counting all their video games. This was recorded on video on 7th March 2012. He was putting the games on their bookshelf in the order that he had decided. It was while doing this that he pointed his fingers at the game called Brain Training and showed interest in playing it.

He said: '*This is a brain training game.. a maths one.* P: *Maths one!* Amin: *Yeah that's a maths game and a word spelling game.* P: *Do you want to play with this one.* Amin: *Yeah*' (see Appendix 3 in the Example 4 for detail). It is worth mentioning that this game consists of several components including maths.

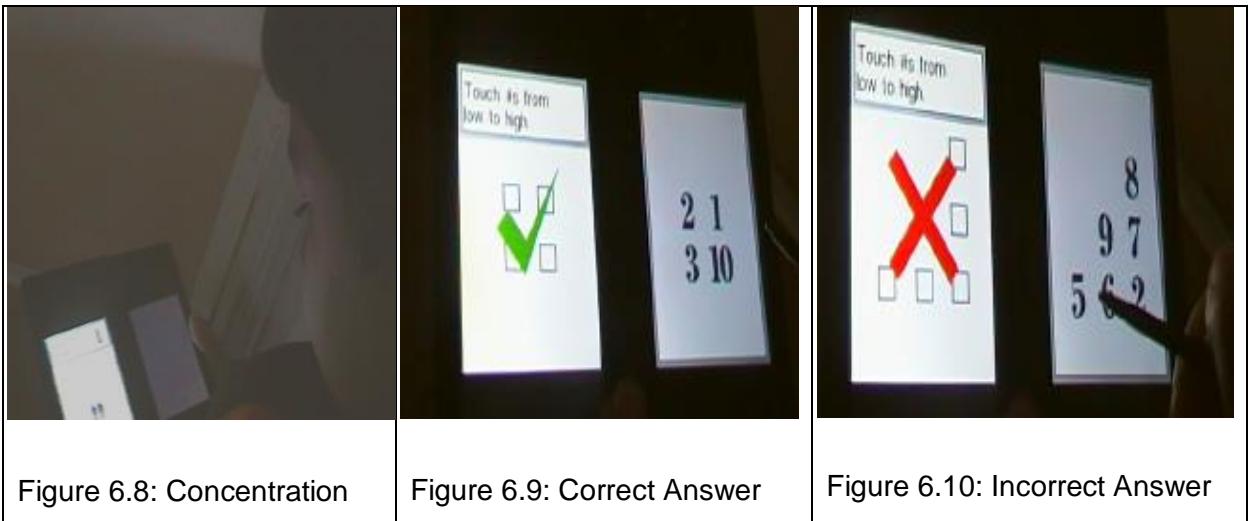
On 18th March I videoed Amin's play activities involving drawing, colour, number and word through the use of Nintendo DSi. In order to assess Amin's activities on the Nintendo DSi, I subsequently watched and listened to the video clips several times and noted any relevance to my research. The set of this data came from the continuation of the previous clip taken on 7th March 2012.

On 19th April 2012 another video recording was taken of Amin and Bablu practicing the spelling test from the school in their home. These two video recordings are contextually linked with each other by their focus on memory practice and word spelling. The first video recorded an initial memory training activity by Amin that involved the use of drawing, colour and number which was immediately followed by a memory dependent word spelling test. The second video recorded the twin brothers' memory dependent spelling test set by the school for them to practice in the home. The total time for these video clips is 1 hours and 30 seconds.

6.5.3 Data description from the video observation (on-screen and off screen multimodal included together)

Data description of on-screen (Nintendo DSi) activities in the home:

It was during the event on 18th March 2012, when Amin was searching to select games that I asked him, '*What are you looking for?*' Amin showed me a variety of activities using his Nintendo DSi. Amin said, '*Yeah.. these are the things I have to do.. Signable count, reading loud, calculations, that means like you do a hundred calculations.*' While recording his activity through the video camera, I realised that he was playing a number memorising game which required his full concentration on the screen in order to respond correctly. The images below captured from the video recording showed that the child is memorising numbers using the Nintendo DSi. The detailed transcription is in Appendix 4.



The child was reading the numbers out loud. In figure 6.8, the child's gaze on screen indicates his concentration in order to memorise the numbers. At this stage I was not quite sure how the child was memorising these numbers. My conversation with Amin is written below in italics.

I said to Amin: '*How did you work it out?*' Amin said: '*you have to do it from biggest to smallest ..look, I memorised it (see Figure 6.9)*'. When Amin made a mistake he was disappointed and said, '*it's hard*' (see figure 6.10). By observing this game I realised that this game would be quite challenging for adults too. The screen displayed several numbers in specific settings for 3 seconds (see figure 6.9 and 6.10) and then the child has to memorise it and press the button quickly in his right hand side page in the DSi. When he did it correctly in each trial I appreciated it by saying '*well done*'. After this exercise he stated that:

'I got stamp'. I asked, 'What does this stamp mean'? He replied 'If you do.. like something good, then you get stamps.. I got lots of stamps. Look on 26th of January I got stamp and this is in 2011... and in August 13th I got stamp and on 14th I got stamp and on 18th...and on May I got four stamps'.

He memorised ten trials and gained 17 stamps. I observed that each time when the child played with the Nintendo DSi, he was reading the brain scores of his brothers and friends who were registered in the DSi before he started to play and when he finished

each exercise he mentioned that he got stamped. At this point he said that he did not know how his brother (Bablu) had got higher scores in comparison with him. In this context Amin stated that '*My brain age is 74, Bablu's brain age is 78 and Monju's 58 and I don't know how he got a big number*'. This indicated that the siblings are competing with each other when playing this game. I observed that the twins are playing the same games, watching the same TV programmes and attending the same school. As a consequence, they were possibly competitive with each other. This suggests a context for competitive behavior.

In order to read the words correctly Amin had to hold the DSi as though it were an open book. He chose three games: drawing on the screen of the Nintendo DSi, reading a word in a colour game and lastly a word recognition and memorising exercise followed by a memory-based spelling test. He began with the drawing game, but suddenly scribbled all over the drawing and said:

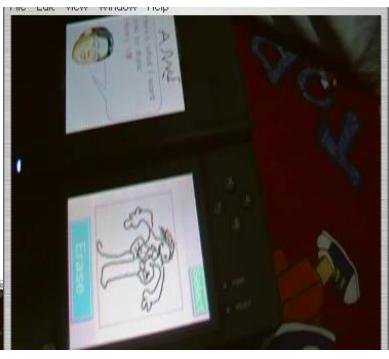
'I am going to give up because I don't know exactly what I am going to draw'. After a while, the child looked at the screen again and immediately stated: '*he said that what I am going to draw, it says, Henry viii* [Here, 'he' indicates the virtual instructor provided by the game].

The child used his stylus pen to draw picture of Henry viii on his Nintendo DS touch screen, and then he saved the picture (see the picture in table 6.4). Next he drew his own face and said: '*when I first got this, I keep playing and playing after I got the score*'. This meant that the child understood that he needed to keep playing until he got a better score.

Then he moved on to another concentration game with a complex rule. In this game he had to read colours out loud to the screen. It was a brain exercise with a verbal challenge. The biggest difficulty for him was that the words were also associated with the font colour in which they were written. For example, the word 'Blue' cannot be named blue unless the font colour was also blue. Amin quickly understood and applied the rules of the game and only made two mistakes out of 20 trials. It was not my intention to identify how well he played, however, but to understand the learning taking place and the skills being acquired through his play activities.

The following memorising and spelling practices are extracted from the videos of the child's activities.

Table 6.4: Memorising practices

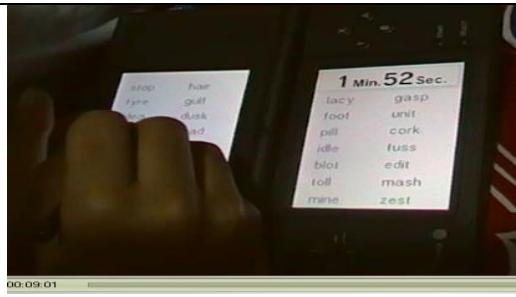
 Amin said, 'I don't know exactly what I am going to draw'	 Amin said, 'it says, Henry viii'	 The word 'Blue' cannot be named blue unless the font colour was also blue.
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After that he moved on to a spelling recognition test. He explained the process of learning to spell.

He said to me, '*This is word memory like, there is a bunch of word here, then you have to memorise them, read them lots of times, then all the words gonna be gone and then you have to write all of them. Then you got thirty or maybe more second*'.

In one turn of the test, the child read thirty random words on the screen. This took 1 minute 52 seconds. I asked, '*have you finished it?*' He replied, '*No, you have to read them all and memorise them. Because you have to write them somewhere now*'. Here are thirty words the child was practicing through the use of Nintendo DSi (see Table 6.5 and further details in appendix 4).

Table 6.5: Spelling practices

Speech	Action related to video recording
Amin was reading the words: Stop, hat, tired, golf, idea, dust, junk, toad, kilo, gene, mum, girl, poke, mare, mile, calf, lacy, gasp, foot, unit, pill, cork, ideal, fuss, blot, edit, tall, mash, mine, zest.	 1 Min 52 Sec. stop hat tired golf idea idea dust junk toad toad kilo kilo gene gene mum mum girl girl poke poke mare mare mile mile calf calf lacy lacy gasp gasp foot foot unit unit pill pill cork cork ideal ideal fuss fuss blot blot edit edit tall tall mash mash mine mine zest zest

Data description of off-screen spelling practices from school:

I have described Amin's and his twin brother, Bablu's, spelling test homework which I categorize as a school-initiated off-screen literacy practice. The twins, Amin and Bablu were practicing spelling at home for the school's spelling test. I have previously discussed the contextual connection between Amin's word memorising game (on-screen) with the school off-screen spelling test.

In this visit when I entered in their home, I noticed that the twins were playing with the Nintendo DS and their school book bags were on the table. Their mother said to me that they have spelling work to do first for a test at school and then they can play Nintendo DS. They were in the process of practicing spelling and the mother asked me whether I wanted to join them. I willingly got involved as I was expected to do so. I asked if I could video their work and their mother readily agreed. I started videoing them, at the same time I was talking to them and they seemed happy about me videoing them. I decided to video their activities on spelling revision since this is linked to Amin's word memorising game through the use of his Nintendo DSi.

In this instance I listened to and observed the twins' spoken language in order to understand the learning process of the school's spelling test in the home. Initially the children's mother was giving them the instructions required in order to revise for their spelling test.

During the spelling revision, conversations took place between the twins, their mother and me (researcher). The twins mentioned that this was their 4th test and they have thirteen words to learn for the spelling test by Thursday. At school they do spelling practice once on Monday and then they do it twice at home for a test on Thursday. At one point their mother mentioned that she found out from parents' evening that children have to make a sentence using the word but they never told their mother. Amin looked at his mother and admitted this by saying that '*Yes, I know*'. The mother read the teachers' comments in which Amin missed a couple of the sentences. She told him not to forget to write sentences. I was videoing their activities and got involved in their conversations. The mother was explaining how to add a suffix.

The Mother: ‘..can you tell us what suffix would be adding. What letter you are adding at the end of each word. Like driver, baker, farmer, so you add using e and r at the end, farm is a word and you adding er to make it farmer’ (details are given below in Table 6.6).

At the same time Amin and Bablu said that they have finished their revision. I asked whether they wanted to do more revision. Amin and Bablu mentioned that they did it twice already and that they wanted to write out the words without looking at them. Amin said that ‘now I have to do it on the back’ and requested that I dictate each word to them, so that they could write out the words from memory. I started the revision test whilst holding the camera and I said ‘Okay, write driver’. Bablu wanted to know whether he can do the same thing. I said, “yes, both of you, write driver”. When they wrote the word and said, “Done” and sometimes said in Bengali “Korchi (Done)”. Then I continued, “Okay, next .. baker”. After all thirteen words were written down; I asked the twins to mark each other’s work. Amin’s score was 11 and Bablu’s score was 12. Amin made two spelling mistakes whilst Bablu made one spelling mistake. Their mother asked them to write out the words that they got wrong five times, making (perhaps intuitive) use of the memorise/repeat paradigm. It is this paradigm of display, copy, memorise and repeat that signals the learning linkage between the school paper-based spelling practices and their home-based word memorising game play on their Nintendo DSi.

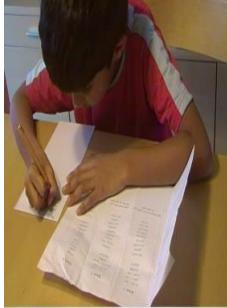
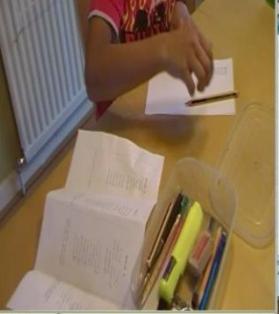
As mentioned earlier, the child described the word memory game which required him to read thirty random words through the use of the Nintendo DSi and then stated that ‘you have to read them all and memorise them, because you have to write them somewhere now’. This word memory game provides the context for connecting the children’s home activity to the spelling revision work from school. I present an example of this event in Table 6.6 drawn from the multimodal transcription of spelling revision from school. I used a grid (Speech, Gaze, Posture, Gesture, and Resource for their spelling work) to explain the multimodal interactions from the observation of home video recording. Further details are included in appendix 3 in Example 4.

Amin and Bablu were talking while revising for their spelling test. Their paper-based gaze signalled that they were communicating with response to their school’s spelling test activities. They fixed their eyes on the piece of paper on which they were writing for

revisions. They sat on chairs, facing towards the piece of paper on the table. At the beginning Bablu gave a little briefing about the spelling test. Bablu was sat in such a way that he could easily sit up and look at the camera and get down back into a comfortable writing position. Most of the time their gestures were oriented in the same direction as the surface on which they were writing. I also noted the resources used for the spelling revision. These were a pencil case, highlighter pen, rubber and paper.

While they were marking each other's work, Bablu said to Amin '*you can't do that*'. Amin had missed the letter 'e' when he wrote Voyager but then when he realised he put 'e' on top of the 'g'. The children used crosses or tick marks on the paper while they were marking each other's spelling work. They marked each other's spelling work on a piece of paper and scored 12/13 and 11/13. In this instance they both demonstrated an ability to apply marking skills, sometimes quite strictly, which may be consistent with their school experience.

Table 6.6: Multimodal transcription (see the appendix for further details)

Speech	Gaze	Posture	Gesture	Resources for spelling work	
<p>Bablu: "We are doing our spelling test".</p> <p>Bablu: "We are on week 4".</p> <p>Bablu: "you can use a rubber if get it wrong".</p> <p>Amin: "without looking.. Now I have to do it on the back.</p> <p>Parven: OK, write driver, B: <i>amio</i> (me too)</p> <p>P: yes, both of you, write driver, OK, baker,</p> <p>A: <i>amio</i> (me too),</p> <p>Parven: "After that you need to mark each other and see you got good mark".</p> <p>Parven : So correct one, you are putting tick mark..</p> <p>Bablu: "wrong one X,</p> <p>Parven: cross..X mark".</p> <p>While they were marking each other, Bablu said to Amin in <i>Bengali</i>: <i>Ami korchi better tumar chea</i> (I did better than you).</p>	  	<p>Amin fixed his eyes on the piece of paper on which he was writing.</p>	<p>Bablu was sat in such a way that he could easily sit up and look at the camera and get down back into a comfortable writing position.</p>	<p>Bablu was using his pencil to point out the fact that they are on the 4th week of their spelling test.</p>	 <p>Bablu put down his pencil on the piece of paper on which he was writing and then he got the rubber from the pencil box. There was a piece of paper from school beside his pencil case. There were some pencils, highlighter pen and rubber in the pencil case.</p>

They communicated in English while they were practicing their spelling test but occasionally communicated in Bengali. At the beginning of the test both of them said 'ami o' which means can they both start together. While writing each word, Bablu said *korchi* which means he had done one word and was waiting for another word to write. When Bablu got one mark higher than Amin he said in Bengali: *Ami better korchi tumar chea* (I did better than you). It seemed that Bengali was spoken spontaneously or when they were excited. Equally interesting was their ability to intersperse the occasional English word into a Bengali sentence to communicate. Once again this example contained a pattern of hybrid communication demonstrating the theme of language and literacy in the context of their cultural heritage. This is analysed in chapter 7 to explore how children used hybrid language involving English and Bengali when they became excited during their Nintendo-DSi game playing. The theme, home and school relationship in terms of literacy practices was explored through Amin's digital literacy practices on Nintendo DSi at home and Amin and Bablu's spelling test work from school. From my video observation it is also possible to understand that the child's screen based communicative practices through the use of Nintendo DSi are multimodal in nature as he was dealing with sound, colour, images and reading/writing practices. This is consistent with the theme of multimodal digital literacy practices.

6.5.4 Summary

This example revealed how children's school based literacy practices are connected with home based digital literacy practices through the use of Nintendo DSi. Amin and Bablu brought spelling work from school for practicing spelling tests. In this episode I observed Amin's spelling game play on the Nintendo DSi, although both brothers played the game on other occasions. Amin's spelling game play showed the complementary nature of the task involving the learning activity adopted by both the school, and the children in their home. This showed effective coordination between home and school in terms of literacy learning. The school initiated the spelling test process; the twin brothers were planning and performing the required tasks in their home. The mother observed the way in which her children were working and made suggestions and exercised control whenever she felt it necessary. Interestingly the use made by the child of digital technology also made a significant contribution. Other features of this study were the use made of hybrid language in the multimodal communications that took place. It was observed that Bengali was spoken

spontaneously when Bablu and Amin were excited and both demonstrated their ability to mix together the occasional English word into a Bengali sentence. I also observed that a similar process was facilitated by the technology especially when Amin was using the Nintendo DSi for spelling practices.

These features again served to suggest that important themes were beginning to emerge and the nature of these themes was becoming explicit. It is possible to restate them once again as: cultural influence on bilingual literacy and language, home-school relationship and digital literacy practices.

6.6 Example Five

A young child's use of the Google search engine to find Qur'anic literacy on the Internet in a South Asian home

6.6.1 Context

This example is focused upon the interaction between a young multilingual child, Bablu, and his grandmother during Internet searches for information about Qur'anic literacy and online reading practices. This practice was initiated by the grandmother. Bablu was seven years old and was involved in the previous example. The grandmother told her grandson to open the computer and find the opening Surah-Fatiha and hear its recitation. Bablu was interacting with his grandmother and at the same time, he was doing a Google internet search to hear the recitation. In this case study, I sought to understand an inter-generational (Kenner *et al.* 2008) cultural interaction between the grandson and his grandmother when using online resources for learning Qur'anic literacy in the home setting.

6.6.2 Ethnographic observation

This ethnographic observation was carried out with a Bangladeshi family. The activities relating to the Google Internet search (and interaction between the multilingual child and his grandmother) took place in the upstairs study room where a computer is located on one side of the room, and a very small bed is on the other. The siblings use this space for working on the computer and playing games.

On 6th March 2012, during one of the visits to the family and while talking to Bablu's mother, I realized that the children were practicing other languages apart from English. She mentioned that her children are learning Bengali as their heritage language. They need to communicate in Bengali when they go to Bangladesh for holidays. The children's grandmother visits England once a year and she had taught them the necessary Arabic for praying as part their religious education. The 19th January was the last visit to the family before they went to Bangladesh. It was a part of the continuous process of video recording Amin and Bablu's activities whilst using a computer and Nintendo DSi as part of their daily life practices. As mentioned earlier on the 6th March, after they came back from Bangladesh, I needed a little more information regarding my video observation of Rumi's activities. Afterwards I carried on visiting and video recording Amin, Bablu and Rumi whilst they were playing with the Nintendo DSi and also doing their spelling work from school. In this context my last visit was on 19th April 2012. After this, in order to follow the data selection criteria, I took time to observe these video clips before I made any further visits. I was also aware that I needed to collect diverse practices which reflected their South Asian family culture. Therefore, I needed to wait for events that are normal practices in their home. At the same time, according to my scheduled plan I needed follow up visits to the Indian family. This family however went to India in the Easter holiday and the mother told me to visit them on 6th May 2012. I also made an appointment with the Bangladeshi family on 19th May. Although this created a little gap I remained in contact with the mother of the family over the phone. This helped me with the follow-up discussion on the 19th May 2012 about the multilingual practices that occurred during my visit.

The children's grandmother was talking to her daughter about the children's Arabic practice whilst I was present. She said that her grandsons had forgotten some Arabic that she had taught them before she went to Bangladesh. She mentioned that in Bangladesh, children often learn the Arabic language through the Internet. She also asked me (researcher) whether I could get involved in searching for the right website for them as she needed help in English as well as with Internet browsing. I wrote the key words and gave it to Bablu as he had asked for it and showed interest for searching for it on the Internet. I asked whether I could video their activity when searching for Qur'anic literacy. They were very happy for me to do this. I videoed Bablu's interaction with his grandmother while he searched for the opening Surah on the Internet. Their activities were recorded for seventeen minutes and fourteen

seconds. I have chosen this activity because it focused on South Asian cultural practices that were taking place in the home, and were Internet related, through the use of Google to gather information on Qur'anic literacy. The child's concentration on learning Qur'anic literacy about Surah-Fatiha is an example of home based cultural practices relevant to my research and consistent with their ethnic origin.

6.6.3 Data description from the video observation

The grandmother said that she recites Surah with her grandchildren mostly at the weekend and sometimes during the week prior to their bedtime. It was the grandmother's idea for her grandson to explore websites for learning Arabic, with the aim that when she returns to Bangladesh, her grandchildren would be able to continue their practice in Arabic online. The data used in this case study was drawn from an ethnographic perspective looking at the communicative practices between the grandson and his grandmother regarding online reading practices about Surah-Fatiha recitation.

It was Saturday (19th May 2012); I recorded how Bablu was searching and reciting Surah through the use of the Internet. The grandmother told one of her grandsons to open the computer and find the opening Surah-Fatiha and hear its recitation for correct pronunciation. The child asked for help in selecting and spelling words for searching the Internet. I wrote the two key words (Qur'an and Surah-Fatiha) on a piece of paper for the child. Bablu and his grandmother then began to use the Google search engine in order to find the Qur'an. First, Bablu typed Qur'an and was shown a screen containing a list of Al – Surat (a list for Surah). Bablu sat in such a way that he could easily look at the screen and get down back into a comfortable typing position (see the multimodal transcription for full details in appendix 5). Then he typed Surah-Fatiha in the Google search engine and at the same time he was responding to his Grandmother about the search. I was observing through the video lens. The grandmother was standing on the left side corner of the table bending her body towards the computer screen and holding the corner of the table with both hands. She was holding this position for two reasons. Firstly she wanted to be able to see the computer screen and, at the same time, be able to observe Bablu's Google-related actions and responses. Bablu was moving the cursor by using the mouse and staring at the computer screen.

The child's concentrated gaze showed his motivation to find specific Arabic script on the Internet.

The extract below illustrates the conversation between Bablu and his Grandmother while searching Arabic script on the Internet (Bengali is written in italics with English translation in brackets).

The grandmother was unfamiliar with navigating resources on the Internet. She speaks very little English. She was unsure about what was happening on the screen and she said: *Bablu ki korcho* (Bablu, What are you doing?) [See the multimodal steps captured from the video, table 1 below]

Bablu: *Ami Qur'an find kortechi* (I am finding Qur'an).

Grandma: *Okay, tumi egulo daily porba* (Okay, you need to read these daily.)

Grandmother: *ekta sura shunitey parba, alhamdu surah?* (Can you recite a Surah, namely Alhamdu?)

Grandma: *boloto A'uzu billah //* (say A'uzu billah)

Bablu: *A'uzu billahi minashaitanir rajim. A'uzu billahi minashaitanir rajim. A'uzu billahi minashaitanir rajim. Bismillahir Rahmanir Rahim.*

(Translation: I seek refuge in Allah from the outcast Satan. In the name of Allah, the Most Beneficent, the Most Merciful).

