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Digital Practices at Home and School: A Case Study Approach

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ABSTRACT

The study illustrates children's digital practices in the Malaysian context. The 21st century has witnessed an unprecedented expansion of and access to information for people who can use technology. Nowadays, information can be reached in the blink of an eye and is accessible at our fingertips. Since the 1990s, the internet revolution has helped people to search for information through their networked computers, and mobile gadgets have more recently made this even easier as people can carry information in their own pockets. However, this steady increase in internet usage and mobile device ownership, particularly among schoolchildren in Malaysia over the last few years, has been creating fear, anxiety and frustration. Due to a moral panic in Malaysia regarding children's online safety, to date the majority of the extant studies carried out in Malaysia are focusing on E-Safety instead of seeking a deeper understanding of the current digital practices among Malaysian children. Little research has been conducted to specifically investigate and understand the online experience dimensions of Malaysian children's lives and social worlds. This descriptive case-study based research explores a small group of Malaysian children's digital practices and their management in the school (computer lab) and at home, and in both the communal area and personal spaces of the latter. This research examines five 16 year olds' engagements with online technology across formal and informal settings at school and at home using a mixed methods approach, specifically questionnaires, interviews, observations and focus group discussion. The findings reveal that participating children enjoy online benefits through a range of online activities with the usage of several digital devices. This study also provides insights into the roles and influences of parental, teacher, older siblings and peer mediation in developing children's digital literacy skills. Furthermore, children's perceptions of online opportunities and risks, and what kind of learning is involved through their online activities are also analysed and discussed.

ABSTRAK

Kajian kes ini dilaksanakan bertujuan untuk menggambarkan amalan digital semasa kanak-kanak Malaysia. Abad ke-21 telah menyaksikan perkembangan pesat dan perubahan mendadak dalam dunia teknologi menjadikan maklumat kini dapat dicapai melalui hujung jari sahaja. Sejak tahun 1990-an, revolusi internet telah membantu kita melayari alam maya melalui rangkaian komputer tetapi kini dengan berkembangnya kemajuan teknologi peranti mudah alih pengguna dapat menggunakan internet pada bila-bila masa. Walau bagaimanapun, peningkatan penggunaan internet dan pemilikan peranti mudah alih dalam kalangan pelajar sekolah di Malaysia dalam beberapa tahun kebelakangan ini telah mewujudkan kerisauan dan kebimbangan kepada semua pihak. Ini sekaligus mencetuskan panik di Malaysia mengenai keselamatan kanak-kanak dalam alam maya dan sehingga kini, majoriti kajian yang telah dijalankan di Malaysia lebih memberi tumpuan kepada Keselamatan Siber berbanding kajian yang bertujuan mengkaji lebih mendalam mengenai amalan digital semasa dalam kalangan kanak-kanak Malaysia. Justeru itu, kajian ini telah dijalankan untuk mengkaji dan memahami dimensi keseluruhan serta mendalam pengalaman kanak-kanak di Malaysia dalam dunia maya. Kajian deskriptif ini meneroka amalan digital sekumpulan kecil kanak-kanak Malaysia dan pengurusan amalan digital di sekolah (makmal komputer) dan juga di rumah. Kajian ini juga menyelami amalan digital lima peserta kanak-kanak yang berusia 16 tahun dengan menggunakan pendekatan kaedah campuran (kuantitatif dan kualitatif) menerusi soal selidik, temu bual, pemerhatian dan kumpulan fokus. Hasil kajian menunjukkan bahawa kanak-kanak yang terlibat menikmati manfaat internet melalui pelbagai jenis aktiviti dalam talian dengan penggunaan beberapa peranti digital secara positif. Selain itu, hasil kajian jugak menunjukkan bahawa peranan dan pengaruh ibu bapa, guru, adik-beradik yang lebih tua dan penglibatan rakan sebaya dalam aktiviti alam maya memberi pengaruh kepada perkembangan kemahiran literasi digital seseorang kanak-kanak itu. Selain yang dinyatakan di atas, persepsi kanak-kanak terhadap kebaikan dan keburukan (ancaman) internet, berserta jenis pembelajaran yang terlibat melalui aktiviti atas talian juga dianalissa dan dibincangkan.

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CHAPTER 1
INTRODUCTION

1.1 Introduction

The steady increase in the level of internet usage and mobile device ownership particularly among schoolchildren in Malaysia over the last few years has apparently created fear, anxiety and frustration (Abdul Shukor, 2006; Hassan & Raja Abdul Rashid, 2012, UNICEF Malaysia, 2014). In response, the Malaysian Education Ministry carried out three large national surveys focusing on school-age children and E-safety in 2013, 2014 and 2015 (Ministry of Education Malaysia, 2013, 2014, 2015a). The resultant reports highlighted concern regarding children's ability and capacity to gain from the benefits of the internet whilst at the same time avoiding harm, and have contributed to the debate leading to the introduction of the CyberSafety program in Malaysian schools. These national survey reports were produced based on data from self-completed questionnaires that were distributed to all states and involved 41,875 children between 7 and 19 years of age. However, whilst impressive in scale, these studies were undertaken using quantitative methods, with the result that the reports are based on generalisations projected onto the entire Malaysian children population. While quantitative data clearly has proven use, qualitative data can illuminate detail and uncover a richer picture, something this thesis aims to provide.

According to the best practice guidance produced by the EU Online Kids network, an organisation involved in carrying out research on European children

and their uses of online technologies since 2006, there is a critical need to explore this area through the adoption of qualitative research methods: we need to understand the nature of children's digital practices by examining the meanings, motives, reasons and patterns of their online activities in order to determine and provide insight into their online world (Lobe, Livingstone, Olafsson & Simoes, 2008; Olafsson, Livingstone & Haddon, 2013a). As will be detailed in the following chapters, I have found that a qualitative exploration of the children's practices and viewpoints, can reveal that young people in Malaysia are in many ways better informed, more strategic and more knowledgeable than the quantitative study carried out by the government suggests. However, the picture that emerged from my research was rich and complex.

Based on the reports by the Ministry of Education Malaysia (ibid), my initial research interest focused on investigating E-Safety. My interest was piqued by wider media discourses for E-Safety in Malaysia and then deepened during my teaching career; like many other educators, I had the impression that young people were constantly in danger online. However, throughout the course of my research journey, I made a dramatic shift in position, as I saw the participating Malaysian children's digital practices in my study not as dangerous, but as creative and rich; their online opportunities helped them manage all kinds of aspects of their lives, their families' lives, and to gain more from their school curriculum. I saw how they were able to bring benefit from school practices to home, and vice versa. This study also provided me with a broader understanding of digital literacy as I shifted my point of view concerning literacy concepts; I began to see digital literacy as increasingly being about *social practices* as opposed to just skills based activities.

My research sought to fill a gap in extant research in Malaysia by providing a deeper understanding of what children are doing online, and what they already know, and what they need to know, to make the best of online opportunities, in order to provide information to relevant stakeholders, including the Malaysian Ministry of Education, teachers and parents (UNICEF Malaysia, 2014). I wanted to inform stake holders about the positive benefits of young peoples' online practices. The research questions were derived from the literature review; based on my reading, no other qualitative research appears to have been carried out in Malaysia on this issue. As such, this research adopted a mixed-method approach: qualitative approaches, including interviews, focus groups and observation, combined with a quantitative approach using questionnaires. The mixed-method approach is recognised as being very helpful in interpreting data when studying children and online technologies and led to my deeper understanding of digital literacy as a social practice, as well as being about gaining specific technological skills. Further, mixed methods are recognised as good practice in researching children's digital literacy experiences (Olafsson, Livingstone & Haddon, 2013b).

1.2 Research Background

The 21st century has witnessed an unprecedented expansion of, and access to, information for people who can use technology (Choi, Glassman & Cristol, 2017; Halverson & Shapiro, 2012). Nowadays, information can be reached in the blink of an eye and is quickly at our fingertips. Since the 1990s, the internet revolution has helped people to search for information through their networked computers, and mobile gadgets have more recently made this even easier as people can carry

information in their own pockets (Calvo-Porral, Faíña-Medín & Nieto-Mengotti, 2017; Lenhart, 2015).