Grandmother: *alhamdu surah ta poro* (Can you recite alhamdu Surah?)

The Grandmother repetitively told Bablu to recite the opening Surah.

6.6.4 Multimodal data description from the video observation

In this example I observed that Bablu's navigation of screen based texts frequently involved back and forth between webpages which is quite different from the reading practices of paper-based texts (Merchant, 2003, 2005, 2007 and 2008). Here is the example presented below:

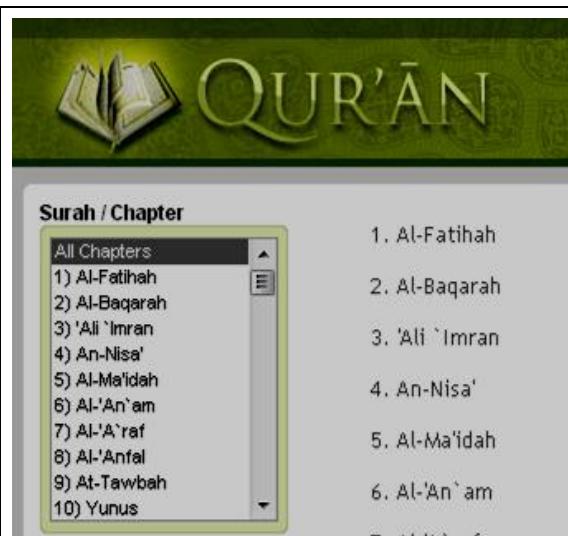


Figure 6.11: learning site - <http://quran.com/>

Figure 6.12: English translation



Figure 6.13: Provider's name



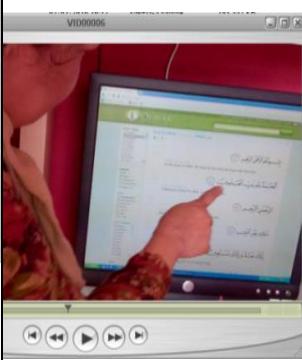
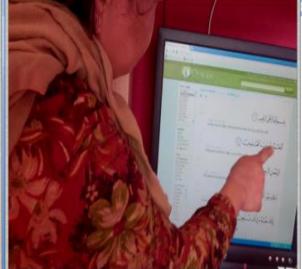
Figure 6.14: Historical images

The child typed 'Quran' in the Google search engine. Then the Figure 6.11 page appears on screen. There is a menu bar at the left side and also there were some options such as, images, English translations, and audio record to select. The child selected surah-al-fatihah and then he clicked English translation. He didn't select audio record; rather he was searching recitation from the YouTube video. He then was navigating from one page to another in order to get the video clip. He typed Youtube + surah fatiha and found several options to select and then he selected surah Fatihah - 10 great Reciter (see in figure 6.12). He placed the cursor on the play button and pressed it by using his mouse with his right hand. There were written texts and relevant

images displayed on the screen. The multimodal communicative practices between the grandmother and the grandson are presented in the table 6.7 below.

Table 6.7: Multimodal communicative practices (The grandmother and the grandson)

Gaze	Posture	Gesture	Language Resources											
			 <p>Google Quran</p> <p>Search About 164,000,000 results (0.39 seconds)</p> <p>Web The Noble Qur'an - دُرْجَاتِ القرآن</p> <p>Images Quran.com</p> <p>Maps The Noble Quran in many languages in an easy-to-use interface.</p> <p>News Surah Al-Baqarah - Surah Ya-Sin - Surah Al-Kurt - Surah Al-Fatihah</p> <p>Shopping Quran - Wikipedia, the free encyclopedia</p> <p>Applications Quran Explorer</p> <p>More Listen to Quran Recitation and Translation online in Arabic, English, and Urdu</p> <p>Bablu typed Quran in Google search and then clicked. A list of options came on the page, then he clicked on the Noble Qur'an</p>											
Grandmother was looking at Bablu. Bablu was moving the cursor by using the mouse and staring at the computer screen.	Bablu was sat in such a way that he could easily look at the keyboard in a bending position.	His fingers position on the keyboard indicated the sign of typing the words for searching for Quran.	 <p>QUR'ĀN</p> <p>Surah / Chapter</p> <table border="1"> <tr><td>All Chapters</td></tr> <tr><td>1) Al-Fatiyah</td></tr> <tr><td>2) Al-Baqarah</td></tr> <tr><td>3) 'Ali 'Imran</td></tr> <tr><td>4) An-Nisa'</td></tr> <tr><td>5) Al-Maidah</td></tr> <tr><td>6) Al-An'am</td></tr> <tr><td>7) Al-A'raf</td></tr> <tr><td>8) Al-Anfal</td></tr> <tr><td>9) At-Tawbah</td></tr> <tr><td>10) Yunus</td></tr> </table> <p>In this step there was a list of the names of the Sura in the whole page and Bablu put the cursor on Surah Al-fatihah and pressed on it by using his mouse.</p>	All Chapters	1) Al-Fatiyah	2) Al-Baqarah	3) 'Ali 'Imran	4) An-Nisa'	5) Al-Maidah	6) Al-An'am	7) Al-A'raf	8) Al-Anfal	9) At-Tawbah	10) Yunus
All Chapters														
1) Al-Fatiyah														
2) Al-Baqarah														
3) 'Ali 'Imran														
4) An-Nisa'														
5) Al-Maidah														
6) Al-An'am														
7) Al-A'raf														
8) Al-Anfal														
9) At-Tawbah														
10) Yunus														

Gaze	Posture	Gesture	Language Resources
 <p>He was staring at the computer screen and searching information according to his grandmother's instruction. He was also reciting surah from his memory. Sometimes she made a eye contact and touch that might play an important role in intergenerational learning activities.</p>	 <p>The grandmother and the child maintained a close physical contact as they were listening each other. She was standing very close to Bablu.</p>	 <p>Granmother said by pointing her finger on the screen, 'find it here'.</p>	 <p>In this stage, written Arabic script came with English translation.</p>
 <p>He was looking for YouTube in order to find out recitation, as his grandmother said to do so.</p>	 <p>Bablu was sat in such a way that he could easily look at the keyboard into a bending position inorder to write key words.</p>	 <p>Grandmother wanted to know how did he find out.</p>	 <p>P: OK, is it the meaning of Surah-Fatiha? Bablu admitted by nodding his head and said, 'yeah'.</p>

The conversation between the grandmother and the grandson was mainly in Bengali with some English words embedded. The grandmother was not fluent in English. So therefore Bablu chose to use hybrid language (Bhabha, 1980) by inserting a few English words in Bengali sentences. He responded to his Grandmother by saying that he was finding the Qu'ran and he used the word find in order to construct the whole Bengali sentence (*Ami Quran find kortechi*) [see Appendix 3, example 5 in the Speech column turn 1]. Grandmother understood and she used two words (Okay and daily) for encouraging him to read these (Arabic scripts) daily. Here, the child used hybrid language in order to communicate with his grandmother in relation to their online searching activities. I observed that there were some English words that Bablu was reading online and he was moving the cursor frequently in order to enter search terms to access information on Arabic script. Bablu was using English alongside Arabic while searching online resources and at the same time he was talking to his grandmother in Bengali. He appeared comfortable operating in three languages whilst also doing internet information searches. These online computer based tasks are technologically mediated, linguistically flexible and enabled Bablu to interactively manipulate two different scripts (English and Arabic). Kenner and Gregory (2012) acknowledge that multilingual computer based online scripts are motivating and enabling the language practices of bilingual learners. My study was to consider and understand the complex nature of children's literacy practices mediated by digital technology. My concern was multilingualism, the symbolic aspect of screen-based texts, and how these are different to paper based reading and writing practices (Merchant, 2008). I want to conceptualise in the same way as Kress (1997, 2000, 2003), who pointed out the ways in which literacy shifts from page to screen, highlighting the visual nature of digital texts. The nature of these digital texts makes them multimodal.

The grandmother requested him to recite the Surah-Fatiha. She also gave him a clue by saying the first word of the first line of the Surah is 'alhamdu'. Bablu is in an early stage of learning Arabic. The grandmother taught him the first opening Surah-Fatiha in the Qur'an. Therefore, she wanted to know whether Bablu could recite it without any help from her. Bablu started and repeated the first line three times and the second line just once. I have provided the English translation (in Appendix 3, example 5) which was found by Bablu through his Internet browsing. Bablu started reciting and at the same

time he was searching for a video clip in YouTube, just to hear the pronunciations. He was reciting Surah-Fatiha from memory.

Grandmother: *Surah-Fatiha khujo, Surah Fatiha mani Alhamdu sura paicho, Surah-fatiha*. The Grandmother was asking Bablu to find out the first Surah from the internet and then she gave him tips that by saying the first word (*Alhamdu surah*) of the first line of the Surah so that he could learn the correct pronunciation.

In the meantime the Grandmother was talking to Bablu's youngest brother. She said: '*bed e jao, gumao, ami tumake sangiter basai nia jabo*' (Go to bed and sleep. I will take you to Sangit's [his friend's] house when you wake up). She then came back to the computer and wanted to know whether Bablu had found out about Surah-fatiha. Bablu said in Bengali to his grandmother: '*Surah-Fatiha find korchi*' (I find Surah-Fatiha). Grandma said: '*Find korcho, ascha, click korcho kotai*' (You find it, Okay, where did you click?) Bablu: '*ha write korchi fatiha eikhana tarporey search korchi*' (Yeah, I wrote Fatiha here then I searched).

The communicative practices between the grandmother and grandson demonstrated the use of hybrid language.

Bablu found an English translation through his Internet browsing and also a YouTube video clip of the recitation of Surah-Fatiha. His grandmother asked him to explain how he downloaded translations and YouTube. He said that he typed the key word in the search engine then clicked on search. It showed that Bablu was gaining experience of using the computer and Internet in and out of school settings. This can be seen as Bablu's acquisition of literacy skills through digital literacy practices (Davidson, 2011) and illustrates its relation to multimodality. Kenner and Gregory (2012) also acknowledge that online computer-based texts are linguistically flexible, therefore bilingual and multilingual children can move from one script to another. I observed this flexibility during Bablu's online multilingual practices. These matters are analysed in Chapter 7.

It showed on the screen that Bablu found the English translation of the surah. Grandmother pointed her finger on the screen and said: *eije surah-fatiha kintu all lekha* (this is Surah-Fatiha but all written information).

This indicated that the grandmother wanted him to learn verbally, because she did not feel that Bablu is big enough to learn Arabic words simply through translation. In this instance Bablu showed his primary school experience by downloading an English translation, although he is still in his early stage of learning English literacy. Here, I did not mean to reflect on Bablu's level of reading ability, rather to simply acknowledge Bablu's actual online reading practices in the home. [See transcription below for Bablu's YouTube activity].

P: 'YouTube e deko' (Look at YouTube)

Bablu was reading on the screen and searching YouTube.

P: 'YouTube Surah-fatiha type kortey parba please?' (Would you please type YouTube and Surah-Fatiha?)

He then found it on YouTube. I could not hear any noise and I said, 'Are you playing it?'. Bablu said: 'Yeah'.

P: 'where is the sound?'

Bablu: 'wait I need to do cross (X) this out.'

Then sound came up. It was a video clip that presented the recitation of the surah.

Grandmother is now pleased and said happily, 'Dekcho ki sundor korey porey' (have a look what a good pronunciation) 'Bablu, Listen..'. The grandmother, Bablu and the researcher were listening quietly.

Grandmother: 'Sobai Amen boche dekcho'. (Listen, everybody said Amen)

Grandmother: 'Dekcho ki sundor korey porche surata'. (Have you listened, the Sura was read very good)

Grandmother: 'Tumi portey parba eibhabey' (will you be able to read this way?)

Bablu: 'ha money hoy'.(yeah probably..).

Throughout the event Bablu was demonstrating an ability to select from a range of languages the one that was most appropriate to the task he was doing. The range of languages included English, Bengali, Arabic and hybrid versions of these. It showed how a young multilingual child is learning in the home. Therefore in Bablu's case it was possible to understand how the emerging theme of literacy-language in cultural context occurred in a multi-lingual household. Bablu is using the computer for school work, therefore it seemed that he was transferring his knowledge of digital literacy skills between home and school. On several occasions I observed how multimodal digital

literacy practices occurred in the context of learning and culture in the home. This example makes a particularly important contribution to the digital literacy theme whilst also supporting language and literacy and home-school relationships. My final summary will propose finalised versions of these three themes.

6.6.5 Summary

It is evidenced by the above description that interaction between the grandson and the grandmother is both technologically mediated and multimodal. The communicative practices between Bablu and his grandmother involved different modes of communication. These include speech (Bengali, English and Arabic), visual images or gaze, gesture and posture. As well as demonstrating Arabic literacy, Bablu and his Grandmother communicated in Bengali with the insertion of a few words in English. This hybrid language communication occurred without any prompting from either partner. In addition, at the Grandmother's suggestion, the child downloaded a video clip accompanied by sound (recitation) and this was also used as part of the learning, memorising and reciting process. Bablu searched for and found online translations from Arabic to English. It was observed that Bablu was in control of the computer in order to carry out searching activities on the Internet.

The finalised versions of three themes are: 'literacy-language in a cultural context' 'home-school relationship' and 'multimodal digital literacy practices in the context of learning literacy and culture'. These are used as the basis of analysis in chapter 7.

6.7 Combined summary and emerging themes

During the study, communicative practices by the children and the older generations occurred in the context of languages and culture. A range of languages were used during the children's engagement with digital technology. These included English, Bengali, Arabic, Hindi, Urdu and the syncretisation of them in order to create hybrid versions. This indicates that all of these examples reveal that literacy and language learning was highly influenced by the cultural context of the event. There were different literacies associated between the home and school domains (Barton and Hamilton, 2000). In my study the theme of home-school relationship emerged from the participant's knowledge transfer, involving different literacies, cultures, and

engagement with digital technology. The description of the above five examples reveals that the children's literacy practices were digital in nature and their communicative practices and literacy learning were multimodal. Therefore, children's digital practices in relation to multimodality emerged in the context of learning literacy and culture.

Finally, three themes emerged during the process of the data description; these are: 'literacy-language in a cultural context' 'home-school relationship' and 'multimodal digital literacy practices in the context of learning literacy and culture'. Each of these themes draws on ethnographic observations of a diverse range of children's home based digital learning experiences and each theme is profiled below in table 6.8. In theme one, Literacy and Language, every example involved the use of a minimum of two languages - one of which was English. One example involved three languages where the third language was introduced for specific religious purposes. This example also involved three generations of the family with the grandparent taking a supportive role in the religious activity. In all examples the parental generation were actively supporting the children in regard to the home-school relationship involved in their digital learning experiences. There was also an observable commonality in the occurrence of multimodal communication practices regardless of the type of digital device or the digital application in which the child was engaged.

Table 6.8: Profile for the themes and framework of data analysis

Themes	'Literacy-language in a cultural context'	'Home-school relationship'	'Multimodal digital practices in the context of learning literacy and culture'
Example 1	Urdu words used in English conversation by the participants.	PowerPoint presentation created on South Asian wedding in the home and then it was presented in the school.	Screen-based multimodal text: design (font size, colour, shape, images, written text, and music) and also gaze, gesture and posture to convey the traditional meaning of South Asian wedding.

Themes	'Literacy-language in a cultural context'	'Home-school relationship'	'Multimodal digital practices in the context of learning literacy and culture'.
Example 2	The participants used Hindi and English as well as translation from one language to another language in order to learn Hindi.	Google translation used for practicing the Hindi language in the home. It is also used in school for learning Spanish.	Screen based multimodal texts: Used on-line multimodal resources (audio, different icon, bilingual written texts) for practicing the Hindi language.
Example 3	Bengali and English language used by the participants in order to learn school constructed literacy.	The child used mobile phone technology for playing word game in the home. He is learning letters in the nursery school and also influenced by his brothers' spelling test from school.	Screen based multimodal texts: sound, image and colour used for making words.
Example 4	English and Bengali language was spontaneously used when children were excited about their ability.	On-screen word memory game on Nintendo DSi in the home. Paper based spelling test home work from school.	The multimodality also includes the graphics design on the computer screen (font size, colours, shape) and written instructions.
Example 5	Language practices included direct translation from Arabic to English and the child used mixtures of languages (English and Bengali) in order to communicate with his Grandmother.	Google search for learning Arabic in the home and have prior experience for Google search engine for School home work.	The communicative practices between the child and his grandmother were mainly Bengali, English and Hybrid and involved gaze, gesture and posture for learning Arabic. The multimodal texts also included bilingual texts, sound, colour and images on the computer screen.

The ethnographic study material from the five examples in my study is profiled above in terms of three major thematic features. These thematic features will be used as a framework through which further analysis of the implications of this event can be pursued. The outcomes of this further analysis are presented in Chapter 7.

Chapter 7

The thematic data analysis and its outcome

7.1 Introduction

This study sought to understand how South Asian families in the UK use digital technology within the context of their own literacy and language practices. Understanding the unique ways in which these families drew upon their own cultural heritage in developing these practices has implications for understanding how culture influences how families use digital technology in this context.

The purpose of this chapter is to explore how the data has brought me to new understandings of how children in these particular families draw on their cultural heritage when using digital technology in literacy and language practice. Through my initial exploration of the data in Chapter 6, the three initial themes emerged and their relationship to the research questions triggered some sub-themes for the study. My initial three themes are, as stated in Chapter 6, language-literacy in a cultural context; the home-school relationship; and multimodal digital literacy practices in the context of learning literacy and culture. These themes relate to children's literacy learning activities in the home and were used as a thematic analysis process to identify and interpret relevant findings arising from the details held within my five sets of data. The data was scrutinized through the description of these three themes revealing original and important sub-themes that will be discussed in this chapter. These are: 'hybrid spaces of practice'; 'creativity in the construction of hybrid languaging/ trans-languaging'; 'heritage language communication'; 'dual language and digital technology skills'; 'evolving language transformation across generations'; 'the symbiotic nature of cultural and linguistic knowledge'; 'digital and inter-generational multilingual literacy practices'; 'multimodality extended beyond the visible multiple modes of communications' and 'understanding schooled constructions of literacy in the multilingual home setting'.

The analysis showed that bilingual children's communicative practices, when mediated by culture and digital technologies, can contribute towards learning insights for children. This applied to all families regardless of their language, culture or technology. These communicative practices often included the children's use of grammatical trans-

languaging and vocabulary, syncretism and hybridity. In my study I added the word 'grammatical' to the term trans-languaging because I observed that the children used grammatical processes in making hybrid language constructs when communicating with siblings and the older generation whilst using technology. From the perspective of an insider, I described the concept of syncretism: the ways in which children were using phrases from two different languages. This study demonstrated how sentence construction was influenced by the cultural and linguistic diversity occurring within British-born South Asian family environments. I also observed that children connected the meaning of their digital activities with their prior experience. Therefore, children's use of prior knowledge in association with new knowledge extended the established range of multimodal forms of communications beyond the visible modes. This implies the need for an additional knowledge-based dimension to the theory of learning in terms of literacy, language and culture - together with their relationship to digital and non-digital funds of knowledge. This additional knowledge-based dimension can be regarded as taking into account the multicultural positionality of the child in the learning process. This multicultural positionality would include not just the child's funds of knowledge in terms of skills and abilities, but also the funds of knowledge beyond the visible modes which include the child's values, beliefs, experiences and emotions.

I applied a thematic analysis to my data in order to address the research questions. The above mentioned themes draw attention to the processes involved in the knowledge transfer practices that I observed in relation to the home, the school, the technology and these six children. The analysis therefore addresses features of child centred knowledge acquisition and transfer in terms of literacy and language practices as observed in my study of these three South Asian families. The next section demonstrates how I came to acquire this understanding, through a reflection on the initial themes guiding this study. This chapter also shows how sub-themes (indicated in bold) were revealed as I went deeper into the analysis of the data.

7.2 Theme one: 'literacy-language in a cultural context'

A theoretical framework to analyse literacy-language in a cultural context.

The children demonstrated how they transformed their existing literacy, language and cultural knowledge to create new forms of syncretic and hybrid literacies, languages

and cultural practices. As discussed in the literature review, the term syncretic literacy originally came from an anthropological study by Duranti and Ochs (1996). Duranti and Ochs (1997) 'extend syncretism to include hybrid cultural constructions of speech acts and speech activities that constitute literacy' (p.172). Gregory *et al*, 2012, viewed syncretism as one of the theoretical lenses needed in order to analyse data in a multicultural context. The processes involved in these new forms can be recognised as 'trans-language' as defined by Blackledge and Creese (2010) and Garcia (2008, 2009, 2009a). In my study children were simultaneously using two different languages through the 'trans-language' process of translation in order to make sense of their lives. The terms 'trans-languaging', 'syncretism' and 'hybridity' are described in depth in the literature review chapter and their relevance to the nature and the characteristics of my study is explained. I was aware of two categories of trans-language use in my analysis of the data. The term trans-language is taken to be an issue in the context of bilingualism and multilingualism. This issue involves the role of translation and mixed language in terms of communication. Translation involves a direct and complete interpretation from one language into another with no mixing of language.

Some literacy researchers have used syncretic literacy practices as a way to investigate cultures as they draw on diverse resources in terms of language (Duranti and Ochs 1986; Gregory *et al.* 2004). Kenner (2005) observed that multilingual popular culture is a key resource for expanding linguistic knowledge for multilingual children. I shared the view of many multi-cultural and multi-lingual communities that this expanded linguistic and cultural knowledge is an essential passport for young children to participate in the wider community. This linguistic occurrence was a constant feature of intergenerational communication in my study and is illustrated in the examples shown below in Table 7.1. These communications were embedded in heritage language practices and the affordance given by technology to the children.

Table 7.1: Profile for literacy and language in a cultural context

Theme One	Example 1 (Sima and Amina)	Example 2 (Raju)	Example 3 (Rumi)	Example 4 (Amin and Bablu)	Example 5 (Bablu)
<i>literacy and language in cultural context-Sub-themes:</i> <i>Hybrid spaces of practice; creativity in construction of a hybrid sentence; heritage language communication; dual language and digital technology skills and evolving language transformation across generations</i>	Monolingual language and hybrid language used by the participants.	Monolingual language and hybrid language used by the participants and translation from one language to another language.	Monolingual language and hybrid language used by the participant s.	Monolingual language and hybrid language used by the participants. It was observed that hybrid language was spontaneously used when children were excited about their ability.	Extensive trans-language practices occurred including direct translation from Arabic to English and mixtures of languages (English and Bengali). Syncretisation of language was evident and created hybrid language communication

7.2.1 The ways in which children syncretize languages and literacies

In the example of school homework, Sima was sharing cultural information with her sister (Amina) in order to create a culturally focused PowerPoint presentation. She made use of digital technology to search for material that she could use to make an interesting and informative presentation. This drew on her English school literacy experiences and the children also used their own home cultural and linguistic understanding to describe a traditional South Asian wedding for the presentation. While Amina was asking whether they can include some family photographs, Sima drew on her linguistic skills (Urdu) and inserted Urdu words into her English phrases. She replied: '*Yes I'm gonna bring some photographs ... like Popo (the father's sister) and Khala (the mother's sister)*'. She thought of incorporating some photographs from a recent family wedding. When she considered the bride and groom, she used Urdu words *Dulon* and *Dula*. For example, Sima said '*the Dulon and Dula cut the cake together*'. When their mother described the meaning of marriage agreement to her daughter she used the word '*kobul*' which means '*I agree*'.

During this creative process the two sisters and their mother showed an instinctive tendency to insert some Urdu words into their spoken English in order to communicate with each other about their cultural event. This influenced Sima to create new ideas of bringing some Urdu words into the actual PPT presentation of a South Asian wedding. This showed her eagerness to transfer her everyday family literacy into her school practices as she included Urdu words to identify family relationships, food and clothing. I observed that Sima's construction of new sentences was influenced by the phonetics and phonology of Urdu and English. The sound of the Urdu words was apparently having some influence on Sima to use the Urdu rather than the equivalent English word in constructing her hybrid sentences. For example Sima said: '*You have professional make up done and you wear churia (bangles), har (necklace) and kanta (ear ring). The photographer takes pictures of the dulon and dula (bride and groom) on the stage with their family and friend. The food they have in this stage, for example like jabor, curry, chapatti, roast chicken, kabab, nun and porotha and then for midhai (sweet) dish they have chocolate cake or halua, and the dulon and dula cut the cake together*'.

This process can be seen as children taking cultural and linguistic knowledge from their family. The family's linguistic and cultural knowledge showed evidence of home 'funds of knowledge' (Gonzalez *et al.* 2005).

This was Sima's homework from school so she made decisions regarding what Urdu words to include for use with their intended audience. This not only served to emphasize the distinctive cultural nature of the event for the presentation, but also demonstrated 'syncretic literacy' (Gregory *et al.* 2004; Gregory *et al.* 2012) practices in the family. I used these concepts of syncretic literacy to examine and interpret the creative and transformative processes in which Sima and Amina were engaged, and how they sought to usefully combine the two languages of English and Urdu. In doing so the children were drawing on their dual identities as British Asian and ultimately were trying to make sense of everyday experiences of literacies and languages by creating **hybrid spaces of practice** which made use of both languages (Bhaba 1980). This practice can be seen as family members generating instinctive hybrid language learning resources as a product for exploring cultural diversity, in this example through the creation of a culturally significant PowerPoint presentation. For further details see the data description in chapter 6 in section 6.2.4.

Similarly, example two revealed that Raju was making use of two different languages (English and Hindi) in order to improve his **heritage language communication**. It is an attempt by a British born child, who attends an LEA school, to explore his home literacy and language (Hindi). The child practiced his mother tongue by using both languages together with Google translations in order to understand the meaning of some everyday Hindi phrases. These included traditional greetings in their culture and the type of conversations they had when the family visited India. The child also explored online resources which gave him access to wide-ranging choices of text and images for language learning. For example, the mother gave bilingual instruction to the child (Raju) for learning the greeting, '*how are you?*' In Hindi, She translated the English phrase as *Ap Kaise hai*'. She said to Raju: '*just say it*'. Raju then repeated it saying '*Ap Kaise hai*'. Raju also typed '*how are you?*' into the computer and the Google Translator said: '*Ap Kaise hai*'. The mother said: '*say Ap Kaise hai when you kishi sai milna*'. The phrase '*kishi sai milna*' means, '*when you meet someone*'.

The child and his mother moved comfortably between languages during this cultural exploration and brought their own cultural and linguistic insights to the Google translation activity. It showed how Raju's language practices (direct translation from one language another) fit the description of 'trans-languaging' (Creese and Blackledge, 2010), in that the mother and son are simultaneously using the two different languages (English and Hindi) that they have in their repertoires to support their everyday bilingual family literacy and language practices.

Raju expressed his view about his holiday in India, emphasising that it was too hot. Then from Google he found the translation in Hindi '*E vi bharat may bohot gormi tha*' (It was too hot in India). The mother repeated the same sentence for the purpose of telling Raju the difference between hot weather and hot drinks or food. The mother said, '*Bohot gormi thi*' (It was too hot). In this context the mother explained that: 'we use the word '*gormi*' to talk about hot weather but we use '*goram*' for hot water or food'. The mother pointed out the need for appropriate vocabulary (which reflected cultural lives in the traditional cultural community) whenever they visited India. It was clearly important that Raju be able to use their mother tongue appropriately and thereby gain acceptance in their heritage community. Raju's mother therefore helped Raju by making use of both languages, Hindi and English, in their conversation. This combination of language was intentional as she sought to let the child understand what she was expecting as he tried to learn the Hindi language. The mother also showed a tendency to use hybrid language when communicating with her son during his online activities. She was inserting English words within their mother tongue (Hindi) and the child also consciously used hybrid language in their communication by inserting English words within his limited Hindi phrases. This process can be seen as the process of the ways in which the child and his mother syncretize languages and literacies within their everyday family life. Both of these examples show that the children in this study were actively syncretizing languages and experiences creatively and in this sense were learning to 'think outside the box'. I use the term 'hybrid language' here as a noun to describe the language learning material produced by both the child and his mother during their culturally mediated dual language exchanges through their technology supported language development.

This can be seen as indicative of literacy and cultural implications and shows how a child's language and culture can influence knowledge of ethnic background. For

example Raju's Hindi language practices in the home can be seen as culturally enriching and an aid to participation in their traditional cultural community.

Similarly examples 3, 4 and 5 revealed that twins Amin, Bablu and their younger brother Rumi displayed syncretism and hybridity in their use of languages during their digital game play activities. Although the children were born in England, their heritage language is Bengali and this is the language they speak at home. The parents informed me that everybody in the family speaks Bengali at home for cultural reasons and the children are at a very early stage of learning Arabic for religious reasons. The children were also at an early stage of learning English as well. It is apparent that these children are living in a multicultural world at the early stage of learning language. This can be seen as influencing the way in which these children are making meaning in their communication. This influence becomes evident through their use of syncretised language and literacies in their multi-cultural context.

To illustrate, while Rumi was playing a web-based word game on the mobile phone, he and his parents were communicating in hybrid language using a mixture of Bengali and English. During Rumi's word game play the **hybrid spaces of practice** were revealed when his father said: *OK aunty kay tumar spelling work dekhon* (Ok, show your spelling work to your aunty). He was inserting English words within their Bengali conversation. The father showed an instinctive tendency to adopt a syncretic approach to English and Bengali and to generate hybrid language phrases when communicating with his son during his play activities. His mother also said to the child: '*korcho na keno? Hoschey na to. Dik moto koro*'. (Why don't you do that? It's not happening. Do it correctly). She was giving him an instruction in Bengali for correcting mistakes in his English word game play. It seemed that through this process the parents were passing their Bengali **heritage language communication** to their son. During the conversation with the parents Rumi was doing two things. He was, as his parents intended, gaining familiarity with his Bengali heritage language and he was also attempting to use English words within his Bengali phrases. This is illustrated by the phrase "*Ami word games download korchi*" (I downloaded the word games) which Rumi used and presented below.

Table 7.2: Creativity in construction of a hybrid sentence/ trans-languaging

Ami (I)	word word	games games	download download	korchi did
Subject	noun	Object	verb	Auxiliary verb

English Translation:

I	downloaded	the	word	games
Subject	verb	Article	noun	object

This illustrates the syncretic insertion of words from one language into another but also reveals the different grammatical structures with which Rumi has to deal. Rumi inserted English words into a Bengali grammatical structure. It seemed that heritage language was in a dominant position in his early years communication. The subject 'I' was in the right place (according to English and Bengali) but the rest of the other English words ('word', 'games' and 'download') were inserted into a Bengali grammatical structure: noun and object used at the first part, and verb and auxiliary verb used at the last part of the sentence.

Similarly, syncretic processes were being used to create hybrid language communication in Example Four when the twin brothers (Amin and Bablu) were practicing their spelling test from school. In this hybrid language communication, Bengali words were being used in an English grammar structure.

During their spelling test revision, conversations took place between the twins, their mother and me (researcher). Normally the twins and their mother communicated in English while they were practicing but occasionally they spoke Bengali. Before they started the spelling work, Bablu and Amin both expressed their view of working together by saying in Bengali: 'ame o' (me too). It seemed that Bengali was spoken spontaneously or when they were excited. For example, while they were marking each other, Bablu said to Amin in Bengali: '*'Ami Korechi better tumar chea'*' (I did better than you).

I observed that the child's construction of his Bengali sentence involved the syncretic insertion of the English word 'better'. The whole sentence was influenced by the phonetics and phonology of both Bengali and English texts. His syncretic construction of the sentence illustrates how he followed English grammatical rules in order to create his new hybrid sentence. It seems very much like what he had learned about sentence construction in the mainstream English school was being directly transferred to sentence construction in Bengali. In Bengali the correct construction of the sentence is by putting the word 'better' immediately before the verb 'did': '*Ame tumar chea better Korechi*' and according to the Bengali sentence construction this now reads as: '*I your than better did*'. Since Bablu was following the English rule, he put the subject first followed by the verb, then the adjective, the object and finally the comparison word which gave the sentence: *Ami Korechi better tumar chea*. In this Bengali sentence, subject and object comes first and the verb comes last (see table 7.3). When the child created the sentence he put the subject (*Ame*) *I* first, then he put (*Korechi better*) *did better*, followed by (*tumar chea*) *your than* (see Table 7.5). This means: (*I did better than you*). **Creativity in construction of a hybrid sentence** can be profiled as follows:

Table 7.3: Correct sentence in Bengali

Ami (I)	tumar (Your)	chea (Than)	bhalo (Better)	korechi (Did)
Subject	Object	Compare	Adjective	Verb

Table 7.4: Correct sentence in English

I	did	better	than	you
Subject	Verb	Adjective	Compare	Object

Table 7.5: The ways in which the child constructed the hybrid sentence

Ami	korechi	better	tumar	chea
Subject	Verb	Adjective	Object	Compare

In this sentence Amin positions his mixture of English and Bengali words by using mainly English grammatical rules. In this sentence the placement of the first three words followed English grammar and the placement of the last two words followed Bengali grammatical structure. In using this syncretic process Amin was, in his own way, making a hybrid bilingual sentence.

I observed that their ability to insert the occasional English word into a Bengali sentence showed the ways in which children syncretize language practice within their everyday world. Once again this invited a creative interaction of cross-linguistic practices to create hybrid language communication.

Collectively, this represents the syncretic processes being used to create hybrid language communication whilst using digital technology. This process connects with those adopted by Sima in Example One where she was deliberately inserting Urdu words in to her English language PowerPoint communication. Sima, Amina and their mother also used syncretic communication between themselves whilst developing the PowerPoint presentation. Although it appeared that Raju and his parents engaged with trans-language practices that involved direct translation from English to Hindi and vice versa, Raju's mother was using a similar syncretic process to Sima's family by providing Hindi word meaning. Sima and Raju were both acquiring English literacy at school and this, together with their heritage language learning at home, made translanguaging possible for them.

Rumi's father had showed Rumi how to download this word game on his mobile phone and now, when Rumi gets the chance, it was reported that he plays by downloading it for himself. Throughout this mobile phone based word game practice, Rumi was drawing on his developing literacy skills in English. At a very early age he was acquiring both a simultaneous act of **dual language and digital technology skills**.

This was also noted in Example five which reported Bablu's Internet searches for Qur'anic literacy which were initiated by his grandmother. Bablu and his grandmother looked for Arabic texts and then practiced reading and reciting them. The grandmother was unfamiliar with using the Internet and spoke very little English. Once again the child had control of the search and showed syncretic elements within the literacy learning activities offered by the digital technology. The grandmother had control of the cultural features of Qur'anic literacy such as religious respect and the correct Arabic

pronunciation, the Tajweed (rules of recitation). Bablu was at a very early stage of learning Qur'anic literacy and he was practicing the rules of recitation with his grandmother. This indicates early preparation before he starts to attend the mosque. On this occasion, Bablu creatively applied his Internet search skills for learning the rules of recitation of Qur'anic literacy (Surah Fatiha). As his grandmother suggested, he decided to listen to recitations for Surah Fatiha by downloading YouTube video clips. The grandmother was standing very close to Bablu during his Internet searching and she wanted to know whether he found it in YouTube. Bablu responded to his Grandmother by creating a hybrid version of a Bengali sentence: '*Ame Quran find kortechi*' (I am finding Qur'an). Grandmother replied: '*Okay, tumi egulo daily porba*' (Okay, you have to read these every day).

It appeared that Bablu and his Grandmother were both using hybrid language by inserting an English adverb while they were communicating with each other. It seems that the Grandmother's presence and her syncretizing communicative practices encouraged Bablu to search for Surah-fatiha in YouTube. Bablu was reciting Surah-fatiha from memory as part of their faith activities in their home settings and so he decided to download a video clip recitation from YouTube.

When Bablu found Surah-fatiha in the Internet he said in Bengali to his grandmother: '*Surah-fatiha find korchi*' (I find Surah-Fatiha).

Grandma said: '*Find korcho, ascha, click korcho kota*' (You find it, okay, where did you click?)

Bablu: '*Ha, Ame write korchi fatiha eikhana tarporey search korchi*' (Yes, I wrote Fatiha here then I searched).

So, here Bablu and his grandmother both used English verbs in their Bengali communication. This appeared to be a consistent process across the generations whenever they constructed hybrid sentences. The communicative practices between Bablu and his Grandmother syncretically (Gregory et al., 2004; Gregory et al., 2012) combined religious words from The Qur'an, Bengali words from their mother tongue and English words. Their constructions of cross-linguistic and cross-cultural communicative practices created hybrid language to support communication with each other while carrying out their online multi-literacy searching activities. These hybrid sentences were influenced by the phonetics and phonology of multi-language Arabic,

Bengali and English. One of the examples of Bablu's construction of the sentence illustrates how he followed English rules in order to create the new sentence (see Tables 7.6, 7.7 and 7.8).

These constructions can be profiled as follows:

Table 7.6: Correct sentence in Bengali

Ha Yes	Ame I	Fatiha Fatiha	eikhana here	likechi wrote	tarporey then	khoj search	korchi did
Exclamation	Subject	Object	Place	Verb	Connect two ideas	Verb	Auxiliary verb

Table 7.7: Correct sentence in English

Yes	I	wrote	Fatiha	then	I	searched	here
Exclamation	Subject	verb	Object	Connect two ideas	Subject	Verb	Place

Table 7.8: The ways in which the child constructed the hybrid sentence

Ha	Ame	wrote	korchi	Fatiha	eikhana	tarporey	search	korchi
Exclamation	Subject	Verb	Auxiliary verb	Object	Place	Connect ideas	Verb	Auxiliary verb

Bablu constructed the Bengali sentence by using English grammatical rules where subject and verb come first and the object comes last. He put the subject (*Ame*) 'I' first, then put the verb (*wrote Korechi*) followed by the object (*Fatiha*). The final part of the sentence switched the grammatical structure as follows: *eikhana tarporey search korchi*, which means: 'here then I searched'. Here the word search was used in the context of Internet searching. This means: 'Yes, I wrote Fatiha here then I searched'. Bablu's hybrid language practice with his grandmother was similar to the previous activities whilst Amin and Bablu were practicing for a spelling test in the presence of their mother. Rumi's digital word game practice (showed above in table 7.6) is also an example of hybrid language practice. Again Amin and Bablu's hybrid language

practices showed evidence of the understanding of intergenerational practices that were mediated by digital technology.

Bablu's cultural practices were informing both language and literacy in a multicultural setting (Gregory *et al.*, 2004; Gregory *et al.*, 2012). The grandmother and the grandson mainly spoke Bengali but Bablu sometimes spoke hybrid language by inserting a few English words in his Bengali sentences. Bablu also used English alongside Arabic while searching online resources and at the same time he was talking to his grandmother in Bengali. He appeared comfortable working in three languages whilst also doing internet searches. He also jointly manipulated two different scripts (English and Arabic) on the computer screen. These activities can be seen as trans-languaging (Garcia, 2008) practices through the child's multiple bilingual practices which are, in themselves, learning processes for children. The purpose of this cultural practice was for the child to learn how to apply the correct rules of recitation about the first (opening) Surah Fatiha in the Qur'an. Interestingly this purpose led the child to carry out several activities such as downloading on-line reading material, viewing YouTube video clips and using the Google translator. These practices can be seen as a young child developing Qur'anic literacy through facilities made available by digital technology. He was still in the early stage of learning both English literacy and Arabic words and doing this simply through translation was complex and difficult for Bablu. Bablu however, showed his interest of learning Arabic script through the use English translation. This can be seen as a learning process for people who need to speak different languages to communicate through this trans-languaging practice (Garcia, 2008; Blakledge and Creese, 2010). I do not comment on Bablu's level of reading ability but simply recognize Bablu's informal bilingual acquisition through online reading practices in his informal home setting.

Finally, this example showed how a young multilingual child was able to syncretically manipulate two different scripts (English and Arabic) for tasks that were technologically mediated by online computer resources. These manipulations were linguistically flexible and enabled the child to demonstrate an ability to select from a range of languages; those which were most appropriate to the task he was doing in the home.

Addressing the theme 'language and literacy in a cultural context', the children (Rumi, Raju, Amina, Sima, Amin and Bablu) showed evidence of a

process involving knowledge of languages that can be seen as different from that of the school (Heath 1993; Gregory, 1996). It can be argued that this process is a fundamental part of these children's literacy practices that may be used as part of their linguistic knowledge in mainstream schools (Kenner, 2005). This invites the question: 'how can this be implemented in education?'

Gregory et al. (2004) looked at how children acquire language and literacy from their parents, siblings and communities through social interaction and how they transform a new form of syncretised language. In all examples I observed that children's ability to bring together multi-cultural communicative practices provides new insights that invite the understanding of their creative interaction in terms of grammatical translanguaging, syncretism and hybridity. I viewed this creative process as involving a hybrid culture of linguistic resources which can contribute to a young child's acquisition of literacy learning.

Culturally there is evidence in my data of **evolving language transformation across generations**. For the three generations in the study, the data suggested that the older generation of grandparents tended to remain mono-cultural and mono-lingual in one of the families. The grandparents in the other two families also influenced their grandchildren's acquisition of literacy and language learning. The parental, or middle generation, tended to be partially multi-lingual and partially multicultural. They were helping their children to develop their literacy and cultural awareness by working with them in two languages (English and their heritage language). These children's parents have ability in the English language as well as their heritage language. Most of the parents' schooling experiences were in their heritage country in mixed medium (English and heritage language) schools. This was observed in all five examples. It appeared to be the case that the children, or 'new' generation, tended to become more familiar with the additional culture and language as a consequence of their greater exposure to English culture.

This study revealed that the parents wanted their children to keep their heritage language in order to participate with their heritage communities but also wanted them to learn English to perform successfully in mainstream (UK) schooling as well as in the English speaking community. They saw each language as a cultural passport, each to a different culture. From the parental point of view, the main reason for children

learning their heritage language was to be able communicate with their relatives abroad. They also believed that language held religious and cultural significance. For instance, in the example of Hindi language practice, Raju's mother said that he communicated with his cousins and grandmother in Hindi while he was in India and learnt some new words and how to construct Hindi sentences. In example five (Bangladeshi family), the mother mentioned that her children were learning the Bengali language because they need to communicate in Bengali when they go to Bangladesh for holidays. She also mentioned that the children's grandmother paid regular visits to England, usually once a year. The grandmother was anxious that the children should learn the necessary Arabic for praying and spent time with the children helping them to do this. It is possible to connect these practices with Garcia's concept of trans-languaging: 'through these trans-languaging practices, we develop understanding of life-parenting, cooking, music and movement, religion, games, courtship, intimacy, birth and death that are educative in themselves' (2013, p.155).

Finally, the context of the research suggests that in multicultural homes, children face a complex literacy, language and cultural learning environment at early stages of their development and that children's use of technology often makes an instinctive, and increasingly useful, contribution to their learning process. Through the analysis of my initial theme, literacy-language in a cultural context, various sub-themes emerged. These are embedded in the hybrid spaces of language, culture and technology. My analysis showed that, within this hybrid space, children's creativity occurred in the construction of hybrid sentences. Heritage language communication and dual language practices also emerged together with digital technology skills and evolving language transformation across generations.

7.2.2 Summary

The analysis of the initial theme 'literacy-language in a cultural context' showed an evolving use of multiple literacy practices amongst the children in this study, regardless of the fact that these children were from three different South Asian backgrounds (Bangladeshi, Pakistani and Indian). These practices are described as emergent sub-themes. The sub-theme **hybrid space of practice** was evident in that children sought to usefully combine the two languages of English and their heritage language (Bengali, Hindi and Urdu). In addition I also found evidence of children's **creativity in**

construction of a hybrid sentences/ trans-languaging. The sentences showed the ways in which children inserted English words into their heritage language grammatical structure. In this sense, I also observed reverse hybrid sentence construction where words from the heritage language were used in an English grammatical structure. This process demonstrated children syncretising language. Through this process it seemed that the parental generations were passing their **heritage language communication** to their children. The heritage language communication was seen when children were making sense of every day experiences of literacies and languages by creating cultural presentations, playing word games using the i-phone and Nintendo DSi and practicing Hindi language and Arabic through the context of the Internet. In doing so the parents were drawing on their dual identities as British and Asian, communicating in their heritage language, while engaging with English in the context of the digital technology. Children used digital technologies in their everyday experiences of literacies, languages and cultures. Therefore they were simultaneously practicing both **dual language and digital technology skills.**

I found that these language transformations occurred across three generations. Through the analysis of my data I found there was evidence of culturally **evolving language transformation across generations.** This transformation occurred between the grandparents, the middle generation (parents) and children.

In all three families it was evident that there were different functions for different language practices. The parental generation wanted their children to learn Bengali, Hindi and Urdu to preserve their heritage language and family tradition but also wanted them to learn the English language for educational purposes in the mainstream English education system (as well as to access wider social capital). This aspect of language and cultural membership was emphasised in all the examples analysed above. Through the analysis, I identified that the purpose for children to learn the Arabic language was religious. Parents also saw the language as a cultural passport in distinct communities. Qur'anic literacy practices were linked to the Arabic language which assisted in entry to the Islamic community.

In all five examples, the children were seen to be creative in their personal social realities in an increasingly complex multi-cultural and multi-lingual setting. They were

also using digital practices as an aid to creating multiple ways of practicing bilingual/trilingual educative processes.

Overall these examples reflect how children construct cross-linguistic and cross-cultural communicative practices, providing new insights that invite the understanding of their creative interaction in terms of grammatical trans-languaging, syncretism and hybridity. They also reflect the intricate relationship between cultural traditions and literacies and the increasing impact of digital technology on the ways in which young children can be supported as they seek to understand the multi-cultural nature of their world. I would suggest that the children's cultural and linguistic practices via digital technology can usefully be seen as a learning resource in an educational context.

7.3 Analysis of theme two - the home-school relationship

A theoretical framework to analyse children's digital literacy connection between home and school:

This study considered children's relationship with digital technology in the home and the ways in which their engagement with digital technology connects with school literacy practices. I used the term 'funds of knowledge' (Moll *et al.*, 1992 and Gonzalez *et al.*, 2005) when analysing knowledge transfer between school, home and child. The learning relationship between school, home and child is both multicultural and multilingual and this is symbiotic in nature. Street (1993) pointed out that culture plays an important role in language learning and is an active process for meaning-making. The emerging theme addresses the home domain/site and school domain/site dimension of the five examples of the ethnographic case study.

Drawing on the ideas of home-school linking, Barton and Hamilton (2002) viewed different literacies across home, school and workplace domains. It is important to identify from where particular literacy practices originate. I used the word 'domain' and 'site' to look at home and school literacy practices. According to Barton and Hamilton (1998), a domain is the area where a particular practice originated and is used. In contrast, a site is the place where a particular practice is only applied. In my study, I considered children's digital literacy practices in the context of home as both domain and site. I then looked at the connection between different literacies in terms of

home/school domains and sites in children's daily life practices. Barton and Hamilton (1998) suggested it might be useful to look at domain and site in the exploration of school and home literacy practices. I considered literacy practices in the context of home/school domains and sites in order to identify literacy connections between them. It is worth mentioning that I did not collect data from school sites but through my data analysis found that home-based digital literacy practices have connections with school constructed literacy practices. I also found that home-based digital literacy practices have connections with cultural practices and these activities are important contributors to children's learning in terms of literacy and language. The purpose was to explore home and school relationships regarding children's literacy and language learning and to develop better understandings of the nature and use of household cultural knowledge. In my study I also considered children's use of digital technology and how that operated alongside home cultural practices. These can be seen as 'digital funds of knowledge' connecting cultural learning resources that include text-based communication between home and school. Similarly, Pahl (2007) observed the connection between children's text-making which carried meaning across home and school. Further details, regarding literacy in the home domain/site and school domain/site are given in the literature review (section 3.5.1).