The free flow of information in today's technologically rich environment clearly has implications for learning in both formal and informal situations. Formal learning here is defined as classroom settings, where teachers give direction and instruction to students through an Information Communication and Technology (ICT) curriculum; while informal learning is defined by any situation outside school hours which may include self-learning and guidance from parents and peers. This is in line with Tapscott (2009, p.18) who states that for the new generation is one of active internet user for whom "…using the new technology is as natural as breathing". In other words, the assertion is that they have grown up as digital citizens. Previous research by Arafeh and Levin (2003); Katyal and Evers (2004), and Prensky (2001, 2005) also show that children have immersed themselves as digital learners and are naturally skillful in using online technologies in daily life. However, such research findings contrast with Kolikant (2010) who rejects the idea of digital natives, those naturally born as better learners. Instead, he argues that the digital citizen is not all about digital skills and usage but should also focus on how children nowadays engage with new technologies. Kolikant believes that even though younger generations are born in this 'digital world', it does not mean that they are better digital citizens than others; this is in line with arguments by Bennett, Maton and Kervin (2008) and Selwyn (2009). Vincent (2015) argues that by investigating and exploring children's digital literacy experiences, it will provide information on the ways to prepare and develop the future generation in order to

transform children as advisors, children as explorers, children as problem-solvers and children as sharers.

1.3 Research Focus

The main focus of this research has been to understand Malaysian children's online digital practices, experiences and their management at home and school. I wanted to get a nuanced picture of their practices, perceptions and understandings. To obtain a comprehensive picture of their practices, perceptions and understandings of their online digital practices, I therefore carried out this case study. Specifically, I Iooked at young people's digital access and use; their online activities and experiences; their teachers, and parental mediation – the role parents play in guiding or shaping their children's digital practices. This research also discusses the relationship between opportunities and risks while online.

This research is significant because it is different from any other research involving children and online technologies in Malaysia because it included qualitative approaches through the use of interviews, focus group and ethnographic observations at home and school. Further, this approach offers a more complete and richer understanding and analysis compared to any other research that has been carried out in Malaysia which has collected data through only quantitative methods (e.g. self-completed questionnaires) focusing on E-Safety and on other research that, although including the use interviews to obtain qualitative research, focused more on social media and gaming experience (Ministry of Education Malaysia, 2013, 2014; UNICEF Malaysia, 2014).

At the same time, this research is also relevant and valuable because it aimed to provide in-depth findings in the Malaysian-specific context as to what are the current online digital literacy experiences amongst Malaysian 16-year old children; whether Malaysian children use online technology in the same ways or differently in comparison to other children in other countries, or at least within the South East Asian countries. This requires answering due to previous research showing that some children in different countries use technology differently due to contextual differences in culture and society (Grant, 2010; Jones & Lea, 2008; Lea & Jones, 2011; Martínez de Morentin, Cortés, Medrano, & Apodaca, 2014; Lemphane & Prinsloo, 2014; UNICEF Malaysia, 2014).

To reiterate, as discussed above, there have been studies of children and their use of online technologies by Malaysian researchers in educational contexts. The majority of such research was carried out with a focus on E Safety (Abdul Shukor, 2006; Baharuddin & Zakaria, 2009; Balakrishnan, 2015; Ministry of Education Malaysia, 2013, 2014; Shin & Ismail, 2014; Teimouri et al., 2014; UNICEF Malaysia, 2014), and few focusing beyond scratching the surface of children's digital skills. However, to date, no research has been conducted to specifically investigate and understand the meaning and online experience dimensions of Malaysian children's lives and social worlds, and my research has been worthwhile in this respect, revealing some cultural differences in my Malaysian participants' practices.

Moreover, a better understanding of how Malaysian children use online technologies in the classroom and home was garnered from this research, which included children's digital practices and experiences through investigating their

online access and use, online activities, digital literacy skills, and parental mediation. This understanding, derived from my research, could result in more effective steps to help them make the most of their online opportunities in nurturing a better life in the future. As such, the Malaysian reports also addressed the concerns of Malaysian children who were found to be worried and very concerned about their own online safety (see the Literature Review chapter - below); I have therefore made suggestions in Chapter 6 on how to help them to become more confident and motivated in the 'digital world'. As I also outline later, the outcome of my research also provided information about Malaysian children's digital practices, which could benefit teachers and parents to better understand how Malaysian children embed online technologies in their lives. It also could be used to generate questions and suggestions for teachers and parents in supporting responsible and creative uses of digital technologies at school and at home.