Table 7.9: The profile for theme two, home-school is given below for the five examples:

Theme two	Example 1	Example 2	Example 3	Example 4	Example 5
<i>Home/ school-Sub-themes: - The symbiotic nature of cultural and linguistic knowledge; Understanding schooled constructions of literacy in the multilingual home setting</i>	PowerPoint presentation on a South Asian wedding created in the home and then presented in the school.	Google translation used for practicing the Hindi language in the home. It is also used in school for learning Spanish.	The child used mobile phone technology for playing a word game in the home. He is learning letters in the nursery school and also influenced by his brothers' spelling test from school.	On-screen word memory game on Nintendo DSi in the home. Paper based spelling test home work from school.	Google search for learning Arabic in the home and have prior experience of the Google search engine for school home work.

7.3.1 Symbiotic nature of cultural and linguistic knowledge transfer

The analysis identified how these children were transferring cultural and linguistic knowledge between the home and school through their use of digital technology and how this knowledge transfer is mediated in the home by siblings, parents and grandparents.

Example One reveals how two sisters (Sima and Amina) were using the computer by drawing on their existing funds of knowledge to create a cultural fund of knowledge about a Pakistani wedding for a PowerPoint presentation to be presented in school. The project was set by the school as Sima's school homework and was an example of

a literacy practice that originated in the school domain but, in order to develop it for her cultural presentation, it was transferred to the home site. A more comprehensive account of the actual activity is presented in section 6.2.1.

I observed how Sima initially acquired knowledge of some important cultural aspects of a traditional wedding and developed them at home for discussion with her teacher. In the school domain she then created a draft document to establish the outline for her presentation. She brought this draft document back to her home and had further discussions with her mother and sister. Both sets of discussions were used in the preparation of a PowerPoint presentation for delivery at the school. The child can be seen to be creatively involved in practices carried across from home to school and school to home. This interactive practice can be connected with Pahl's (2007) work when observing children's text-making which carries and promotes meaning across home and school. Similarly Sima was acquiring knowledge in both the home and in the school and facilitating beneficial knowledge transfer between them. This practice is illustrated below in Figure 7.1 which shows the ways in which the child engaged in knowledge transfers between home/school domains and sites when developing and presenting her PowerPoint creation.

Sima's sister and her mother worked with her and together they **assembled inter-cultural knowledge** about the marriage agreement process in a Pakistani wedding so that Sima could include this knowledge in her mainstream classroom. For example, when Sima downloaded a YouTube video the mother made a comment about the accuracy of the video clip for her presentation. Her point was that Sima downloaded a South Asian video clip but the marriage agreement showed Western style characteristics. She told Sima that when the video stated: "*will you marry me*" that we *normally don't say this... Instead of saying "yes", we say "kobul" which means "I agree"...*" (see detailed transcription in appendix 2 example 1) and then the mother suggested Sima should download a video of a traditional Pakistani wedding. She explained to her daughter that the Imam describes the marriage agreement to the bride and groom separately in the presence of their close family members as witnesses. When the bride and groom agreed to marry then the Imam asks them to sign in a book which the Imam also signs. This showed the mother passing cultural knowledge to her daughters in an intergenerational knowledge transfer process. This intergenerational interaction was mediated by their use of digital technology and video clip observation.

This practice can be seen as demonstrating the ways in which identity can be shaped through intergenerational interaction and digital literacy practices involving both the home and school domains, although Levy and Marsh (2011) acknowledge that ‘there is still much that needs to be understood about the ways in which children’s understanding of **digital literacy is constructed through intergenerational practices**’ (p.173).

The data revealed that Sima’s younger sister (Amina) also played a supportive role by reminding her to add some important points in the presentation. Gregory (2001) also expressed her view that older siblings are in a unique position to help younger siblings to translate school work as they go to the same school and play together. Interestingly, I observed that siblings can support each other in their school work regardless of their seniority in terms of age. For example, food was one of the elements of the presentation and the children were showing how food is a marker of cultural identity, as well as a possible topic for intercultural exchange (involving food consumption). Amina was providing ideas and information to her older sister Sima about food and traditional costume for the wedding while the latter was creating the PowerPoint. Amina said to Sima: ‘*What type of food, English food, or Asian?*’ It seems Amina realized that more information was needed about food for creating the presentation. There was a need to explain what kind of food they were eating at the wedding because food is an important aspect of all cultures. Sima replied: ‘*they have food at this stage, for example like jabor, curry, chapatti, roast chicken, kabab, naan and porota and then for sweet dish they have chocolate cake or halua, and the Dulon and Dula cut the cake together*’.

Highmore (2008), Douglas (1966), Blumer (1966) and Levi-Strauss (1969) all recognised food as one of the ways to gain access to other cultures as well as to understand cultural difference.

Sima also discussed traditional costume and said: ‘*They wear different clothes like, lahanga, churi, pajamas and frocks. The bride wears a red coloured dress and the groom wears white sherwani*’. Her discussion of traditional costume in the presentation was not only about the colorful wedding dress but also expressed aspects of their life and cultural identity. Breward (2000) described clothes as one of the ways in which social differences are made visible in terms of culture and identity. In this example culture and identity are shaped not only by dress but also by the

intergenerational interaction between the siblings and their mother around technology. These transfers of values and cultural knowledge were seen by the participants as an essential and mutually advantageous part of the home/school relationship.

The children also demonstrated through their cultural presentation that they were able to operate effectively within a complex learning environment in which control of the creative process was shared between the school, the children and the mother in the home. Each took responsibility for specific features of the tasks involved in creating the cultural presentation. The school set the child the task of creating a culturally based presentation and discussed progress with the child. The children took control of the choice of topic, the development of the cultural presentation and the use of technology in acquiring and presenting knowledge. It was clear that Sima recognized her need for information on this topic and also clear that technology could be a medium of information. It was noticeable that Sima was both confident and competent in using a computer. The mother monitored what the children were doing to ensure its accuracy and cultural integrity and encouraged Sima to use the Internet with comments like 'You can show some of these in the computer'. These diverse contributions were collectively and individually important in shaping and supporting Sima in her task. These mutually cooperative knowledge transfers between home, school and technology were the means by which the content of Sima's presentation was determined. This mutual benefit to the participants can be seen as a key feature of home/school knowledge transfer.

It appeared that once Sima was satisfied that her preparation was good enough she was ready to develop her presentation. She decided that a PowerPoint presentation would be appropriate as a means of communicating her topic at school and eventually she presented it in this manner. This is an example of the ways in which today's young learners are growing up as 'digital natives' (Thomas, 2011) in an age where the use of digital technology and the Internet are a natural part of their everyday life. It is useful to consider the issue of cultural funds of knowledge that are developed in the home, particularly in ethnic minority homes. Inter-generational practices are part of this process - often an aspect that is under-valued in the school environment (Gregory et al 2004). Such 'funds' are then carried, formally and informally, into the school. Equally significant is the use made of digital technology in knowledge transfer between home and school. This use of technology, by the child Sima, from home to school involved

some aspects of cultural knowledge transfer. In this instance these are in terms of traditional South Asian weddings; and technological communicative practices including selection of on-screen design, images and video clips from the Internet. This kind of practice can be understood as an example of home/school transfers of cultural ‘funds of knowledge’. This cultural knowledge acquisition and transfer process can be seen as a resource for educational development in working partnerships with school teachers. It is important to encourage children to talk about their narratives from home and examine the culture embodied within such narratives. This may in turn lead to development of cultural literacy learning activities between home and school and encourage children’s participation in multicultural awareness in the community. Moll *et al.* (1992) and Gonzalez *et al.* (2005) studied collaborative research between teachers and researchers in order to understand young people’s knowledge that was carried across from home to school. Pahl (2007) also observed children’s text-making as an example of their creative practices that carried over from home to school. My research additionally addressed the potential for mutually advantageous cultural knowledge transfers between home and school. My research extended the ways in which bilingual children’s transfer of knowledge between bilingual and bicultural homes and school domains is mediated by literacy and language. The details of syncretic literacy and language are previously described in the analysis of the theme ‘language and literacy in a cultural context’ in section 7.2.1. My study also recognised that ‘technology has always been an essential part of literacy’ (Marsh and Singleton, 2009, p.1) but did so in the broader context of multi-literacy, language and culture.

The flow of literacy practices (in relation to this PowerPoint presentation) from school to home and then home to school is presented below in Figure 7. 1. This illustrates how practices and knowledge can be created and transferred between domain and site. The domain is represented by the blue colour and the site is represented by the green colour. The flow of practices is indicated by the blue arrows showing knowledge transferring from domain to site and then the green arrow showed knowledge transferring from site to domain. The child’s initial activity (homework given by the school) is presented through the green arrow then the activity in the site involved contributions by the siblings and their mother working together in their home. That generated new ideas by them to consider a Pakistani wedding as a cultural event. Therefore, the blue oval indicates that home has become the domain but the arrow remains green as this knowledge originated in the home. In this sense the school

became a site because Sima took this idea from home to school and then created a draft document through the discussion with her teacher in the school domain. The creation of this draft document from school flows back to the home. Therefore again school became the domain (presented in blue). Sima then brought the draft document to her home and discussed it with her mother and sister, using the Internet for further information in order to develop the PowerPoint presentation. Sima then took this completed homework from the home domain to the school site to present it in the classroom.

I propose this as an example of the child's creative practices carried across from home to school and school to home. This is illustrated through Figure 7.1 to demonstrate the ways in which the child created PowerPoint by making connections across home/school domains and sites.

In diagrams 7.1 - 7.5 the blue colour code represents domain, and green represents site. A domain is the area where a particular practice originated (School or Home) and a site (School or Home) is where a particular practice is used. Any location can be both domain and site.

PowerPoint presentation on a South Asian Culture for school work at home

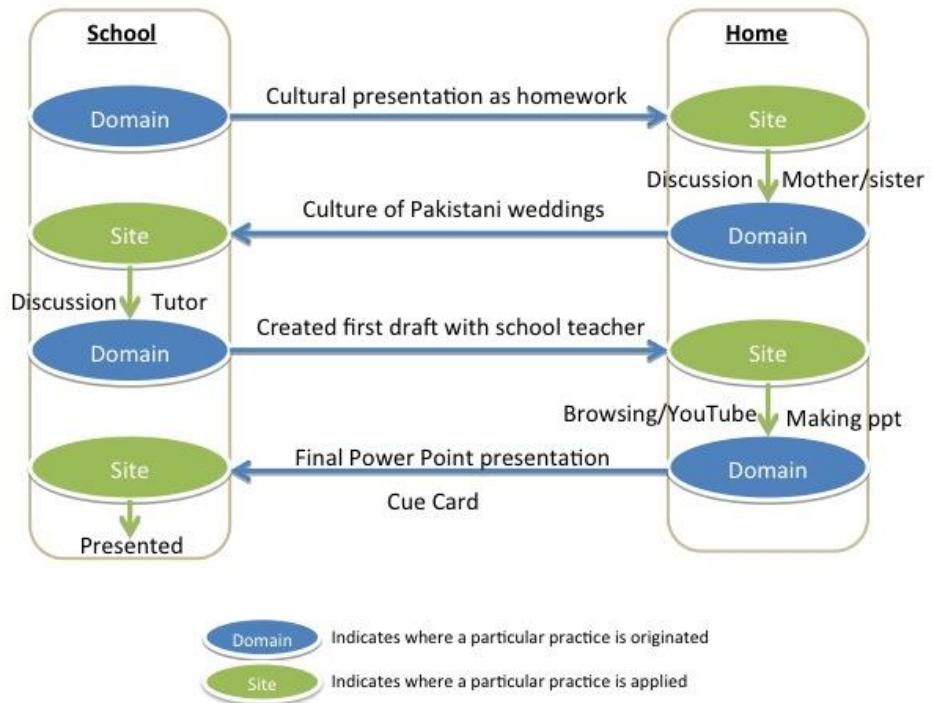


Figure 7.1: Cultural knowledge transfer between home-school domains and sites through PowerPoint presentation

Sima's activities might be compared with Raju's Hindi language learning through Google translator. While the individual activities differ, the translanguage learning process was similar.

During this process Raju was communicating with his mother to gain further information. It seemed that his heritage language learning was mediated by the mother. His mother mentioned that Raju showed a particular interest in using a Google translation program on the Internet for learning the Hindi language. She supported this practice as she was concerned that Raju should learn some Hindi as this would help him communicate with Indian people when they go to India on holidays. Raju's mother also mentioned that there was no facility for learning Hindi in their mainstream English school. It appeared that Raju was learning his mother tongue (Hindi) for cultural reasons. Similarly, in the previous example Sima was using the Internet to find out information, images and video clips in order to develop her PowerPoint presentation. This process was also mediated by the family (her mother and younger sister) as well.

In the context of bilingual and multilingual children's literacy learning, Kenner and Gregory (2012, p. 364) expressed their view that, 'In England...English is seen as dominant world language, there is relatively little support for children to develop a minority-language literacy such as Bengali or Spanish'. It also seemed that Raju's Hindi literacy practice through Google translation used both English to Hindi and vice versa. In other words, his Hindi literacy activities in the home blended with his school literacy activities where he used English in Google translator. It was also noted that for his school's home work for Spanish language learning, he used Google translator. This signalled that his experience of using Google translator for language learning was transferred between school and home. Similarly, Sima's cultural knowledge sharing through PowerPoint presentation in her classroom also illustrated how children transfer cultural and linguistic knowledge between home and school through the use of digital technology that is mediated by family members.

These examples suggest that looking at the ways in which children encounter different languages through their literacy practices at home or at school reveals that they are capable of transferring acquired knowledge between the two domains. In this example it was also evident that the mother provided support while the child was using Google translator for practicing Hindi language. Kenner and Gregory (2012) also acknowledged that many ethnic minority families make extensive efforts to support their children in learning bi-literacies and multi-literacies. The child's use of Internet resources mentioned above showed that he used the English language for learning the Hindi language because he is living in an English society and is using English in everyday life and education. This suggests that emergent bilingualism can be helped when there is an opportunity to use both languages for learning. In this instance it is also evident that cultural and linguistic knowledge travel between home and school. Therefore, it is important to recognise both languages for the improvement of language proficiency in mainstream educational contexts.

Similarly, in example five I observed Bablu's practice of Internet browsing for learning Arabic literacy in the home site for religious purposes. The activity in the home site also involved family members' interaction between the grandson and the grandmother around the use of the computer and the Internet. It was evident that the child's grandmother was less familiar with computer literacy practices and used bilingual skills with her grandson to share and exchange the learning practice. When the grandson

found a particular Arabic script, the grandmother wanted to know how he had found it. Grandma said in Bengali: '*Find korcho, ascha, click korcho kota*' (You find it, Okay, where did you click?). Bablu said in Bengali to his grandmother: '*ha fatiha eikhana likkchi tarporey search korchi*' (Yeah, I wrote Fatiha here then I searched).

This practice can be seen in terms of Kenner's (*et al.*, 2008) ideas of intergenerational learning between children and grandparents around the computer. I observed from the Example Five data that the child Bablu's practice of Internet browsing indicated that he was confident and competent in using technology. This was partly based on abilities developed by school work and also from practices developed in the home setting. It appeared that Bablu's actual online bilingual reading practices were linked to his school literacy practices. Again this evidence suggests that if this cultural and linguistic knowledge is valued as part of mainstream education it can lead to both home and school benefits for children's learning.

Example two and example five involve child-centred cultural language learning in the home where they could learn at their own pace and in their own way. Both examples showed Google search skills initially developed in the school being creatively transferred, via the child, into language learning in the home. This is illustrated below in Figures 7.2 (Hindi) and 7.3 (Arabic) showing the ways in which the children engaged in transfers of knowledge between home/school domains and sites. Similar concepts were used as previously presented in Figure 7.1 in order to present knowledge transfer between home and school.

A young child's use of Google Translation for Hindi Language learning at home

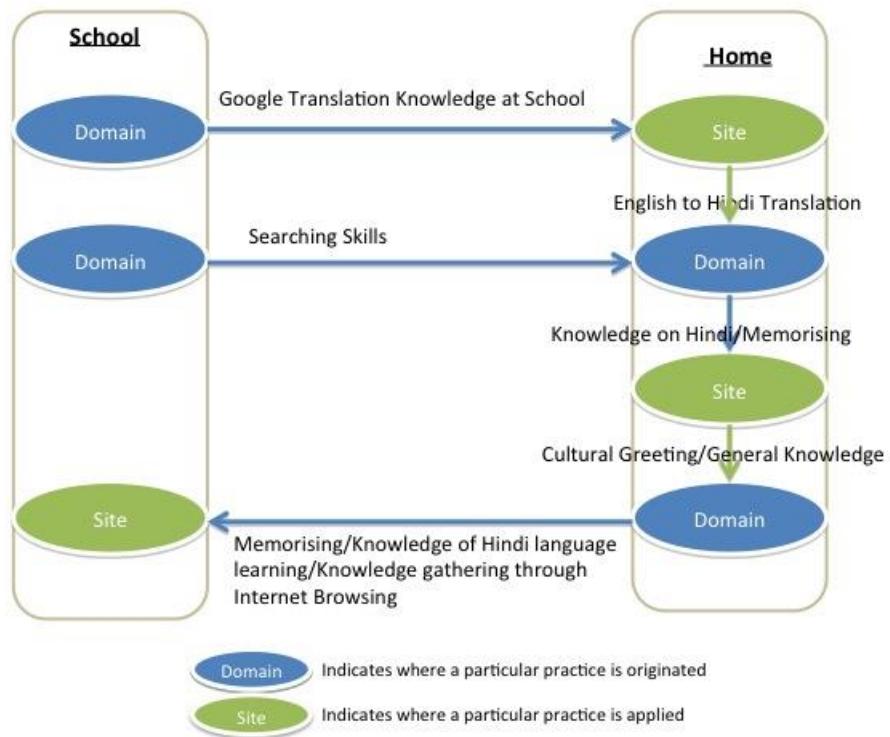


Figure 7.2: Hindi language learning through Google translator and its connection with school literacy

Examples three and four both showed children practicing their vocabulary through word acquisition and spelling. Example three involved a young pre-school child (Rumi) communicating with his parents in Bengali (first language) while engaging with simple word acquisition in English (second language) through the use of a mobile phone. Example four showed his older brothers engaged in school home work that involved English vocabulary and spelling. In Figure 7.4, illustrated below, school is the domain where Rumi's literacy practices are originally created through learning the alphabet in the nursery school. Rumi's mother said that 'Rumi is not doing formal spelling in the nursery school but just getting to know alphabet through play'. It appeared that while he was not doing formal spelling in his nursery, at home he was practicing the construction of English words on his father's mobile phone, mainly by playing a word game.

A young child's use of Internet for searching Arabic script at home

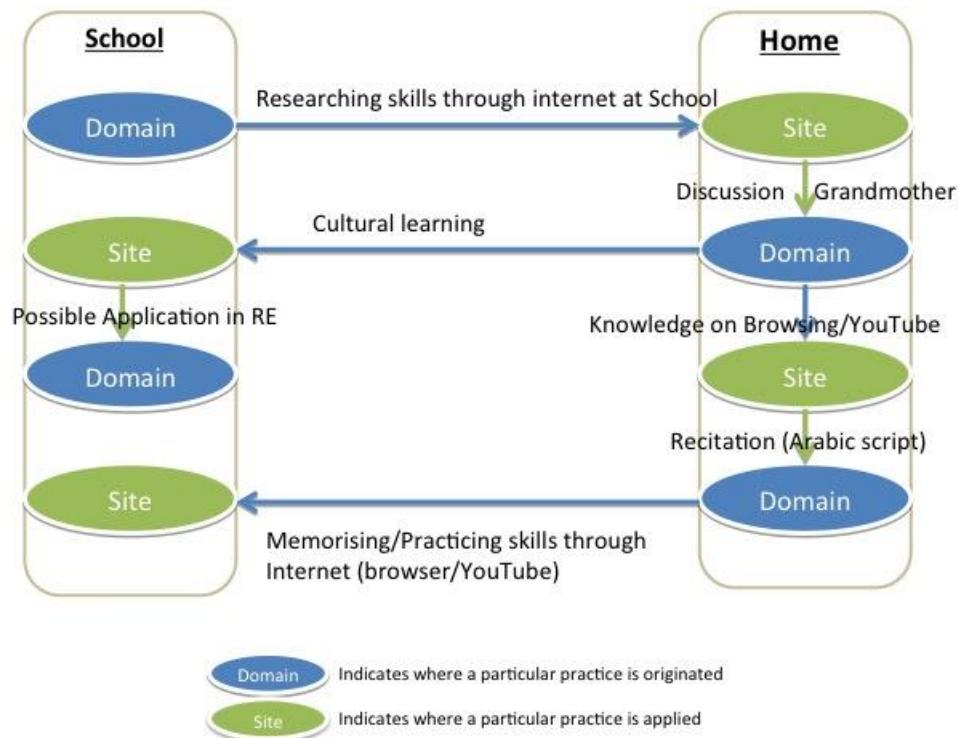


Figure 7.3: Arabic literacy learning and its connection with school

I was able to understand how Rumi's literacy acquisition was mediated by his family members. As previously mentioned the mother replied 'His dad showed him first how to download this word game by using mobile. Now when Rumi gets chance, he plays by downloading by himself'. This indicated that he already gained the skills for downloading from his father. I identified from one of the visits that Rumi indicated his interest in playing word games as his brother was practicing a spelling test from school. He said; '*ora school er word spelling korchey*'. (They are doing their school's word spelling). By 'they' he meant Amin and Bablu, his older brothers. Here, Rumi's statement signals that he had acquired Internet game downloading skills. Then he indicated that his brothers were doing word spelling. This shows that Rumi was aware of his surroundings and signaled that he may want to do some spelling work as his brothers were doing it and this was influenced in the home site by his brothers' literacy home work from school (see Figure 7.4 below). Gregory (2001) expressed her view that older siblings are in a unique position to translate the school environment to their younger siblings and younger siblings act as prompters as they play together. The child

Rumi's practices can be seen as literacy practices in the home mediated by the family members. Similarly, this is also shown in examples one, two and five. It was also evidence that Rumi's parents encouraged him to play the mobile word game when his twin brothers were doing their spelling homework from school. This can be seen as young children's shared participation in literacy practices through mobile phone technology in bilingual homes and raises technology related implication for early English and bilingual literacy learning.

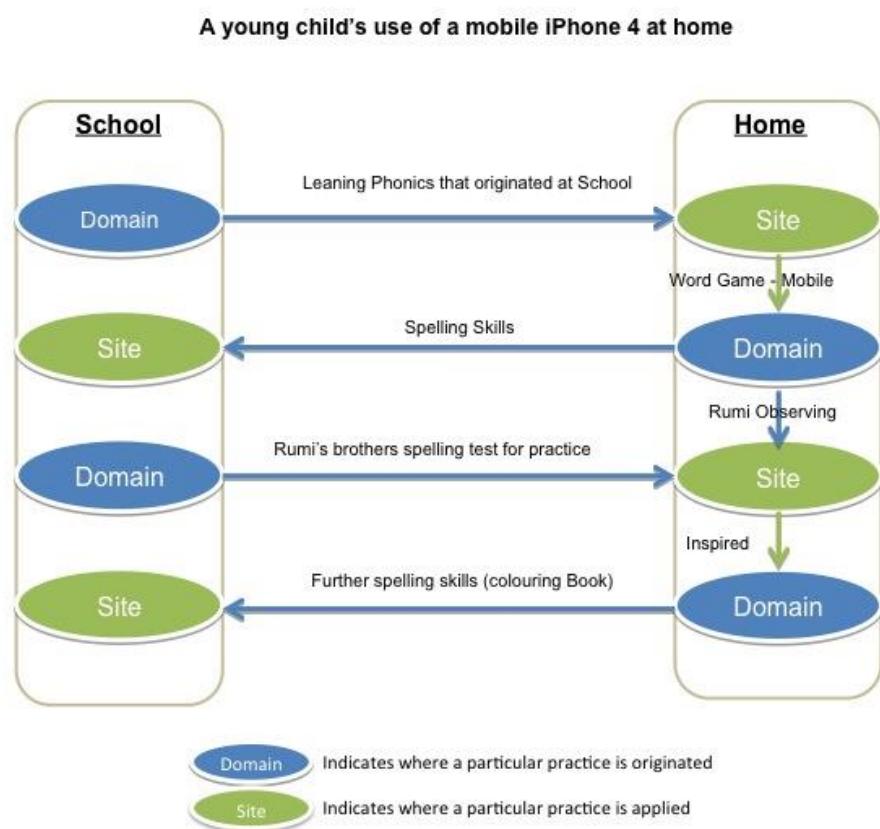


Figure 7.4 illustrates the Home – School literacy connection through the use of mobile phone based word game play

Example Four was in two parts. The first of these focused on Amin's play activities on a Nintendo DSi brain training game in the home domain. This involved Amin in drawing pictures, playing a memory-dependent colour game and a memory dependent word game. The second part involved both brothers and their spelling test from school. This involved memory dependency requiring the twins to study a list of school-provided words, memorise their spelling and then write them down from memory. This signalled an understanding of how digital technology can contribute within the complex aspect of

schooled constructions of literacy situated in the multilingual home setting. Levy (2011) suggests recognising the ways in which children interact with digital technology at home because it has an influence on children's paper based texts in school.

Each event involved word spelling and used a memory based process in order to achieve literacy learning. This was the case for all three children and similarity in the knowledge transfer between home and school can be seen. The contextual setting of the flow of literacy from school to home and from home to school is represented in Figures 7.4 and 7.5.

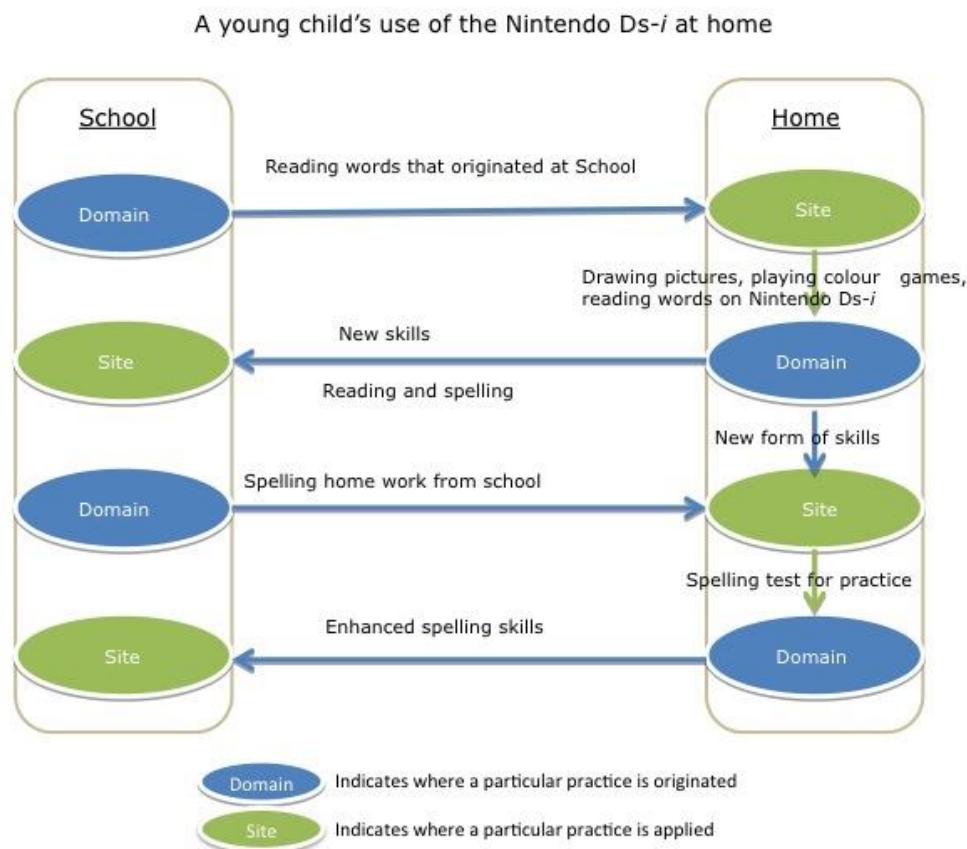


Figure 7.5: Home – School literacy connection to demonstrate domain and site

7.3.2 Summary

The symbiotic nature of cultural and linguistic knowledge between home and school emerged from theme two. From the analysis came the insight that children transfer cultural and linguistic knowledge and skills between home and school as a two way process. This was seen to be especially the case when children are supported in learning their heritage language in the home; in this study digital technology played a major part in these aspects of language acquisition. Parents and grandparents encouraged the development of their bi-literacy although English is seen as their first language in the mainstream classroom context. From the perspectives of South Asian families, the main reason for using Bengali, Hindi and Urdu is to communicate with family members living abroad, to participate in religious activities and to interact with the wider (heritage) community. As described earlier in the study there are many links that bilingual and multilingual children make between school and home constructions of literacy. My understanding of schooled constructions of literacy emerged in the multilingual home setting. These are cultural, linguistic and technological in nature and these collectively create a complex learning environment for the child. Therefore the nature of this knowledge transfer relationship for children of South Asian heritage is multi-culturally and inter-generationally mediated. This suggests that when schools value bilingual or multilingual literacy skills as a feature of mainstream education, then children's school and home knowledge and skills can be utilised to provide symbiotic educational advantages for both home and school.

7.4 Analysis of theme three - multimodal digital literacy practices

A theoretical framework to analyse multimodal digital literacy practices:

In order to address the way in which South Asian children from different ethnic origins made use of multimodal digital practices, I initially considered the diversity of modes, language and ethnicity involved. Three different cultures were present in these terms as the children were Bangladeshi, Indian and Pakistani. They exhibited similarities and differences in their cultural and language practices which were significant in observing and analyzing their use of digital technology. I analysed children's multimodal digital literacy practices in order to understand the nature of the children's learning practices and how these children learn through their use of digital technology at home within their

specific cultural context. This is the third theme in my research and it emerged from all five examples of data described in chapter 6. This relates to children's use of 'digital literacy practices' (Merchant, 2008; Marsh, 2006; McTavish, 2009; Carrington, 2001; Carrington and Robinson, 2009) in their home-based practice. I described the ways in which bilingual and multilingual children used a range of digital technologies in their daily life in the home. In order to understand the children's communicative and learning practices I considered their range of multimodal meaning-making engagements with digital literacy (mainly screen based). Therefore, in my research I used the concept of multimodality in relation to the field of digital literacies study (Lankshear and Knobel, 2003; Gee, 2003; Kress, 2003; Marsh, 2006; Davies, 2006).

The terms digital literacy practice and multimodality were previously defined in the literature review, together with the reason for extending the term 'digital literacy practice' into multimodal digital literacy practices. Children now scroll, touch, slide and use hyperlinks in order to turn pages. They are adopting formats, design, and functions of texts that have shifted the nature of writing and reading. These are new kinds of literacy practice created by dramatically increasing technological development over the past decade (Carrington and Robinson, 2009; Gillen, 2009; Merchant, 2009). Gilster (1997) placed emphasis on digital literacy practices as an ability to use a wide range of information through the computer. In my research I extended the term digital literacy practices to include the concept of multimodality because the children (participants) encountered a variety of modes whilst using digital technologies (mobile phone and Nintendo DSi touch-screen; PowerPoint software, Google search engine). These modes included speech, gaze, gesture and posture; screen-based text, images, sounds and colour (Walsh, 2010). In my study I found that children's interaction with digital technology involved two primary categories of modes. These are embodied modes (such as gaze, gesture, posture and language) and disembodied modes (such as music/sound/speech, colour, print and layout). This is in accordance with the view expressed by many scholars (Norris 2004; Jewitt, 2003; Jewitt, 2009; Walsh, 2010). Multimodal analysis is particularly appropriate when participants are engaged in interactive learning using digital technologies (Flewitt et al., 2009; Jewitt, 2003). According to Wyatt-Smith and Elkins (2008, p.904): 'reading online is not readily separable from writing ... if this is accepted, then research on reading is best as being concerned with both using and creating knowledge, individually and collaboratively'.

I observed that the creative nature of children's activity extended to their use of digital literacy practices in their everyday cultural practices. These extensions were multimodal digital literacy practices, demonstrating how technology increasingly contributes to children's cultural literacy and language learning for these specific South Asian children. An outline summary chart for theme three (see Table 7.10), Multimodal Digital Literacy Practices, is given below for the five examples.

Table 7.10: An outline of summary chart of theme three

Theme three	Example 1 (Sima and Amina)	Example 2 (Raju)	Example 3 (Rumi)	Example 4 (Amin and Bablu)	Example 5 (Bablu)
<i>Multimodal digital literacy practices: Sub-theme</i> <ul style="list-style-type: none"> - <i>Digital and inter-generational multilingual literacy practices</i> - <i>Hybrid space of practices</i> - <i>Multimodal digital literacy practices extended beyond the visible multiple modes of communications.</i> 	Screen-based multimodal text: design (font size, colour, shape, images, written text, and music)	Screen based multimodal texts: Used on-line multimodal resources (audio, different icon, written)	Screen based multimodal texts through use of a mobile phone: sound, image and colour used	The multimodality also includes the graphic design on the Nintendo DSi screen (font size, colours, shape) and written instructions for word spelling.	The multimodal texts also included online bilingual texts, sound, colour and images on the computer screen. The child was practicing specific Arabic script by using multimodal text.

7.4.1 Five multimodal examples of children's multicultural literacy practices

I found that children's multimodal digital literacy practices are flexible in design, selected by them and serve as aids to children's meaning making for their learning. The children's learning was discussed in relation to online reading and writing, use of digital technology and learning about language and cultural traditions. The nature of this multimodal digital literacy practice is culturally, contextually and linguistically based. Therefore through the analysis of children's multimodal digital literacy practices the emergent sub-themes were **children's digital activities extended beyond the visible multiple modes of communications; digital and inter-generational multilingual literacy practices (and hybrid space of practices)**.

Digital and inter-generational multilingual literacy practices: The final product of example one was Sima's creation of the PowerPoint presentation about a traditional Pakistani wedding (described in chapter 6). The two sisters, Amina and Sima, used both offline and online interaction in preparing their presentation. Marsh (2011) pointed out that in developing literacy and social order, children move seamlessly across and between offline and online spaces. Throughout the preparation Sima was observed moving from one page to another by clicking the mouse in order to find an actual traditional cultural wedding agreement. Sima and Amina both became involved in searching for video clips. I observed that their conversation was cooperative and that they were helpful to one another. Sima and her sister (Amina) also searched for relevant images and video clips on the Internet. Eventually they found a video clip that they considered to be very useful for the presentation and included it in their final presentation. I viewed these online practices as children's reading and writing of words, letters, and symbols that represent their cultural heritage, as well as their communicative practices using other modes, such as visual images and video clips to outline how young children used literacy in the online world. Studies of children's literacy practices online are limited (Marsh, 2011) but a growing body of work in this area has established that literacy is central to online interactions, with the view that there are various opportunities for reading and writing (Gillen, 2009; Merchant, 2009). I considered the nature of literacy in the creation of the PowerPoint presentation emerging as a multimodal text (Bearne, 2009). The screen gave Sima choices in terms of selecting images, video clips, colours, font sizes and design layouts. Her chosen combination of these determined the nature of her PowerPoint presentation. The

siblings' response to screen-based information on the Internet is given below together with a set of images extracted from the screen based presentation (see Figure 7.6). The girls used these to give supportive meaning to their dialogue. They recognized the important roles being enacted – bride, groom, Imam, the festive atmosphere with colour, dress, music, food, dance and singing. They also recognized the serious and formal aspects of the event with the signing of the marriage documents and the making of commitments. These practices can be seen as their traditional cultural learning practices. For example, Sima downloaded a video clip and narrated it to me:

"May I ask you...will you marry me?" The Imam prompted the bride to say, "I accept to marry you" and then both signed in front of the Imam'. Sima said: 'That's for wedding and this is a family and also the girl wears red things like that...on the first day and the second day, wear green or yellow' (see Figure 7.6).

Sima described each of the steps while constructing and practicing the presentation and all images were selected and downloaded from the Internet and organized to give supportive meaning to her speech. A transcript of the participants' speech is given in Appendix 1 in example one.

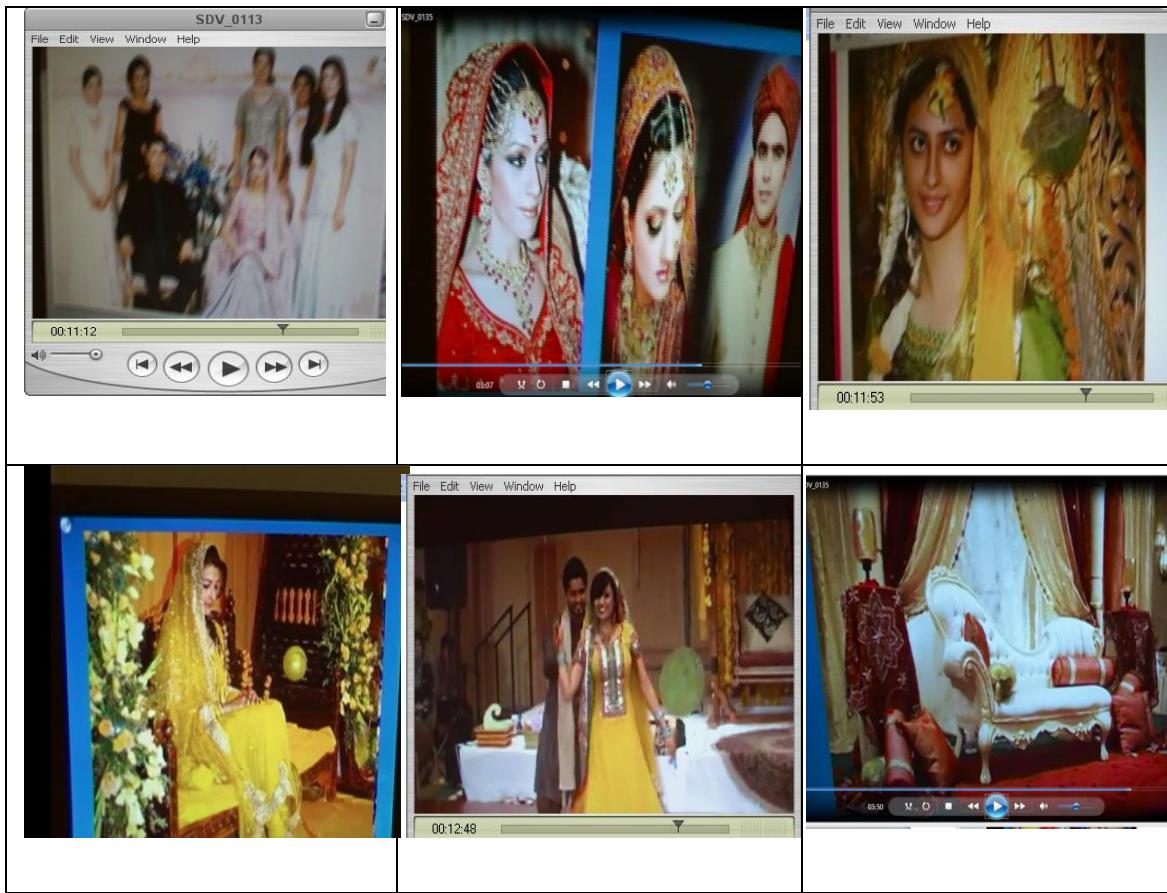


Figure 7.6: Wedding pictures from the PowerPoint presentation

Sima was sitting on a chair facing towards the computer screen and her gaze was mainly on the computer screen while making the presentation. When she discussed what brides wear (make up, hair style, necklace, bangle, ear ring) [see in data description section 6.2.4] she used embodied modes; gesture and its relation to spoken language helped to convey meaning, possibly because pointing gestures can be more useful for indicating where an ornament should be located in the body. Throughout these practices Sima not only showed competence in using text within the context of the computer, it seemed to support her multimodal literacy development in the context of culture. The flexibility of multimodal screen-based texts allowed the child to move comfortably between navigated spaces and to select and/or reject from the navigated content. This presentation was for schoolwork and was created in the home. She then took this to school to present it in her class. It seemed that Sima was using her digital literacy skills to construct a school literacy activity. She was drawing on her existing knowledge to **construct literacy situated in a multilingual home setting**. This involved using existing reading, writing and technology skills, language and cultural

knowledge in order to construct literacy-situated understanding in a multilingual home setting. It was also apparent that this understanding was mediated by screen based multimodal texts as well as multimodal interaction through assembled cultural knowledge. Therefore **digital and inter-generational multilingual literacy practices** can be seen to emerge through the analysis of children's multimodal digital literacy practices because screen based texts are **flexible in design**. Similarly, during the creation of their presentation on a South Asian wedding, Sima and Amina were communicating with each other by inserting some Urdu words into English sentences. This was seen as the construction of a **hybrid space of practice** as stated previously in the analysis of theme one. This also emerged in the analysis of themes one and two.

Similarly, in example two, Raju's engagement with the computer, and Internet browsing for Google Hindi language translations, was seen as the use of digital screen based multimodal text together with the construction of another **hybrid space of practice**. His ability to translate from one language to another, combining two different languages in his communication through a syncretic process, was previously seen in the analysis of theme one as trans-languaging. Throughout this episode the mother's speech and eye contact were particularly significant modes of communication as she sought to encourage and/or question Raju. In addition, there was a considerable amount of interaction between the child and his mother involving gaze, gesture and posture. I observed from the video recording that Raju's gaze was mostly occupied with the computer screen. His posture was such that he could easily look at the keyboard in a bending position. Both his hands were positioned on the keyboard ready to type words for Hindi/English Google translation.

The textual information presented in the technological online platform (i.e. screen, windows, frames, links, navigation bars, menu button, use of cursor, and mouse) all assisted Raju to read and hear both English and Hindi texts. This on-screen textual information of Hindi translations was multimodal in content and linguistically flexible. These modes were built into the screen design and Raju responded with the modes that combined to convey meaning in the communication process. During this engagement the Raju was interacting with multiple modes through the facilities provided by the online resources. These included spoken and digital texts, patterns, images and sounds. The following screen extracts were taken from the video recording.

While Raju was typing English, the Google translation provided Hindi and also the sound of the sentence. These are shown in Figures 7.7- 7.14.

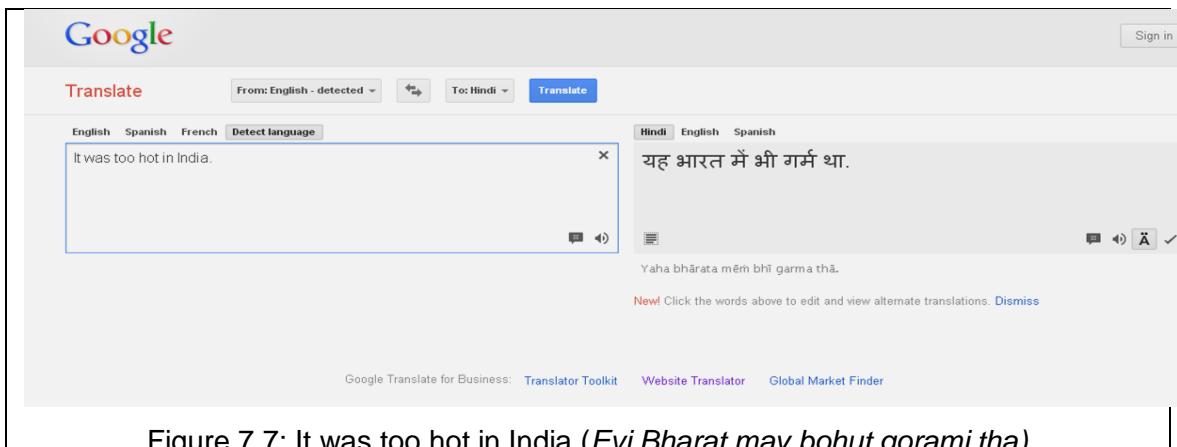


Figure 7.7: It was too hot in India (*Evi Bharat may bohot gorami tha*)

While he was practicing some Hindi, Raju used his real life experience of being in India: typically, he typed in English ('*It was too hot in India*') into the Google translator in order to obtain the Hindi translation (see Figure 7.7). Raju wrote at the left side of the divider which also provided options such as: images, English translations, switch from one language to another, speaking and listening, and audio record. He selected Hindi and then he clicked the audio option to listen to the Hindi translation. He then wrote one sentence after another in order to listen, speak, and get the meaning of each sentence while the mother provided support in both languages (see Figure 7.7, 7.8, 7.9 and 7.11). This practice showed Raju's language translation from English to Hindi as an example of 'trans-languaging' (Creese and Blackledge, 2010), where the mother and son are simultaneously using both English and their heritage language (Hindi). He was practising Hindi for several types of everyday situation, such as general conversation, greetings, and religious terms. Raju and his mother's experience with Google Translator was an example of hybrid practice, taking place in a hybrid space created by the intersection of digital resources and heritage language within the home domain.



Figure 7.8: I am not your friend (*May apni thos nahe ho*)

While Raju visited India he learnt from other children how to say 'I am not your friend' in Hindi. Children were curious about this visitor and wanted to take him out to play, however he refused because of the hot weather. He also decided to play a trick to avoid going out to play by saying, in Hindi, 'I am not your friend'. He checked the translation of this phrase into Hindi using Google translator as shown in Figure 7.8.

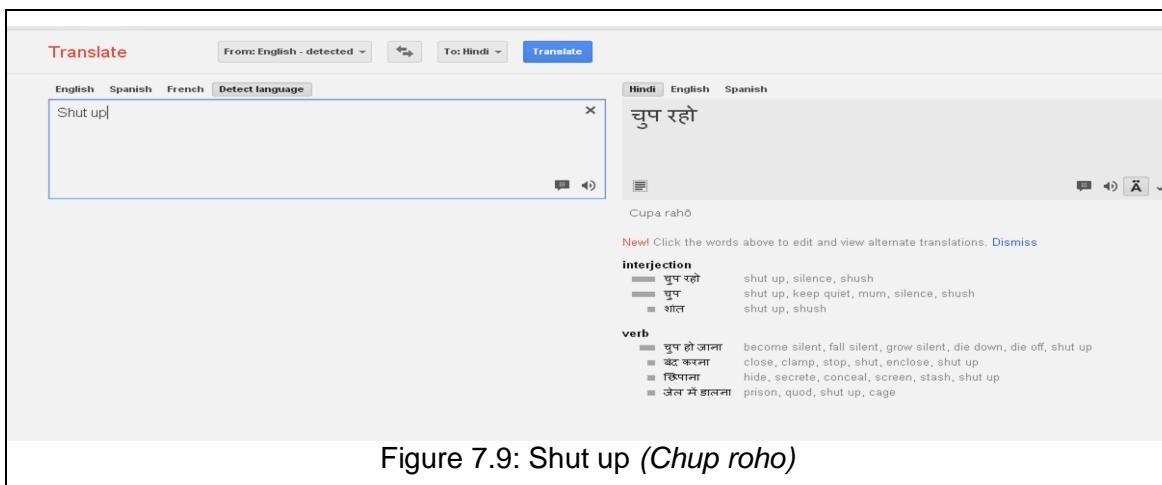


Figure 7.9: Shut up (*Chup roho*)

He liked to learn everyday life language in Hindi as indicated in Figure 7.9 where he wanted to learn how to say 'shut up' and in Figure 7.10 where he wanted to say 'don't cry'. He was supported by his mother by repeating each translation to his mother in order to allow her to check and, if necessary, correct his pronunciation.