1.4 Aims and Objectives

This descriptive case-study research approach seeks to explore Malaysian children's digital practices and their management in the school's computer lab and at home, in both communal areas and personal spaces. This research attempted to understand 16-year old children's engagement with online technology, their perceptions of online opportunities and risks, and what kind of learning is involved through their online activities across formal and informal settings at school and at home. This research aimed to describe Malaysian's children current online digital practices in order to help them make the most of their online opportunities.

Specifically, the objectives of this study are:

- To observe what Malaysian children do when they go online and compare their online activities at home and school.
- To describe Malaysian children's online digital practices through their use and access, digital literacy skills, parent and teacher mediation and their online experiences.
- To investigate Malaysian children's perceptions about online opportunities and online risks.
- To identify what kinds of online opportunities Malaysian children take-up while going online.

1.5 Research Questions

This research sought to answer the following questions, with the aim of assessing what school children do when using the internet and what role schools can play in supporting their development:

1. What do Malaysian children do online at home and in school?
2. What do Malaysian children see as the opportunities and risks offered by the internet?
3. What learning are Malaysian children involved in through their online activities?

The research questions were formulated based on the literature review (see Chapter 2 – Literature Review). In the next section, I present the context of the study,

Malaysia as a developing country, and provide a description of the current education system in Malaysia.

1.6 Context of the Study

This section sets out the context of the study in order to establish and clarify the context of the research background. By providing information about Malaysia, this facilitated both the research design and informed the way in which the research was conducted. As such, this section begins with a brief modern history of Malaysia as a developing country, before describing its current educational system.

1.6.1 Malaysia as a Developing Country

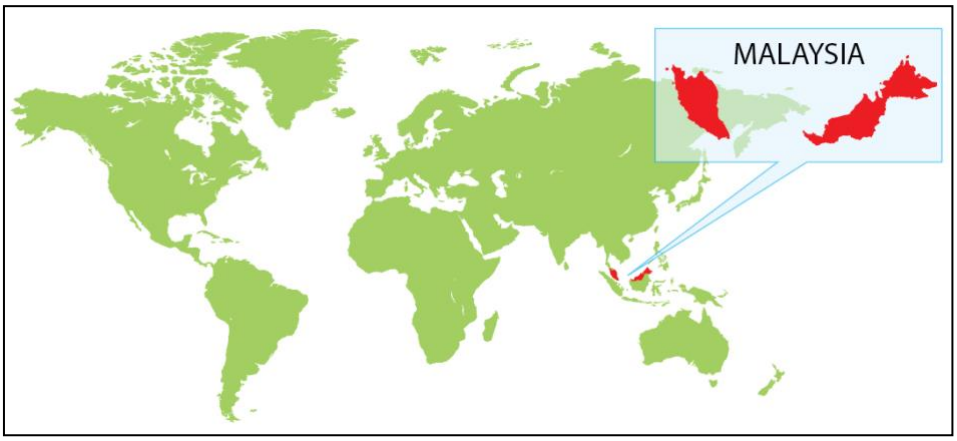

Figure 1.1: Malaysia on the world map (Source: Global Village, 2016)

Malaysia is a federal constitutional monarchy which practices parliamentary democracy. Malaysia achieved independence on the 31st of August 1957 from the British Empire. Under the influence of British colonisation, the structure of the governmental system is slightly approximate to the Westminster parliamentary

system. Yang Dipertuan Agong (His Majesty the King) is the head of the state while the head of the government is the Prime Minister (Parliament of Malaysia, 2015).

Located in Southeast Asia, it consists of 13 states (see Figure 1.2) and 3 federal territories. Geographically, Malaysia is 329,847 square kilometres in size and is separated into two parts - Peninsular Malaysia and East Malaysia - by the South China Sea (Tourism Malaysia, 2014). Although Islam is the official or state-recognised religion, citizens are guaranteed freedom of religion as Malaysia is a multi-ethnic and multi-cultural country. The official language is Malay (Parliament of Malaysia, 2015). Malaysia's population, as of October 2014, is estimated to be 30 million with the three largest ethnic groups consisting of Malay, Chinese and Indian (Tourism Malaysia, 2014).