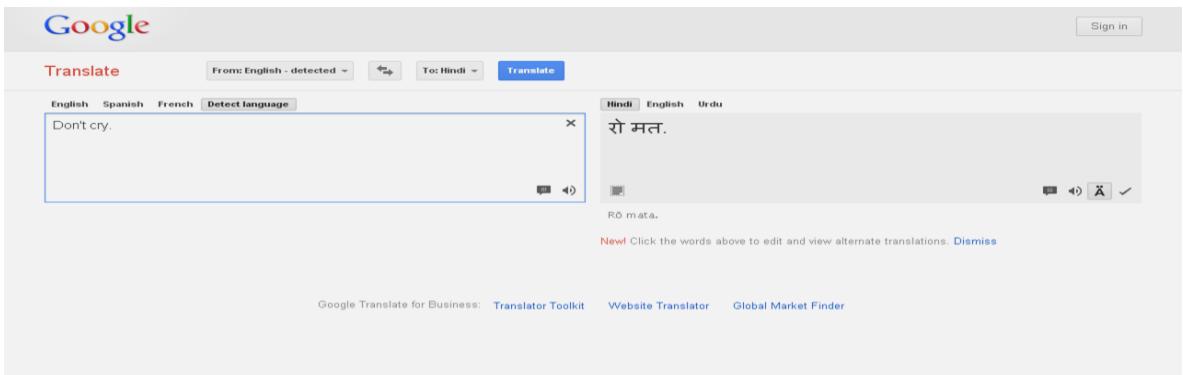


Figure 7.10: Don't cry (*Runa na*)

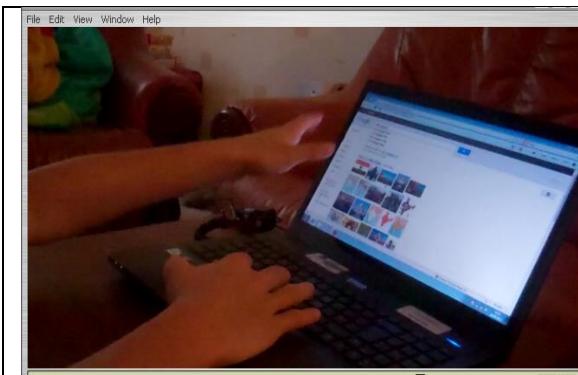


Figure 7.11: Images of different places in India

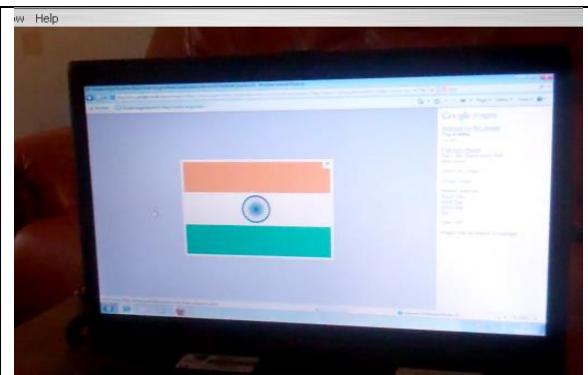


Figure 7.12: Indian Flag



Figure 7.13: Taj Mahal



Figure 7.14: Golden Temple

He also downloaded some images and comments on the places that they visited while on holiday in India (see Figures 7.11 - 7.14). The on-screen multiple modes of activity were operated by Raju. These activities comprised viewing, navigating (browsing and scrolling) and responding to images, icons, hypertext and sound effects. As such it gave emphasis to selected features, such as images and sounds in order to promote a particular approach to Hindi via translation. In the previous example Sima also similarly

conducted online and on-screen multiple modes of activity in order to create her PowerPoint presentation. This was seen as traditional cultural learning whereas Raju's activity is seen as his heritage language learning. These digital communicative practices showed children developing literacy learning through the use of multiple modes and media (Flewitt, 2008 and Martin, 2004) and also showed children becoming literate in using the Internet and other forms of digital technology.

The dominant focus of this case was language, and the relationship between two languages. The spoken and written word again provided the foundation around which other modal forms were connected to support and enhance the communication. Visual imagery and sound were both used within the Hindi communicative practices to enrich the child's cultural awareness. The flexibility of technology in terms of subject, modality and degree of difficulty should be recognized as a bilingual educational resource both in, and beyond, the home. In the context of the 'digital native' Levy (2011) considered task based second language learning and multimodal text construction in their study. The study provided support to the idea that the outcome is positive when young people are encouraged to use multimodal texts; it has the potential to transform their understanding (Kimber *et al.*, 2007; The New London Group, 1996) and it has been established that 'digital transformations and designing can enhance the learning process' (Levy, 2011 in M.Thomas eds). In the examples of Raju and Sima, it can be seen that they were using digital literacy skills in order to construct multimodal texts. Their online multimodal text activity involved reading, writing, using technology, bilingual communication and cultural knowledge. Therefore **digital and inter-generational multilingual literacy practices** emerged through the activity of children's multimodal digital literacy practices and the attendant flexible screen based design.

Similarly, Rumi, a pre-school child, was engaged in using a mobile phone. In the analysis of theme two, it was mentioned that Rumi's word game play was mediated by his family members. His parents noticed that while Rumi's eldest brothers (twins) were doing homework (word spelling) from school Rumi tried to copy them or sometimes interrupted their work. Their parents found an alternative way of giving him word spelling that was a word game involving the use of his father's i-Phone 4. The child's activities were videoed. I observed that the child was dealing with multiple communication modes on the mobile's touch screen. These included sound, colour,

text and graphical representation related to the word and its meaning (see multimodal transcription Appendix 3 Example 3).

Rumi's mother commented 'I came to realise this phonics game is helping him in learning English'. Subsequent combinations of letters/sounds were used in the game to build simple words, images, colour and word meaning through graphics representation. I realized his enthusiasm with regard to the mobile phone was important. According to the video observation Rumi was clearly manipulating multiple modes on the mobile's touch screen and his consistent on-screen gaze signaled his concentration on the game activities. It is also noticeable that while he was using his fingers on the touch-screen to navigate between images, his smiling facial expression indicated that he was enjoying his multimodal involvement. He also said that '*ami eita like kori*' (I like this mobile) when I was watching him playing with the mobile phone in the video. This can be seen as an embodied mode of learning and was linked to contact with the mobile technology.

In my study involving Rumi this digital multimodality was expanded by his association of previous life experience with the strawberry image provided on screen. He was not only dealing with word making within the boundaries of text but also within the interplay between multiple modes. The activity also encompassed his prior experience as an existing fund of knowledge (Gonzalez *et al.*, 2005) when he spoke of visiting a strawberry field to pick fruit with his family. These were collective elements of meaning-making that went beyond the visual multimodal learning process. He encountered the word 'pick' by trial and error together with an image and a colour displayed on the mobile screen. The image was of some strawberries (red coloured) in a basket to convey the meaning of the word 'pick'. This reminded the child that the family had done some strawberry picking and he said with surprise, 'strawberry pick' as he made the connection. Then he immediately said '*yeah amra strawberry pick korchi*' (Yes, we did strawberry picking) using syncretic language to convey what he had discovered. It is worth reflecting on how Rumi connected his prior experience of strawberry picking when encountering the word 'pick', the image, and the colour. This association of prior and new knowledge indicates that the learning process **extended beyond the visible multiple modes of communication**. This connection of pre-existing personal experience and newly encountered personal experience is potentially significant in assigning meanings in the context of multiple modes of communicative learning.

I saw Rumi's use of the iPhone 4 as replicating school constructed literacy practices through the use of different modalities enabled by the digital technology. The game allowed Rumi to learn word construction and digital skills (use of the user interface and downloading) in a multimodal way; using sound, image and colour in his learning practice. In these examples it seemed that similar kinds of learning elements are occurring through children's diverse engagement of digital technologies. Children's intergenerational multilingual practices emerged in the context of multimodal digital literacy because screen based texts were flexible in design.

Similar sorts of school constructed literacy were acquired in the fourth example involving the twin brothers, Amin and Bablu. Amin's and Bablu's joint activities concerned homework for a spelling test set by the school which involved word memorising. Amin's game playing presented him with multiple modes on the Nintendo DSi screen, like sound, colour and written texts related to the drawing and word memorising games (see the multimodal transcription in Appendix 3, Example 4). The word memorising game was relevant for the subsequent school spelling test. He explained the process of learning to spell. He mentioned that he has to read a set of random words on the screen lots of times in order to memorise them and then write them somewhere else on the screen. This process was chosen by Amin and the game required following this kind of memorizing process in order to complete the spelling test successfully.

The following memorising and spelling extracts are from the videos of the Amin's activities - all of which were video recorded (the images are presented below in Figure 7.15). Amin used a stylus pen with the Nintendo DSi. A stylus is a digital writing and pointing device.

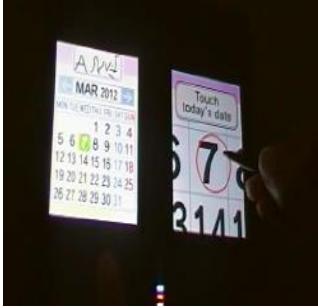
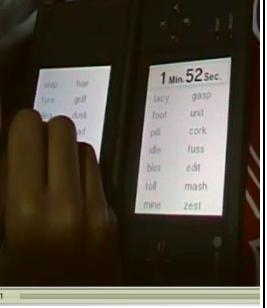
			
Indicates stamp with the stylus pen	Amin was reading his brothers' scores	Amin was trying to recall to draw the Egyptian image and mentioned 'it is too hard'.	Reading words for memorising.

Figure 7.15: Use of stylus pen

Amin gave a meaning to his memorising practices by saying that 'I got stamp'. He was talking while he was playing the Nintendo DSi game. I provided this speech in the multimodal transcription (see Appendix 3, Example 4). Amin used the word 'stamp' to represent achievement, which was identified from his speech. He mentioned that when he did something good he got stamps and he got lots of stamps. While Amin was playing with the Nintendo DSi and introducing the 'brain training game' he said: 'My dad brought this for me on my birthday'. When Amin was trying to recall the Egyptian image (to draw it) he made a mistake and said 'it is too hard' and made a noise 'oops'. These practices can be seen within children's popular culture expressed in the release of their emotion (Williams, 2009; Leander and Bolt, 2013 Lemke, 2005, 2013). During the children's digital activities, their voice and speech also made a connection through tone by revealing non-linguistic meanings about their physical composure and emotional state (Lemke, 2005).

Amin pointed the stylus pen on the screen in order to show his stamps (see Figure 7.15). This example of gesture was used to convey the meaning of the word 'stamp' as achievement. Amin was also reading his brothers' and friends' play scores by pointing his stylus pen towards the Nintendo DSi screen. At some points he showed concern that his brother got a bigger score than him. This indicates that the siblings care about their achievement while competing with each other through play. It was mentioned

earlier that when Bablu was excited by getting better marks than Amin he used hybrid language by using English grammar in the Bengali sentence. Amin, Bablu and Rumi's creativity in the construction of a hybrid sentence were demonstrated previously through the analysis of theme one (see Table 7.2, 7.5 and 7.8). This also illustrates that the children were operating at an emotional level and competing with each other to get better marks.

The second part of the example involved both twins practicing the spelling of a set of words given to them at school. Amin and Bablu's speech was recorded whilst practicing the spelling test. Their gaze was on their revision paper and they were using a pencil, a highlighter pen, an eraser and paper. After their revision I dictated each word to them, so that they could write out the words from memory. The twins then marked each other's work. A similar process took place on the Nintendo DSi word memorising game. In this instance the virtual instructor dictated and marked the work. Amin made a comparative comment regarding onscreen writing and paper based writing. He raised the stylus pen in front of me and said: '*This does not go with paper... It does not write and... this pen is designed for the DS and normal pencil is for this paper... if you make a mistake you have to rub it off with a rubber and DS you don't need to rub out... click on erase and it's all sorted*' (see Figure 7.16 a).

Amin not only demonstrated competence in how to use a stylus pen but insisted that digital technology afforded an easier way of writing rather than writing on paper using a pencil.

As a consequence, throughout the boys' activity it appeared that a significant relationship existed between paper-based reading/writing and screen-based reading/writing. This draws attention to the similarities and differences in paper-based and screen-based literacy practices between home and school (see Figure 7.16). In both practices the similarity is literacy learning and the difference is the process and resources. Bablu and Amin were reading and writing words on the paper. In this instance Bablu showed different ways of practicing reading and writing words through the use of Nintendo the DSi. Amin, Bablu's twin also played the same game. The brothers appeared to acquire digital literacy skills within the context of multimodal forms of learning in their home. The use made of home digital media, illustrated support in their literacy development through their interactions with both screen-based and paper-based multimodal texts.

Multiple technological affordances provided different modes of communication that allowed Amin to move between modes and to create multimodal communications. This was apparent in the on-screen text-making practices that involved drawing, colour and word games where the shift between the written texts and semiotics created multi-modalities which functioned simultaneously to make meaningful communications (Kress, 2003; Jewitt, 2011).

In the context of multimodal communicative practices, it is evident throughout the description in chapter 6 that the child's on-screen gaze was exploring the options available on the screen in order to make a selection that suited his purpose. For instance, in order to draw 'Henry viii' and his own face, Amin positioned himself for drawing; he sat on the floor and placed the DSi on the bed whilst using the screen as though it was a sketch pad. His speech was related to his finger movements on the screen which included the combination of drawing, colour and word game activity and rules. He had to read out the colour of a word in response to a display on the screen. For example, if the screen displayed the word 'Blue' it could not be named blue unless the font colour was also blue. Next he moved onto a word game where random words were given on the screen to read and after a while the child tried to remember them. He needed full concentration in order to play these games successfully. The combination of these activities created a meaningful multimodal communicative practice for the child and afforded potential means for him to use different modes of communication for memorizing words.

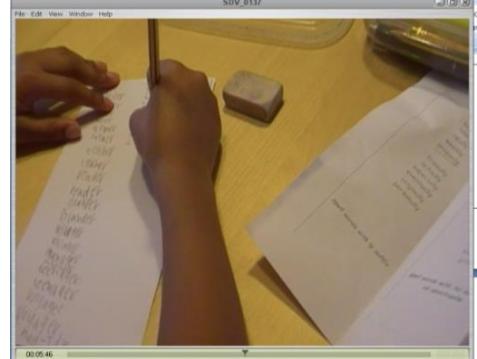
	
7.16 (a) Pointing: Amin was pointing with his stylus pen on a Nintendo DSi screen.	7.16 (b) Pointing with his pencil on a paper.

Figure 7.16 Comparison between technology and paper based writing

Finally, these two exercises were both concerned with word spelling. One of them was technology based and involved a range of multimodal forms of practice for learning literacy. The other involved minimal resources of pencil and paper.

It could be argued that the multimodal technology based experience was easier for the children. The clue may lie in the account of word spelling in the case of technology as a word game and in the case of school word spelling as homework. As mentioned earlier, Amin made a comparative comment regarding onscreen writing and paper based writing that 'DS you don't need to rub out... click on erase and it's all sorted'. Amin's statement about the stylus pen indicated that it is easy to use as compare to traditional pen (see Appendix 3, Example 4 in the table named comparison).

Collectively, these can all be called multimodal communicative practices (Jewitt, 2011; Flewitt, 2008; Walsh, 2005; Norris, 2004 and Kress, 2003) and they are described in greater detail in the literature review in section 3.7.

Example five was focused on Bablu's heritage language learning for religious purposes. This is similar to Raju's heritage language (Hindi) learning but he was learning to communicate with his family members mainly who were living in India. In Example five, Bablu and his grandmother were doing an Internet search for information about Qur'anic script. My video observation showed evidence of how he was

memorising and reciting Surah (Qur'anic literacy) through the use of online resources. I observed throughout the study that there was a considerable amount of multimodal interaction between the child and grandmother (using gaze, gesture, posture and speech). Raju and his mother exhibited the same modes in their own interaction. Bablu was sat in such a way that he could easily look at the screen and get into a comfortable typing position (see Appendix 5 multimodal transcription for full details). Bablu was moving the cursor using the mouse and concentrating on the computer screen in order to find the Arabic script on the Internet. Bablu's grandmother was watching his activity by standing beside him. Bablu's use of the Internet search indicated that he was familiar with Internet browsing practices although this was the first time he had searched for Arabic script online. In this event I observed that Bablu was dealing comfortably with multimodal texts on the computer screen. These were: written texts in Arabic scripts; English translation of Arabic scripts; representational images of Fatiha that originally came from Mecca and sound effects of Surah-Fatiha recitation and colour design.

This data is presented in Chapter 6 in Figures 6.11-6.14 and Table 7.6. Bablu's communication with his grandmother and his use of online resources can be seen as an example of digital multimodal **inter-generational multilingual literacy practices**. Kenner (2003, 2004) argued that young people's multilingual writing scripts are visual modes of a multimodal process. Kress et al. (2001) called them transduction processes, describing how knowledge transforms when moving from one mode to another. Kress (1997) originally used the term 'Transduction' in the context of a social semiotic view of multimodality. Bablu used the menu bar to select options that were multiple modes (images, English translations, audio and video record). Bablu was moving from one mode to the other in order to find an appropriate video clip. This can be seen as an integral part of the reading practice. The exercise used on-screen images, colour combinations and design of historical locations for particular Arabic scripts. Through Bablu's activities, semiotic practices and multimodal practices are situated in a specific cultural context. Transduction can therefore be seen to occur through Bablu's activities across modes and was constructing meaning within them.

It is important to recognize that Bablu's reading practices through multimodal texts were flexible in terms of moving between the two different scripts (Arabic and English). The grandmother's encouragement of Bablu finding a particular Arabic script was

purposeful within the cultural context of a particular religious practice. Searching Arabic script, using online resources, showed how a young multilingual child was learning to read differently as compared with mainstream school. The grandmother was monolingual, speaking in Bengali while she communicated with Bablu, but she occasionally used English words in their Bengali communication. Bablu also used English words in their Bengali communication. This kind of **hybrid space of practice** that occurred in the home is unfamiliar in the school setting. It seemed that multimodal digital literacy practices are flexible in design, and children were using this flexibility with the affordances offered by digital technology. By using these flexible options the children could move from page to page as they deemed appropriate. This illustrated the contribution of digital practices to the application of traditional literacy and language within a bilingual cultural heritage. Kenner and Gregory (2012) also found that bilingual and multilingual children are using online resources and practising more than one language in parallel.

Finally, throughout the five examples it was observed that **intergenerational multilingual practices emerged** through the variety and flexibility of the affordances offered by digital technology. These include: design in the Google translate page, screen-based text (Arabic, Hindi and English), cultural images, and sound effects. These affordances of different modes were enabling children to form their own reading paths through hypertext on the Internet (particular aspects of using mobile phone/computer/Nintendo) in order to respond to the on-screen text which gave due recognition to culture and context.

Multimodal digital literacy practices as culturally, contextually and linguistically based: While the culture, context and languages varied in each example of the study they revealed a common dependence on multimodality for the creation of the required learning and communication. Therefore, the ways in which children's multimodal learning occurred through their use of digital technology influenced their cultural understandings and communications.

Thus 13 year old Sima produced a rich multimodal PowerPoint presentation about Pakistani weddings as an example of a heritage culture phenomenon. It was homework set by her school that gave her the opportunity to present to the school her perception of this specific South Asian cultural event. In order to create her PowerPoint

presentation, Sima selectively used a variety of modes offered by technology and literacy including a selection of layout, font size, written and spoken text, colour combination, Google search for images and YouTube video clip attachment. Sima's activities via these modes and media created cultural and linguistic linkages between school, home and technology. It can also be seen as one of the ways in which the child's identity and culture can be made visible in the classroom via their multimodal digital literacy practices.

In contrast, the dominant focus of 12 year old Raju's practice was language and also, in fact, the relationship between the two languages Hindi and English. The spoken and written word again provided the foundation around which other modal forms were connected to support and enhance the communication and the learning. The multimodal digital communicative practices involved text, sound and images. Associations between these modes enriched the child's experience and awareness of his ancestral culture and the bilingual communication gave him an awareness of his multi-lingual and multi-cultural world. Raju showed competence in manipulating digital technology and enjoyment at demonstrating his skills at searching and selecting appropriate modal forms.

The word web-based game plays on the mobile phone influenced 4 year old Rumi's literacy learning in the home in terms of vocabulary and spelling. The parents were actively involved in communicating in Bengali because Rumi was familiar with his mother tongue at his early stage of English literacy learning. Rumi's language learning was also influenced by his twin brothers' school's spelling work in the home and was mediated by their mother's interaction. Rumi's cultural heritage and linguistic experience were an integral part of English literacy learning practices while using digital multimodal texts written in English. This practice demonstrated how literacy is situated in a complex network of cultural and linguistic practices in young children's' homes and that children and parents encounter a range of cultural and digital texts. In contrast, the word memory game (using the Nintendo DSi) influenced 7 year old Amin's literacy learning in the home by extending his vocabulary and improving his spelling proficiency. The data revealed that Amin, Bablu and Rumi also brought their personal knowledge of using dual language communication in Bengali and English into their spelling work.

Bablu's interaction with his grandmother and his online interactive reading process constructed knowledge with respect to their shared cultural practices. These practices were also constructing school literacy practices. Some elements of learning evolved through these digital communicative practices in terms of Bablu's cultural learning. Bablu used syncretised language in Bengali, English and Arabic when communicating with his grandmother as well as during online interactive practices. This example shows a multilingual child's use of a range of digital multimodal texts as multilingual in nature. Interestingly this example involved a strict observance by Bablu of what is culturally allowed and what is not allowed in terms of multimodality when learning the Qur'an, namely learning the words and the correct sound of the words of the Qur'anic and other modal forms (images of the places).

7.4.2 Summary

An analysis of the multimodal digital literacy practices of six multilingual children identified the ways in which children enjoyed their heritage literacies and also English language connected to their heritage culture. It was clearly evident that children's cultural and linguistic learning was being aided by the multimodal affordance of digital technology and by multi-lingual literacy practices and inter-generational learning. This can be seen as the emergence of **digital and inter-generational multilingual literacy practices** in nature. The multimodal affordance of digital technology was flexible screen-based text designs and children's activities **extended beyond the visible multiple modes of communication**. The children's digital practices were culturally, contextually and linguistically based. The hybrid spaces of practice also emerged through children's on-screen multimodal digital literacy in the context of culture and heritage language.

7.5 Overall Analysis summary

Table 7.11: An outline of initial themes with an overview of emerging sub-themes:

	Theme one	Theme two	Theme three
	Literacy-language in a cultural context	The home-school relationship	Multimodal digital literacy practices
Sub-themes	<i>Hybrid spaces of practice; creativity in construction of a hybrid sentence/translanguaging; heritage language communication; dual language and digital technology skills and evolving language transformation across generations</i>	<i>The symbiotic nature of cultural and linguistic knowledge; Understanding school constructions of literacy in the multilingual home setting</i>	<i>Hybrid space of practices; Digital and inter-generational multilingual literacy practices; extension beyond the visible multiple modes of communication.</i>

The analysis of six South Asian children's digital literacy practices in three multilingual households indicated that they were making things in their own way.

The analysis of theme one (literacy-language in a cultural context) revealed that children were constructing cross-linguistic and cross-cultural communicative hybrid language practices in support of their communications while carrying out their multi-literacies activity. The nature of these children's communicative practices provides new insights into their creative interaction in terms of grammatical trans-languaging, syncretism and hybridity. Through the analysis of these children's communicative practices some specific sub-themes emerged. These emergent themes are:

Hybrid spaces of practice: Children's literacy and language practices in a cultural context showed that they used multiple literacies from their heritage cultures amongst themselves. Children usefully combined the two languages of English and their own heritage language (Bengali, Hindi and Urdu) while communicating between themselves

as well as with their parents and grandparents. These linguistic practices were seen as representative of this emergent hybrid spaces of practice sub-theme.

Creativity in construction of a hybrid sentences/translanguaging: I observed that children's hybrid communicative practices involved creativity in the ways in which they inserted English words into their heritage language grammatical structure. I also observed the (equally creative) reverse hybrid sentence construction where the children inserted Bengali, Urdu or Hindi words into English grammatical structures. The children appeared to be comfortable and flexible in both of these creative translanguaging approaches.

Heritage language communication: The analysis revealed that children's digital literacy practices in multilingual households consistently showed that the children's parental generations were providing a supportive role in their heritage language communication in both trans-languaging approaches.

Dual language and digital technology skills: It was apparent that children and their parental generation's dual language communicative practices were mediated both culturally and through technology-supported language development. The children again appeared to be comfortable and flexible in dealing with both of these meditative manners.

Evolving language transformation across generations: The data revealed that inter-generational influences, involving the children, the parents and the grandparents, were contributing to language transformation in communicative practices. The grandparents and parents were also influencing the children's acquisition of literacy and language learning as they encouraged the children to develop their literacy and cultural awareness by communicating with them in their heritage language.

In the analysis of theme two the home-school relationship revealed that children were transferring cultural and linguistic knowledge between the home and school through their use of digital technology. Through the analysis of the ways in which children's knowledge transfer were mediated by siblings, parents and grandparents, specific sub-themes emerged. These emergent themes are:

The symbiotic nature of cultural and linguistic knowledge between home and school. The theme of home-school relationships revealed links that bilingual and multilingual children make between school and home. These include the school's constructions of literacy and the cultural and linguistic knowledge and transfers between home and school. These knowledge transfers were mediated by digital and family environments. Therefore the nature of such knowledge transfer relationships for children of South Asian heritage is both technologically and culturally enabled. These processes collectively created a complex learning environment for these particular children and the skills and knowledge transfer between home and school can be seen as symbiotic, generating beneficial educational advantages for both home and school.

Understanding schooled constructions of literacy in the multilingual home setting. Children's play activities on a Nintendo DSi brain training game and i-phone 4 word games involved memory dependent spelling work. These activities were seen as school based constructions of literacy operating in the multilingual home setting. These home-based literacy practices were connected with the twin brothers' spelling test from school. This required the twins to study a list of school-provided words, memorise their spelling and then write them down from memory. Both of these practices suggest that an understanding of the ways in which children interact with digital technology, within the complex aspect literacy situated in the multilingual home setting, can contribute to children's paper based text activities in school.

The analysis of theme three (multimodal digital literacy practices in the context of literacy and culture) revealed that the children's cultural and linguistic learning was aided by the multimodal affordance of digital technology and by inter-generational learning. Through the analysis of children's screen-based practices, specific sub-themes emerged. These emergent themes are explained below.

Digital and inter-generational multilingual literacy practices in the context of multimodality: My observations of five sets of data suggest that children acquire literacy and language learning through multimodal digital literacy practices. The analysis also considered the ways in which children's engagement with digital technology connects with multimodal digital literacy practices and how these practices interact with the specific multicultural context. The children acquired knowledge from

the technology by interpreting multimodal messages provided on-screen (i.e., sound, colour, print literacy, images).

The analysis of the children's multimodal digital literacy practices, designated as **digital and inter-generational multilingual literacy practices**, indicates that they are culturally, contextually and linguistically based and that these practices are created by the selective association of both technology and non-technology approaches. Selection is negotiated by participants in accordance with both culture and context. Technological approaches incorporate children's communicative practices through their use of digital technology. Non-technological approaches incorporate children's communicative practices with their parents, grandparents and siblings. These multimodal digital literacy practices are flexible in design and can usefully serve as learning aids to children's meaning-making and knowledge acquisition. Children's knowledge acquisition is also connected with their pre-existing personal experience which is potentially significant in creating and conveying meanings in the context of multiple modes of communicative learning.

Multimodal digital literacy practices extended beyond the visible multiple modes of communications: My observations revealed that it was apparent that children associated their previous experience with new knowledge while practising word games on the i-phone, the spelling test on the Nintendo DSi, and Hindi in Google translation as well as in online practices for religious and cultural purposes. During the use of digital technology their expression and spoken language showed that the children's learning process extends beyond the visual mode. Therefore, the analysis also considered the ways in which children's engagement with multimodal practices extended beyond the visible multiple modes of communications.

Hybrid space of practices: It appeared that hybrid space of practices also emerged through children's on-screen multimodal digital literacy in the context of culture and heritage language. Children were dealing with the on-screen multimodal affordance of digital technology in a multi-literacy and multi-cultural context.

In total, the analysis of the hybrid spaces of practice theme revealed a highly complex/multifaceted learning environment for these multilingual multicultural children.

This practice also revealed that the children showed creative responses in dealing with that complexity.

Based on these findings, my response to the research questions and some possible contributions to and implications for practice are discussed in the following Chapter 8.

Chapter 8

Conclusion: contribution to knowledge and implications for practice

8.1 Introduction

This chapter provides an overview of the findings that emerged from the thematic and sub-thematic analysis of my data in the previous chapter and shows what I have learned from that analysis. This chapter returns to the research questions and demonstrates how they have been answered. I provide reliability and validity in the context of ethnographic study. I also state why I consider my findings to be important and finally I express my perception of their original contribution to knowledge and their implications for practice.

My research was undertaken in order to develop an understanding of the complex relationships South Asian children encounter in their daily lives, with regard to literacy practices that are mediated by the use of digital technologies. This study revealed that these daily literacy practices were highly influenced by the children's heritage cultures, home literacies and family languages.

I found that these children were using a mix of spoken heritage language and English in their intra-family communications while engaged with activities using digital technologies. This was described as children creating a hybrid space of literacy practice where they showed creativity in the construction of hybrid sentences/translanguaging by inserting English words into their heritage language and vice versa. These communications were also influenced by their cultural heritage and the multimodal affordances of digital technology where the dominant language was English. For example, while the children were learning their heritage language online with the Google translator their trans-language skills and digital technology skills were in use at the same time.

It appeared that this heritage literacy played a significant role in supporting communication but also appeared to be absent in their current educational practice. Therefore, it is important to appreciate the nature and use being made of hybrid spaces

of literacy practice in order to better support bilingual or multilingual children in their efforts at multi-cultural multi-language learning. Moreover heritage language use was also seen to help to sustain cultural identity; this cultural and linguistic knowledge transfer between home and school can be seen as a symbiotic relationship that is beneficial for both. I saw evidence of schooled constructions of literacy in the multilingual home settings where children's screen based practices involved spelling as well as reading and writing of text. Evidence of the children's digital literacy practices revealed how digital technology can contribute to aspects of school based constructions of literacy when transferred to the multilingual home.

My study indicates that bilingual and multilingual education is important contributors to children's cultural identity and self-realisation. I found evidence of evolving language transformation across generations as parents and grandparents supported the children in their activities by interacting with them in their heritage language. They regarded these communicative practices as a necessary investment in the language development of the children and their participation in their wider multilingual society. Communication between children, peers and adults expressed their thinking and conveyed meaning, making it a crucial feature of children's language and literacy learning (Gregory *et al.*, 2004).

The children's digital literacy practices were seen as a demonstration of how digital technology can contribute to this complex aspect of schooled constructions of literacy applied in the multilingual home. I believe that I have acquired a unique insight into the ways that digital technology contributes to children's literacy learning within this specific multi-cultural multi-linguistic context.

I will now, consider responses to the research question in the light of the theme and sub-theme findings of my study.

8.2 Responses to the research questions

The previous chapter addressed the ways in which the digital practices of the South Asian children could be identified and interpreted with respect to the research themes and sub-themes that emerged from my study. These interpretations were used to develop a resultant theory from this ethnographic encounter. The sub-theme

interpreted findings now provide the basis for addressing the three questions initially established to profile my research. These questions are:

1. *In what way does digital technology contribute to British South Asian children's (aged between 4 and 13) literacy and language learning and how do these children learn through their use of digital technology in multilingual homes?*
 - a. *What kinds of digital technologies can be observed being used by these British South Asian children in their homes?*
 - b. *What is the relationship between home and school, in terms of learning, with particular reference to digital technology?*

The responses to the sub-questions (a) and (b) provide a supportive function for the answer to the main question 1. Sub-question (a) relates to the identification of the kind of digital technologies that were being used by these South Asian children at home. My study accepts as a given premise that 'technology has always been an essential part of literacy' (Marsh and Singleton, 2009, p.1).

I explored this question through referencing the existing relevant literature as well as through the observation data of my study. There is substantial existing research acknowledging that today's children are increasingly engaging with a wide range of digital technologies. Their engagement with digital technology includes playing digital games, communicating with friends and families via the Internet, using mobile phones, watching television and recording video (Gee, 2003; Marsh, 2010; 2011; Marsh *et al.*, 2005; Merchant, 2012; Livingstone and Bober (2004, 2003); Ito *et al.*, 2013; Marsh, 2005; Levy and Marsh (2011). Reviewing the existing literature led me to conclude, however, that there is limited research focused on bilingual and multilingual children and their digital literacy practices. In this context Marsh (2005) pointed out that there is a need to pay particular attention to bilingual children's popular culture and their use of digital media and its impact. Levy and Marsh (2011) also emphasized the need for the analysis of children's use of technology in order to understand families' intergenerational practices in connection with their digital literacy practices.

This suggests that there exists an opportunity to examine children's use of digital technology in their multicultural and linguistic practices with a particular reference to children in South Asian families in the UK. In order to obtain evidence to this effect my

sub-question (a) therefore sought to address the issue of the kinds of digital technology such children are using and to understand what use they make of it in their specific South Asian context.

Consequently it was necessary to explore the ways in which South Asian culture, language and literacy practices were influencing children during their use of home-based digital technology. To do this I Initially selected five examples from my data which were representative of the diversity of technologies and the South Asian user environments encompassed by my study.

The data analysis of these five examples of ethnographic observation revealed that a wide variety of digital technologies are available and being used by children in their homes. They are growing up in families where access to technology and an Internet connection is common. The children were variously engaged with the computer, Internet, Nintendo DSi and mobile phone and it was further observed that during their engagements they were concurrently taking part in dual language communications with siblings and across the family generations.

In the example of Rumi, a digital mobile telephone was used for word game play. The application appeared to mimic the actions of an English speaking tutor and throughout the activity Rumi's parents were communicating with him in Bengali. He was drawing on and extending his developing literacy skills in both languages. At a very early age he was engaging in activity that concurrently involved dual language and digital technology skills.

Similarly, Rumi's twin brothers' (Amin and Bablu, both 7 years old) used a Nintendo DSi for help in memorising the spelling of words when playing mental exercises involving memory, maths and verbal challenges and applying school-constructed literacy practices. Parents were once again encouraging the children and communicated with them in Bengali. The concurrent use of dual language and digital technology skills was again evident.

Raju was using the Google Translator for practicing his Hindi language. The layout of the screen was divided into two parts. The left side of the divider had the option to write English and the right side divider gave the translation in Hindi. The text based bi-lingual

interaction with digital technology was evident together with other options such as icons for speaking and listening, audio recording, and options to switch from one language to another. In this instance there was an increase in the use of dual language in the participants' communications. There were similar issues involved when I observed 7-year-old Bablu searching the Internet for Arabic script as part of his multi-cultural development. He was engaged with a digital language development application that allowed him to operate on-line multiple modes for language learning. Bablu was however being supported with advice from his grandmother to improve his pronunciation of Arabic words. Three languages were engaged during the communication between Bablu and his grandmother: English, Bengali and Arabic. Even at seven years old, Bablu appeared comfortable with this situation and was able to participate in it.

Finally, extensive desktop computing and PowerPoint technologies were used by Sima, and her younger sister, Amina, who was supporting her during the creation of a cultural presentation to be given at Sima's school.

The sisters communicated with each other and with their mother in both their heritage language and in English. The presentation they were preparing required substantial knowledge of their chosen cultural event and of the affordance provided by digital technology and dual language to construct and communicate the presentation.

All five of my examples revealed concurrent engagement by the children with acts of dual language and digital technology skills, and all of the examples reflected at least one, but sometimes more than one, cultural influence. The children were living a multicultural multilingual existence and responding positively to it. It would not be too unreasonable to suggest however, in response to my question 1a, that a wider appreciation is possible of the complexities involved for them and the kind of support that might be given to them in both home and school within a specific South Asian cultural context.

I now intend to answer the research sub question (b) 'What is the relationship between home and school, in terms of learning, with particular reference to digital technology?'

My response to research sub question (b) involved the use of the analysis of theme two (provided in Chapter 7, section 7.3.1) derived from the five examples of the ethnographic case study, together with consideration of the literature relating to children's home-based digital literacy practice (Marsh et al., 2005; Davidson, 2009; Pahl, 2005; Marsh, 2012; Marsh 2010; Carrington and Robinson, 2009). I therefore focused on digital literacy practices from the perspective of home/school domains and sites. This allowed me to identify the connection between different literacies in terms of home/school domains and sites in the children's daily life practices. These different literacy practices involved the South Asian children's use of Arabic, Bengali, Hindi and Urdu in their daily family life. This reference to literacy practices within families can be termed 'family literacy' (Barton & Hamilton, 1998; Kenner et al., 2007; Gregory et al, 2004) from their heritage culture. I found that the development of wider literacy practices was, to a major extent, embedded within the use of digital technology (Makin et al., 1999). Family literacies were observed as being both culturally and technologically mediated in situations where the dominant technology language is English and the mainstream school language is also English. I observed that the children's cultural heritage texts remained influential in their home while the children simultaneously incorporated their acquired English language skills into their heritage language. One of the examples was the way in which children used English grammatical rules in their communicative practices with the phonetics and phonology of Arabic and Bengali. During one child's (Bablu) attempt to learn the Qur'an the communications between Bablu and his Grandmother evolved syncretically (Gregory et al., 2004; Gregory et al., 2012) as they combined religious words from the Qur'an, Bengali words from their heritage language and English words from school. The details of the grammatical construction of their sentences have been provided in the analysis of the first theme in Chapter 7 in Table 7.2- 7.8. This practice can be seen as children accessing English texts and grammar in the mainstream school and connecting that literacy to their home based cultural heritage literacy. This demonstrates that knowledge transfer occurred between home and school (see the figure 7.1, 7.2, 7.3, 7.4 and 7.5). All the examples in my study showed that the nature of this knowledge transfer relationship, for these specific children of South Asian heritage, is mediated by both the multi-cultural and multi-lingual context. In this relationship the children have gained increased knowledge of their own culture and can be seen to be developing literacy skills in both in English and their heritage language. These home based ethnographic observations revealed that children brought knowledge they had acquired

at school into the home and used it to develop literacy skills in their home settings. These ethnographic observations also revealed that children used their school acquired literacy and language knowledge in order to make things in their own way in the home. These in turn could be transferred to the school as a part of a mutually supportive relationship between home and school for these particular children. I observed this home based symbiotic knowledge transfer in all five examples.

My response to research question 1b is usefully illustrated by children's home based practices connected with school based practices. The examples were seen as children's activities. For instance, Sima created a PowerPoint presentation in the home to be given in the school about a Pakistani wedding. This was seen as an important event in the development of their home culture 'funds of knowledge'. As described earlier, the child's creation of a cue card, a draft document and a PowerPoint presentation can be seen as literacy practices applied in a specific socio-cultural setting involving a connection across domains from school to home and home to school. It also demonstrated the ways in which Sima was able to create and make use of such connections between home and school in order to share knowledge of her home culture.

In total, there is evidence to suggest that complex learning environments involving literacy, language and culture are operating in the children's relationship between home and school and that the children's use of digital technology can play a significant role in this learning. Vygotsky (1981) viewed learning as a social process that comes from children's life experience as they interact with adults and the environment around them. In my research I observed children's learning as they interacted with parents and grandparents when using digital technologies. They were using technologies purposefully while still practicing literacy and language drawn from their heritage culture. This was understood as schooled constructions of literacy in the multilingual home setting. For instance children's play activities on a Nintendo DSi brain training game and i-phone 4 word games involved a memory dependent spelling practice that reflected schooled constructions of that type. These activities, conducted by Rumi, Amin and Bablu, were home-based literacy practices that were connected with school based literacy practices.

The analysis of the home/school learning relationship addressed by this research question suggests that if schools employ these cultural resources as a feature of mainstream education then children's knowledge transfer skills can be developed and utilised to support a potentially symbiotic educational relationship between the child, the home and the school.

It is important to recognise that the relationship between home and school in terms of children's literacy practices is already known and the terms 'domain' and 'site' are used by Barton and Hamilton (1998) to explore home and school literacies. Pahl (2007) also looked at how children's texts crossed from school to home and then home to school. My study contributed to this topic by adding a multi-lingual, multi-cultural dimension. I looked at language and literacy learning largely in the context of children's learning a first language but also second (or more) languages and observed how this learning was mediated by both adults and digital technology. As demonstrated in section 3.3 my research participants are carrying specific cultural values, beliefs, lifestyles and language as an important component of cultural, as well as social capital (Brooker, 2002, p.35). My findings, through the analysis of the theme of home-school relationships, showed how these perspectives or practices migrated from home to school and vice versa. I was better able to understand this thanks to a shared sense of social capital between myself and the participants (as an 'insider' my knowledge of their values and culture enabled an in-depth analysis of these factors). Finally, the theme of home-school relationships revealed links that bilingual and multilingual children make, and creatively employ, between school and home. This link indicates evidence of heritage culture funds of knowledge being valued in school and as well as home. This link suggests that a potentially symbiotic cultural and linguistic knowledge transfer can occur between home and school and this link involved the use of school constructions of literacy in a multi-cultural and multilingual home setting.

I now intend to address the main research question 1. *In what way does digital technology contribute to British South Asian children's literacy and language learning and how do these children learn through their use of digital technology in multilingual homes?*

In my study I observed that from an early age children were mainly using digital technology in three ways for learning and knowledge acquisition. Firstly, through the

thematic analysis, it was evident that children's cultural and linguistic knowledge acquisition was mediated by siblings, parents and grandparents, during their digital activities. The study revealed that children were communicating in their heritage languages with their parents and grandparents and created hybrid spaces of practice. These practices played a supportive role while carrying out their multi-literacies activity. The hybrid language practices were found as a creative construction of cross-linguistic and cross-cultural communication. Children constructed hybrid sentences and translanguaging in their own way. The nature of these practices was evolving language transformation across generations. This is how children's dual language and digital technology skills were evolving through the affordance offered by the digital technology.

Secondly, as identified earlier, children mediate their cultural and linguistic knowledge between home and school. It was evident that Amin, Bablu, Rumi, Raju, Sima and Amina's home-based activities were reflective of their school constructed literacies and that these literacies were being incorporated within the literacies used in the multilingual home settings. This mediation of their cultural and linguistic knowledge by the children is suggestive of a sub-theme: the symbiotic relationship between home and school.

Thirdly, children's use of digital technology often includes engagement with popular culture (Williams, 2009; Leander and Bolt, 2013; Lemke, 2005). Previous studies have considered children's emotional engagement with technology as an example of commonality between diverse cultures, but to extend this understanding, my study explored children's digital practices as popular culture in a specific South Asian cultural context. This played an important role as screen based digital practices were capturing their interest and attention and contributed to their literacy learning within three specific South Asian cultural contexts. The children's multimodal communicative practices showed evidence of how their literacy and language learning is aided by their use of digital technology at home. The analysis of children's engagement with digital technology considered inter-generational multilingual literacy practices in the context of multimodality. These observations are further illustrated below.

I recognised the issues faced by the multilingual and bilingual children in their communication. I found that British born South Asian children were transferring their

literacy and linguistic knowledge between home and school in a specific cultural context. The children's literacy and language acquisition was mediated by the family members (siblings, parents and grandparents) and also mediated by their heritage language communication.

For instance while Rumi was playing the word game, using the mobile phone, his parents were giving him bilingual (Bengali and English) encouragement to learn the English words. It was also apparent that while his elder brothers were doing their school-based spelling test, Rumi wanted to play his word game and was looking for the mobile phone. Rumi's literacy practices were seen as being encouraged by his elder brother's school-based spelling test which influenced and motivated him. Their communicative practices were seen as hybrid spaces of practice where children creatively engaged in constructing hybrid sentences/trans-languaging. Illustrative examples are given in section 7.3-7.8.

To further illustrate, Sima's family members (mother and her younger sister) were also involved in her cultural knowledge acquisition for the creation of her PowerPoint presentation. Sima responded to the questions and suggestions made by her mother and sister. They were using Urdu words for food and dress. This kind of interaction created a hybrid space of practice. She then used these words to guide her Internet search for additional knowledge. In Bablu's case, his interaction with his grandmother during his online interactive reading process followed a similar pattern with the grandmother providing cultural guidance in speaking Bengali and showing her appreciation of Bablu's technology skills. The grandmother gave supportive guidance to Bablu with regard to how he should begin to learn and recite the Qur'an and helped him to recognise how the words should sound. Her aim was to ensure that Bablu was observant of the cultural requirements of his religious practice.

The children's interest and attention in relation to their digital practices were also identified and analysed through the video observation. I observed the children's competence in the manner in which they demonstrated their ability to operate the affordances offered by different modes of digital communication. In this process the use of dual language and digital technology skills can be seen. The children moved with comfort between modes to create multimodal communications relating specifically to their current intentions. Equally evident was the increasing maturity with which they

evaluated the range of options available to them and the complexity of their decision making in finding and choosing between appropriate options. These options include both digital and non-digital opportunities and preferences.

The analysis of initial theme three led me to identify that the children's creative multimodal digital literacy practices were flexible in design. This flexibility served as an aid to children's meaning making in terms of their literacy and language learning practices that was consistent with their heritage culture. These creative practices were observed in intergenerational communications that involved the use of grammatical trans-languaging, syncretism and hybridity. In the context of my study, I viewed culture as an active process (Street, 1993). In all five examples the children used digital technology for practicing literacy, heritage language and cultural tradition. Through these practices children were reading and creating multimodal texts (images, written text, sound, colour and video clips).

Children's learning was evolving through the medium of online reading and writing practices that were seen as digital and inter-generational multilingual literacy practices. The nature of this multimodal digital literacy practice was culturally, contextually and linguistically rooted and also showed children drawing on their previous life experience as a part of their creative multimodal digital literacy practices. I saw that the creative nature of this activity extended to their use of digital literacy practices in their everyday cultural practices. These extensions were multimodal practices, demonstrating how technology increasingly contributes to children's cultural literacy and language learning for these specific children. Therefore, children's multimodal digital literacy practices can be seen to extend beyond their visible multiple modes of communication to include their cultural perceptions and prior experiences.

8.3 Final Remarks on the responses to research questions

In the previous section, I have responded to the research questions in the light of the emergent themes and sub-themes. A key element of the ways in which I observed children learning was the nature of the communicative practice taking place in multilingual homes, mediated by the affordance offered by digital technology. These communicative were seen to be operating principally in two ways. The first of these was the communication between the child and other family members who were

generally acting in a supportive (and culturally informative) manner. The second was the communicative practices happening in relation to the child and the technology. It appeared in my study that young children's engagement with a wide range of digital technologies contributes to the development of their communicative practices. These two ways of communication can be understood as illustrating the way in which all participants have the ability and opportunity to combine their online and offline practices. Their offline communication tended to be hybrid in nature, consisting of Bengali with English, or Hindi with English or Arabic with English. These communications were hybrids of both vocabulary and grammar. Online screen based multimodal communication involved the use of both English and another heritage language.

Throughout the five examples, the communicative practices between siblings, their mothers and in one case their grandmother, were forms of information sharing and offering of cultural advice for direction and discussion. Quite often these communications were bilingual or syncretic in nature. These offline communicative practices interacted with those being used in the online space. Sima, Bablu, Rumi and Raju's digital activities were online. For example, in the process of Sima's creation of a PowerPoint presentation, Sima's activities were observed while she was using a computer to acquire information and images on the Internet. During this process she moved from her online activity into her offline interaction with her mother in order to gather supportive guidance and cultural knowledge before returning to her online activity.