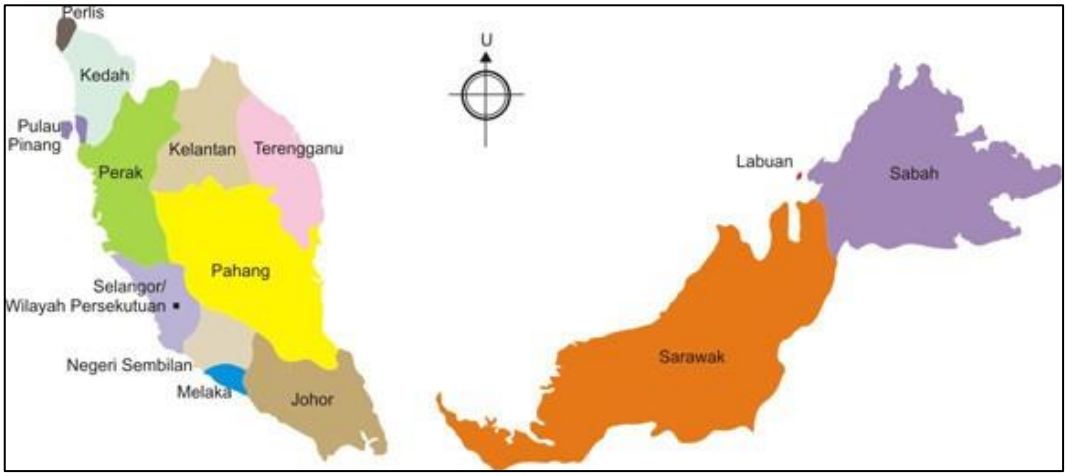

Figure 1.2: Maps of Malaysia (Source: Office of The Prime Minister of Malaysia, 2017)

Malaysia is a country that looks out to the world and invites global investment (Malaysian Investment Development Authority, 2015; Ministry of Education Malaysia [MOE], 2017; Yi, Shaohui & Xiaolang, 2010). Economic

revenues mostly derive from the country's natural resources. However, it has been expanding into other sectors such as science, commerce and tourism, including medical tourism. The Tourist Board proudly identifies Malaysia as a newly industrialised country, the 3rd largest in Southeast Asia and ranked the 29th largest in the world (Tourism Malaysia, 2014). Since independence, Malaysia has been held up as an example of a successful developing country, being one of 13 countries identified by the Commission on Growth and Development as having recorded robust growth in private investment, which has expanded at a compound annual growth rate of 13.9 per cent since 2010 (Performance Management and Delivery Unit, 2015; Tourism Malaysia, 2014). Malaysia is also currently in the process of developing its education system Ministry of Education Malaysia [MOE] (2017). Of relevance, the research conducted here is funded as a part of this development process (Ministry of Education Malaysia, 2015b).

1.6.2 The Education System in Malaysia

The education system consists of five stages: preschool, primary school, secondary school, post-secondary school and tertiary education. There are approximately 2.7 million enrolled primary students and 2.2 million enrolled secondary students currently studying in 7,772 primary and 2,408 secondary schools throughout the entire country, respectively (Ministry of Education Malaysia, 2015c).

Normally at 5 years of age children attend preschool for 2 years. There is no formal curriculum, but the principal and teachers need to undergo formal training and are required to obtain the relevant certification approved by the government in order to run the preschool. Compared to preschool, which is based

on parental choice, primary education, lasting for 6 years is compulsory to all children and begins at the age of 7 (with these years being referred to as Year 1 to Year 6). Before progressing to secondary education, students need to take the Primary School Achievement Test (UPSR), consisting of the following five subjects: Malay (Comprehension), Malay (Writing), English (Comprehension), English (Writing) and Mathematics.