In all examples, screen-based reading and writing practices were undertaken. The children were engaging with a technology based multimodal environment and were developing multimodal responses involving written texts, colours and pattern. The screen-based reading and writing practices were undertaken using on-screen graphics which carried word meaning along with images that incorporated written texts, colours and design, accompanied by sound. These multimodal digital literacy practices operated in the context of, and were supported by, the home environments and language to provide a flexible approach to the child's interactive learning and meaning making. The children's online multimodal digital literacy practices consistently revealed evidence of interactive learning processes taking place in the home.

The second non-technology dimensions are communicative practices between the children and the older generations during the technology based activities. For example during their multimodal digital technology communications at home, for learning language, the children were also communicating with their grandmother and parents using syncretised language (a mixture of Bengali, Hindi or Arabic, alongside English). Throughout these communicative practices the children were again moving with confidence between alternative modes. The examples of the children's translanguaging process and their hybrid sentence construction (using English grammar in Bengali) and syncretism are provided in the analysis of theme two. I chose to describe the bilingual or multilingual children's language practices through the three terms translanguaging, hybridity and syncretism. Garcia (2009) suggests that bilinguals engage in practices that are rarely based on two distinct languages in the way often described by linguists and educators. Instead Garcia (2009b) proposes that attention could be more usefully given to the concept of emergent bilingualism. In this context my observations recognised the ways in which children combined their distinct languages in a syncretic process to create hybrid language communications. Gregory et al. (2012) used the same term (syncretism) in the context of culture to show how children combine and make sense of faith and everyday experiences in which they engage with transformative processes. Bilingual children's use of language and language skills is seen as flexible bilingualism and described as 'translanguaging' (Creese and Blackledge, 2010) in the sense that they are simultaneously using the different languages to make sense of their lives.

All of these perceptions are relevant and recognised in my study. Trans-language events were further reflected during the children's Google Translation activities searching bilingual literacies and translation across languages. These trans-language events were observed during the children's technology based learning activities. During the children's use of the Google Translator Toolkit the elder generations were correcting wording and sentence construction. However, the Google translator still has weaknesses in providing translation with coherent grammar. For example the mother mentioned that the Hindi word 'gormi' to express hot when applied to the weather but 'goram' when applied to food (see Chapter 6, Example 2). The mother was concerned that Raju could not differentiate between these two words because the Google translator did not explain it. I recognised that the participants' communications were not only created by syncretising between languages but were also interacting with

technologies in pursuit of their interests. The emergent trans-languaging provided a shared means for the children and their elders to create and communicate meaning through the interdependent use of multiple language skills and the monitoring of linguistic linkage with digital technology.

I also observed that the children took control over the discovery and selection aspects of their learning process; this was particularly evident with regard to the use of digital technology and the selection of the different knowledge acquisition activities that operated alongside of their existing home cultural practices. It is useful to recognise that these cultural and language practices are consistent with the concept of 'funds of knowledge' that children acquire through their daily life practices. This in turn suggests that it is both feasible and useful for teachers to appreciate and make use of these cultural and linguistic funds of knowledge (Moll *et al.* 1992; Gonzalez *et al.* 2005) and their associated home based practices within the formal educational process.

Throughout the thematic analysis, an extended view of formal literacy emerged which involved a close association with multimodal digital literacy practices. These young children were drawing on and creating the funds of knowledge they considered useful to their social development in their multicultural and multilingual world. Their heritage of family cultures and literacy formed an integral part of their home based communication for learning and meaning making. Additionally the children, almost as a matter of habit, turned to digital technologies. They recognised technology as a readily available and almost unlimited resource where they could use their existing skills and knowledge and acquire additional skills and knowledge. The children were not only dealing with word making within the boundaries of text but also within the interplay between multiple modes. They also encompassed their prior experience (existing fund of knowledge) with new knowledge experiences to create meaning that went beyond the text based learning process. The children's screen-based concentration also revealed their response as the meaning of the word and the image connected with their prior experience. This association of prior and new knowledge suggests that the learning process extended beyond the visible multiple modes of communications. This connection of pre-existing personal experience and newly encountered personal experience is potentially significant when meanings are being created in the context of multiple modes of communicative learning.

Finally, my emergent research questions were suitable because they allowed me to understand specific, important, aspects of South Asian children's multicultural family-focused learning in terms of literacy and language and their relationship to the use of digital technology. As a result, I gained a greater understanding of integrative digital multicultural practices in multilingual homes.

8.4 Reliability and validity in my ethnographic study

I have used ethnographic research methods, which are distinct from positivistic research. I do not however, intend to compare and contrast between these two approaches (positivist and ethnographic) in terms of validity and reliability - rather I do seek to clarify their relevance.

In my study, the validity and reliability of both involve the data gathering process from participants' conversation or activities; the investigation focused on a descriptive approach and the data analysis was thematic (as mentioned in Chapter 5). The terms reliability and validity are not commonly used by ethnographers. The concept 'quality' in qualitative/ethnographic study has the purpose of 'generating understanding' (Stenbacka, 2001, p. 551) from human experiences. In any field of research however, the issues of reliability and validity are addressing the threats to trustworthiness. The examination of trustworthiness is important in a qualitative research. In order to ensure good quality studies Seale (1999), stated that the 'trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability' (p. 266).

In terms of trustworthiness, it was important to me share the findings of my study with my participants and invite them to give me their feedback regarding their opinion of the study and their participation in it. They appreciated my feedback to them on the findings and also appreciated hearing how I could not have done it without their help. In return they told me that they, both adults and children, had enjoyed the experience and would willingly participate again. All parents made a common comment that my research will hopefully raise an awareness of the importance of digital technology in children's education. All the parents mostly provided verbal comments. The parents from one family volunteered written comments regarding the importance of children's use of the Nintendo DSi for educational purposes (see Figure 8.1 below). The parents also mentioned that their children's language practices in the home are mostly different

from school. They acknowledged that by using digital technology their children are developing English literacy, cultural knowledge and technology skills. In my study I found that children were able to transfer these skills and knowledge between home and school.

The parents' comments regarding my research gave emphasis to the validity of my research paradigm. The emphasis of validity was also given my description and interpretation of children's digital practices in order to obtain appropriate knowledge for my research.

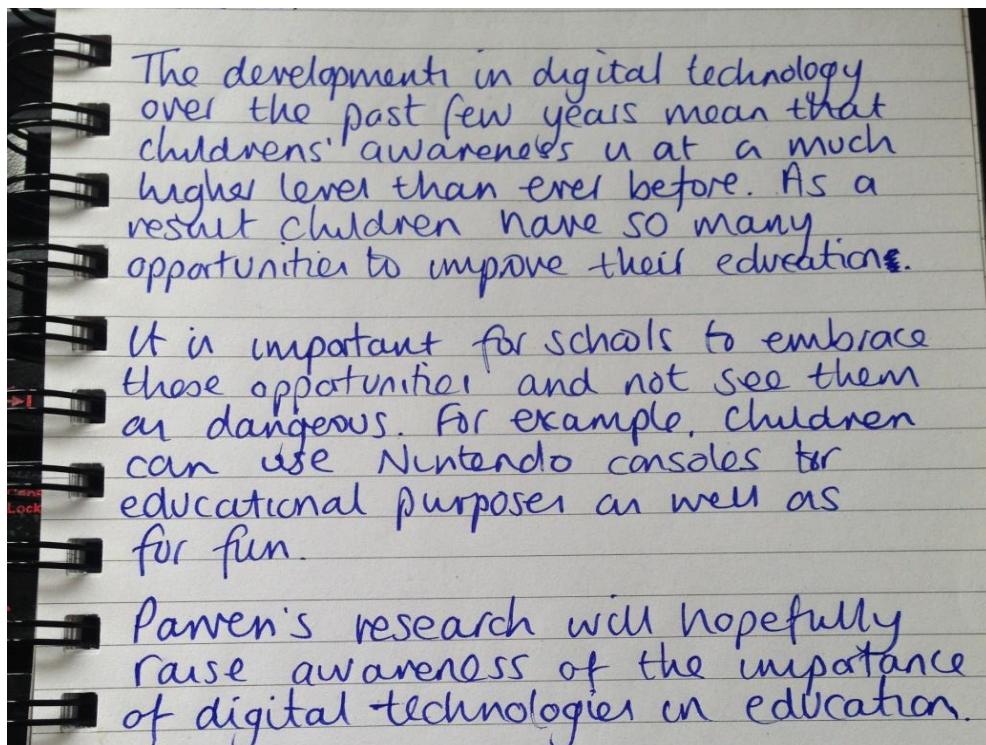


Figure: 8.1 Parents comments

For accessing children's voices, I ensured that the methods used allow their participation willingly. The children responded in relation to the research that influenced the acquisition of reliability. Video recording was my main data collection tool. I therefore ensured that I used images from the video recording in my thesis only with the full consent of both parents and children.

My research paradigm is that of interpretive study because it involved human participation. Ethnographic research design supports the subjective experiences of both participants and the researcher; however this technique helps to provide depth to the analysis of the data. I used participatory research methods in order to observe and listen to children's activities to understand the digital literacy practices with particular reference to South Asian family culture. Throughout Chapter 4 I clarified how I used a methodology that enabled me to understand South Asian children's digital practices with regard to their literacy, language and heritage culture.

My ethnographic research provided a depth of understanding into children's digital literacy practices in the South Asian home environment. In my study reliability is concerned with the emerging findings (sub-themes, presented in Chapter 7), and validity is concerned with the children's speech (see multimodal transcription in appendix 3, extracted from the video recording) as well as parents' feedback regarding my findings. Finally, my conclusions effectively represent emerging theory into the understanding of integrative digital multicultural practice and its contribution to children's learning. These were constructed by the participants' experiences described by the researcher (me).

8.5 Contributions to knowledge

My research is based in the north of England where there are many culturally diverse communities. This research focuses on South Asian communities, particularly Indian, Pakistani and Bangladeshi groups. Historically these groups mostly arrived in Britain after 1947 to support the rebuilding of infrastructure that was destroyed in the Second World War (Ballard, 2002). The South Asian population (migrants mainly from Bangladesh, Pakistan and India) in any particular British city may be large; they tend to congregate in small groups, often no more than 100 families (Cummins, 2000). Further details are described in the literature review chapter in the context of the South Asian diaspora community in the UK.

My study builds on and extends the current view of formal literacy and language learning to include the significance of digital literacy practices in these communities. It adds to an understanding of the ways in which children can use digital technologies as

an aid to creating things in their own way. It also considers how children's digital learning practices are integrated into the cross-cultural and cross-linguistic activities in their home. The study includes an appreciation of digital literacy practices within the concept of multimodal digital literacy practices in terms of children's learning. These practices are themselves situated within a wider lens of multimodal communication that includes language(s), children's on-screen-based reading and writing practices and gaze, gesture and posture (embodied modes). Children's enthusiasm was also seen as an embodied mode that affects their multimodal digital learning practices. As a consequence multimodal digital literacy practices emerge as a complex and influential factor in children's meaning-making and knowledge acquisition within these multilingual households. The socio-cultural aspects which were influential in the children's digital literacy practices are also very important in terms of their learning activities. Therefore children's digital literacy practices could be seen to extend beyond the visible multiple modes of communications as described earlier.

Overall, the study applies the concept of 'funds of knowledge' (Moll *et al.* 1992; Gonzalez *et al.* 2005) to three multicultural and multilingual households and incorporates an extended version of 'funds of knowledge' to include those that are digital in nature. It extends knowledge of what occurs during child-focused digital literacy practice and of what happens at that moment in time when they are creating things in their own way in close association with digital technology and with more experienced members of their heritage language community. Children's digital practices are recognised as contributing to family focused literacy and language learning in the context of their home and multicultural cultural experiences.

Finally, the study showed that children's communicative practices, in the context of culture mediated by digital technologies, contributed insights based on the idea of grammatical trans-languaging, syncretism and hybridity. The notion of different stages of grammatical trans-languaging, syncretism and hybridity practice contributed to language transformation across generations. These practices were seen as constructing a hybrid space of practice and promoting creativity in the construction of hybrid sentences, translanguaging and heritage language communication, and dual language and digital technology skills.

The children's interest and enthusiasm with the digital object was observed in relation to their digital literacy practices. As described earlier their application of prior knowledge when associated with new knowledge extended beyond the visible multiple modes of communications. As a consequence the study's findings suggest a new dimension to the theory of multicultural family-focused learning in terms of literacy and language and its relationship to digital and heritage funds of knowledge involving home, school and the wider sources of knowledge available on the world-wide web. This theoretical framework is presented in the proposed schematic diagram, (Figure 8.1) below, as an emerging issue from my study. In the diagram 'X' represents the South Asian children's use of digital funds of knowledge at home. I observed that children used a diverse range of digital technologies that contributed to their literacy and language practices. These practices were culturally embedded and socially disseminated between home, school and the wider context. 'Y' represents the influence of the children's funds of knowledge in the school-home link in terms of literacy, language and cultural practices mediated by digital technology. The process of this school-home learning was identified as a potentially symbiotic relationship of cultural and linguistic knowledge. The children's expressive response during their use of digital technology was understood as schooled constructions of literacy in the multilingual home setting.

'Z' represents the way in which children were engaged linguistically in grammatical trans-languaging, syncretism and hybridity (Arabic, Bengali, Hindi, Urdu and English) from a multilingual perspective. Consequently, understanding a multilingual perspective requires an awareness of the funds of linguistic practices made use of by the research participants in my study. The ways in which children learn through multimodal digital literacy practices extended beyond the visible multiple modes of communication. Children used prior knowledge and experiences with new knowledge. The nature of these practices was digital, inter-generational and multilingual.

Finally, an understanding of bilingual and multilingual children's use of digital funds of knowledge (X), their home-school link funds of knowledge (Y) and their heritage culture and linguistic funds of knowledge (Z) was obtained by means of the emergent sub-themes that were described earlier. This illustrates how children learn through their use of digital technology in multilingual homes and can be seen as funds of integrative

digital multicultural practices. These practices can be summarised as an emergent theory arising from my understanding of the ethnographic encounters in my study.

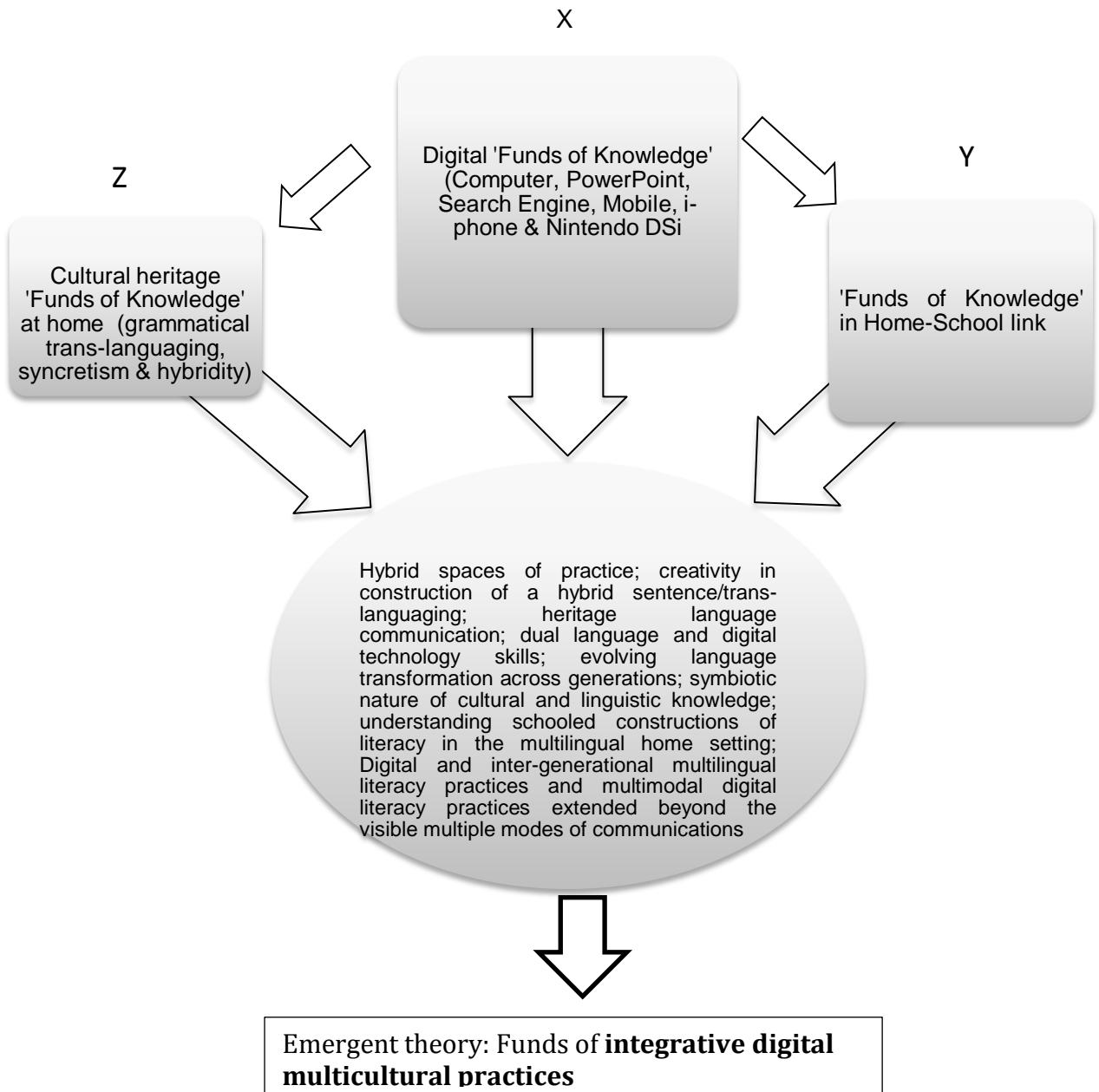


Figure 8.2: Extended model of funds of knowledge

8.6 Conclusion and Implications for practice

My study suggests that bilingual and multilingual children's heritage culture is an influential element in children's literacy and language learning within the family. The children's learning process created added value by including digital literacy practices with existing concepts of 'funds of knowledge' (Moll *et al.* 1992; Gonzalez *et al.* 2005). Consequently, these funds of knowledge are funds of integrative digital multicultural practices which children used for their self-expression. I understood funds of integrative digital multicultural practice to be culturally, linguistically and contextually developed to create an emergent theory of children's learning from an ethnographic perspective.

The children showed a desire to use technology when practicing literacy and language in their home which, together with their bilingual and multilingual activities (grammatical trans-languaging, syncretism and hybridity), evidenced links to school constructions of literacy. The five examples disclose that children's literacy and language practices seen at home create culturally influenced meanings and those meanings, or knowledge, are carried with them into the school domain. When they go to school that knowledge may then be transformed to create new meanings. This suggests that the learning relationship between home and school is culturally symbiotic and its implication for education can be beneficial for the child, the family and the school. Technology played a major part for children connecting their prior knowledge with new states of knowledge.

Pahl and Rowsell (2012, p.56) pointed out that 'home literacy practices can remain invisible to schools unless there is time to listen to them'. Literacy situated within the family can be called family literacy (Hannon, Brooks and Bird, 2007; Pahl and Kelly, 2005). In relation to implications for practice Pahl and Kelly (2005) studied family literacy in the school setting in the context of the children's textual representations and the influence of their home culture in this home/school relationship. My study connects to and extends their work by including the digital literacy practices used by the children in the home setting of their heritage culture. The children made regular use of digital technology for both school related and ancestral culture related activities. While observing these activities I identified a home culture involving different generations that supported the children's literacy and multi-lingual language practices. Such

heritage language development involved heritage language communication, dual language and digital technology skills, and creativity in the construction of hybrid communication. These communication practices were taking place within what I recognised as a hybrid space of practice. The study showed a constructive engagement of participants with heritage and dual language practices. This can be seen as a means of participation in their wider multicultural society. This suggests that future attention could be directed at exploring the possible benefits of shared home based digital literacy and language experiences involving educators, parents and children in multilingual and multicultural settings. Such an attempt can be supplemented with school education (mainly early years education) where children are learning English in school and their heritage language is different to English. For instance, lessons in school can be supplemented with subject matter involving both cultures. This inclusion could involve an emphasis on cultural resources (artefact, family event, family literacy etc.). This can provide children with a more familiar context within which to learn.

The theoretical model identified in my study as ‘integrative digital multicultural practice’ is based on South Asian family-focused learning that brings together children’s literacy and language practices within the two cultural domains of home and school and their relationship to digital funds of knowledge. These complex relationships create culturally influenced funds of knowledge that can be accessed by educators within the school curriculum. This can facilitate change and may help families to integrate digital multicultural practice within a culturally diverse society. This integration process should enable children to preserve their home culture influences within a school environment which may in turn build confidence and improve interest in the school educational system.

I would suggest that schools encourage children to develop and use their existing multicultural knowledge and transfer skills as a feature of their educational practices for the child, the home and the school.

I believe that the issue of bridging cultural gaps can be addressed by developing the symbiotic advantages offered by incorporating home literacy, language and cultural resources in the school curriculum. If children see their home culture established at school, their confidence may improve. This may also increase their interest in

participation and make them feel that they have both identity and status within the school community. This way of viewing diversity has important implications for practice. I believe all the issues identified through this investigation may help in the building of respect for a multicultural environment with its attendant implications for home, community, school and the larger society. Researchers in the field of bilingualism are beginning to study how bilingual children who learn a first language at home and a second language at school transfer their linguistic and literacy skills from one language to another (Cummins, 2000; Gregory and Kenner, 2012). My study adds to this knowledge building by including children's digital funds of knowledge, and their home cultural funds of knowledge, with their linguistic funds of knowledge in the context of the home-school relationship. This combination of these funds created an integrative digital multicultural practice. The existing research on funds of knowledge (Gonzalez et al.2005; Moll et al 1992) mainly focused on adult practices in the context of their social world. They worked collaboratively with educators and researchers to inform their suggestions in educational settings. My study recognised that children created funds of knowledge in their own way in their own cultural context. This suggests that the concept of integrative digital multicultural practice should be studied from the children's perspective and on their own cultural, linguistic and digital practices. This examination would include those processes that transform various funds of knowledge and also include those literacy practices that extend beyond the visible multiple modes of communication.

The increasing availability of technology invites an extended view of formal literacy practices as children increasingly engage in a digital technology relationship. The young children were encountering multiple modes of communication where technology was seen as a readily available and almost unlimited knowledge resource. It was also seen as a resource where they could use their existing skills and knowledge to acquire additional skills and knowledge. Children were not only dealing with creative meaning-making within the boundaries of text but within a complex display and interplay between multimodal communications. It also encompassed their prior experience (existing fund of knowledge) and also an emotional element involving the children's meaning-making that went beyond the evident text making learning process. This connection of pre-existing personal experience and newly encountered personal experience is potentially significant in assigning meanings in the context of multiple modes of communicative learning.

Finally, the implications for practice are as follows:

Consideration should be given to developing the school as a multicultural community, and to evaluating children's language and heritage work with regard to multicultural influences. Specific efforts should be made to link children's cultural literacy and language practices from home, to writing and reading practices that connect to their everyday life. These efforts should reflect aspects of emergent bilingualism. This builds on evidence from established research where Cummins (1979, 1992) for example acknowledges that learning a second language added further value to the development of the first.

A commitment should be made to extend the understanding of integrative digital multicultural practice and its contribution to children's learning. This extension would necessarily invite such questions as:

What complexities are raised by the inclusion of diverse funds of knowledge (cultural, linguistic and digital) within children's learning processes?

Who is experiencing such complexities and what is the nature of their experience?

Where and when are these complexities experienced?

Finally, the big question:

How do we deal with and take advantage from the increased understanding of integrative digital multicultural practice?

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