At the age of 13, Malaysian children commence secondary education, which lasts for five years (referred to as Form 1 to Form 5). They sit for the Form Three Assessment (PT3) at the end of Form 3 in the following subjects: Malay language (Bahasa Malaysia), English, Mathematics, Science, Geography, History, Living Skills and Islamic Studies (optional for Non-Muslims). Based on their PT3 result and their own choice, they can choose to enter the Science stream or Arts stream for the next school year (Form 4). At the end of Form 5, students are required to sit the Malaysia Certificate of Education (SPM). Based upon the old 'British School Certificate', the SPM General Certificate of Education GCE is equivalent to the former O-Level qualification level.

After the SPM, students then have the choice of either studying in Form 6 for the Malaysian Higher School Certificate (STPM, internationally recognised), the Matriculation (pre-university, only valid for attending university in Malaysia) or they may opt for pre-university studies in private colleges to obtain the relevant qualifications necessary to meet the Higher Education entrance requirements.

Currently, there are 7,772 primary schools, 2,408 secondary schools, 30 public universities, 30 public polytechnics, 97 public colleges/institutions, 25 private universities, 25 private university colleges, and 25 private

colleges/institutions in Malaysia. While primary and secondary education are free, and tertiary education in Malaysia is still heavily subsidised by the Malaysian government. On 1st July 1997, the government launched The National Higher Education Fund Corporation (PTPTN), a study loan scheme, which was set up to help students pay their tuition fees and their monthly expenses during their study period. Furthermore, students who pass their degree with flying colours, are exempted from the repayment of their loan; their excellent academic performance being converted as a form of scholarship.

In conclusion, Malaysia has not only inherited the educational system and government structure of its colonial ruler, but it has also embedded a thread of Malaysian Islamic culture embedded throughout. This might imply why it is that the findings in Malaysia may have similarities to, but at the same time, slightly vary from findings in the UK.

The next section sets out the structure of the thesis.

1.7 Structure of the Thesis

In this section, I provide an outline of my thesis which has adopted a descriptive case-study approach. The overall structure of this thesis takes the form of six chapters, including this introductory chapter.

1. Chapter 1 (Introduction): this chapter highlights the research focus and provides an outline of the research area. It also includes the context of the study, which presents an overview of Malaysia as a developing country and sets out a brief background of its educational system.

2. Chapter 2 (Literature review): this chapter comprises the relevant literature of the research area to ensure both the relevance and value of my research as well as to address and formulate the research questions.
3. Chapter 3 (Methodology): this chapter includes the methodological approach, participants' selection process, data collection for data gathering, data analysis techniques and ethical considerations.
4. Chapter 4 (Analysis and Findings): this chapter presents the analysis of interviews and observations undertaken during school and home visits.
5. Chapter 5 (Discussions): this chapter draws a discussion from the entire data findings and is focused on answering the three research questions.
6. Conclusion: this chapter sets out the discussion of the implications of the findings for future research into this area, a critique of the findings and a summary of the research.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of existing research undertaken over approximately two decades. It includes the roots of how literacy has been conceptualised, a wider global context of the relevant issues, issues of children's digital literacy practices and experiences, the relationship between online opportunities and risks and their digital practices at school and home. I also include literature from the Malaysian context in term of digital practices, teaching and learning.

2.2 Literacy

Tracing the connections of every aspect of what might be called 'Digital Literacy' makes me contemplate what the foundations are of this concept. In order to delineate the whole concept of Digital Literacy, I provide some background to this area of literacy studies. The path which literacy studies has taken, is one which has moved into understandings of literacy as a social practice "in which we communicate and function on everyday basis" (Diaz, 2007, p.33). It also includes the knowledge and skills that people "needs to access, understand, analyse and evaluate information, make meaning, express thought and emotions, present ideas and opinions, interact with others and participate in activities… in their lives", and this idea is also one I have found useful in helping me explore the digital (literacy) practices of my research participants (Australian Curriculum [AC], 2017).

During the 1950s, and again in the 1990s, the trend among academics was to associate a country's "readiness" for "economic take off" with the attainment of a certain level of adult literacy across the nation (Lanskhear & Knobel, 2006, p.8). In 1966, Anderson pointed out that under-developed countries need literate manpower (sic) to progressively develop the economy, and at a proportion of at least 4 out of 10 men (sic) (quoted in Lankshear & Knobel, 2006, p.8). This precondition seems quite impossible to achieve as, prior to the 1970s, neither in the First World nor in the Third World was 'literacy' identified as a formal educational ideal (Lankshear & Knobel, 2006, p.8). During this time, educational concerns were more focused on reading rather than writing, and the term 'literacy' term appears to have remained a vague concept until into the 1970s when 'literacy' term was the name given to the programme of non-formal instruction (Lankshear & Knobel, 2006, p.7). These literacy programs were introduced to help American adults who were unable to read and write, and this trend was then followed by other English-speaking nations (Lankshear & Knobel, 2006); this contributed to the 'literacy' revolution as it became an important element in educational focus and planning.

Lankshear and Knobel (2008) discussed three factors concerning these considerable changes. The first factor was the great influence of Freire's research within the wider context of the radical education movement of the late 1960s and early 1970s (Freire, 1970, 1972). Freire's work in poverty stricken areas of Brazil and Chile showed the results of how literacy can nurture critical thinking through the concept of 'reading the word and reading the world' (Freire & Macedo, 2005, p.35). This process was constructed through his approach in promoting literacy that focused on the learning processes of writing and reading as part of learning to

develop critical awareness in understanding how the world's system is run, based on social and culture scope, and in ways that results in unequal opportunities and outcomes for different groups of citizens.

Lankshear and Knobel explain that,

> "*Freirean literacy education was, then, an integral component of a radical and politicized pedagogy purposefully designed to stimulate action for change*" (Lankshear & Knobel, 2008, p.6).

The second factor in the development of 'literacy' as a widely-used concept in education was a dramatic occurrence of a low level of literacy rates among adults in the US during the early 1970s (Lankshear & Knobel, 2008). This literacy crisis shocked the US government since their mission was focused on building a post-industrial society. As such, the US government felt that their people were not ready and were perceived as poorly prepared. This problem then spread to other post-industrial emerging countries including Britain, Canada, Australia and New Zealand (Lankshear & Knobel, 2008). However, this fact was not surprising as there had been injustice over several centuries on the rights of poor citizens to accessing education (Hannon, 2000). A third factor was the increasing development and popularity of a socio-cultural perspective within studies of language and the social sciences (Gee, 2015). There were numerous projects that impacted strongly on the conceptual and theoretical understanding of practices involving texts.

Paolo Friere (1970), one of the most influential educational thinkers, argued for the establishment of an educational system that emphasised learning as an act of culture and freedom. His work is often cited as an early example of new literacies

– that is, in practice and in evolution (Ávila & Pandya, 2013, p.2). He criticised the earlier implementation by arguing that literacy should not only focus on writing and reading, but should become wider to the extent of enhancing people's understanding of their world and to connect it with their environment and be part of the movement process, which demanding the government to reconstruct the education systems for a better future. From his perspective, illiteracy is not a disease, and therefore there is no use in curing it by teaching people how to read and write (Freire, 1970). It would not help them escape from their poverty and state of hunger. However, by looking at literacy as a complete package for human critical thinking development, literacy can be viewed as a powerful tool and a key factor of human liberation.

Prior to the 21st century, literacy was predominantly defined as the ability to read and write (Szwed, 1981) and to keep accounts (Alabama State Department of Education, 1927; Pennsylvania, Castle & Watkins, 1938). A person's level of literacy was normally used to identify the level of education that someone received and their place in the social hierarchy (Eaton, 1883). However, in the latter part of the 20th century the concept of literacy became a more contested subject where academics re-conceptualised literacy in different ways (Burnett, Merchant, Pahl, & Rowsell, 2014; Cope & Kalantzis, 2000; Barton & Hamilton, 1998; Rowsell, 2013; Scribner, Sylvia, Cole, 1981; Street, 1998).

Hannon (2000) argued that literacy should be established as soon as possible after school entry since children are expected to work independently without teachers, as it is required of them to read worksheets, written directions, reference materials, and understand the meaningful context behind the set texts. For some,

literacy is the competency or ability to read and write in a predominantly printed context (Goodfellow, 2011). Researchers also suggested that literacy involves other skills in everyday practices, such as the ability to make decisions in selecting the right resources for the right task (Cope & Kalantzis, 2000; Barton & Hamilton, 1998; Scribner, Sylvia & Cole, 1981).

Barton emphasises that it may be an impossible task to look for a precise definition of literacy:

> "*Literacy is a fairly recent English word and its meaning is being extended. I am using the term to cover new broader views of reading and writing and that is how it is being used in several disciplines. As already pointed out, it is extended in another way to mean competent and knowledgeable in specialized areas, with terms like computer literacy, economic literacy and political literacy. People talk of different 'literacies', so that different media can be discussed, and film literacy, for example, can then be contrasted with print literacy*" (Barton, 2007, p. 19).

Furthermore, literacy also includes the ability to understand on superficial and deeper levels, as well as to be critical thinkers. Moore (2013) defines critical thinking by seven definitional strands which are: (1) as judgement; (2) as skepticism; (3) as a simple originality; (4) as sensitive readings; (5) as rationality; (6) as an active engagement with knowledge; and (7) as self-reflexivity. Lanskhear and Knobel (2008) refer to Freire's work as a provider of an example of how literacy work could be central to radical approaches to education aimed at building critical social practice. Freire's concept of literacy as 'reading the word and the world' involved much more than merely the ideas of decoding and encoding printed materials (Freire & Macedo, 2005, p. 35; see also White, 2009). Freire argues that

through efforts to act on the world, and to analyse the results of our own actions, we can come to know the world better: more deeply and critically. This quotation illustrates how literacy occurs in our daily lives. I discuss this further in the next section on Digital Literacy.

In this section, I have shown that literacy is now seen as more than about decoding and encoding. Rather, it is now seen as a social practice (Appleby & Hamilton, 2005; Baynham & Prinsloo, 2009; Diaz, 2007; Theodotou, 2017).

2.3 Digital Literacy

Since Gilster (1997) first used the term 'digital literacy', it has been defined in various and different ways. In the beginning, the definition appears to be a basic set of skills on how to access and use network computer resources correctly (Gilster, 1997). This broader concept of digital literacy has led some researchers' attempts to revise the concept originally derived from Gilster's work. According to Buckingham (2006, p. 265), digital literacy can also be defined as a functional set of skills: "… that will enable the user to operate effectively with software tools, or in performing basic information retrieval tasks". More recently, digital literacy has been defined as "… the capability to use current or technology in competent manner, the artefacts that digitally people produce or the activities which digitally literate people can engage" (Iqbal, Hardaker, Sabki & Elbeltagi, 2014, p.1286; see also O'Brien and Scharber, 2008; Sefton-Green, Nixon & Erstad, 2009). Other definitions suggest digital literacy as the "… practices (of) digital text production, involving any screen-based verbal written text" (Burnett, 2009, p.23). Lankshear (2003) expanded the concept by suggesting 'digital literacies' as the new literacies

that consider the intersection between three dimensions; operational, cultural and critical. Gillen and Barton (2010:9) argue that digital literacy is "the constantly changing practices through which people make traceable meanings using digital technologies".

In addition, digital literacy has also been related to the technical skills that one needs to possess in order to be a productive internet user (Hofstetter, 2005). Livingstone (2005) also argued that digital literacy concepts relate to the way children apply a set of skills technically when they go online. Therefore, as can be seen here, these two arguments reach different perspectives: Hofstetter suggests that digital literacy can be defined as "cognitive ability, being more skills-based and adopting" the autonomous model of literacy" by Street; in contrast, Livingstone views digital literacy "more as a social practice, adopting what Street's terms on and ideological model of literacy" (Stordy, 2012, p.65). Street, through his autonomous model, views literacy as a cognitive ability as it simply "imposing western conceptions of literacy on to other cultures or within a country those of one class or cultural group onto others" (Street, 2006, p.2). However, the ideological model of literacy offers "a more culturally sensitive view of literacy practices as they vary from one context to another" due to its position in illustrating literacy as a social practice (Street, 2006, p.2).

As digital literacy is a contested and complex subject, the definition used in this thesis is as follows:

> "*Digital literacy is the skills, knowledge and understanding that enables critical, creative, discerning and safe practices when engaging with digital technologies in all areas of life*" (Hague and Payton, 2010, p.19).

Taken together with Street's conceptualisation, and in light of Hague and

Payton's framework, my definiton of digital literacy is in line with thinking about literacy as a social practice and not as a set of skills. The term digital practices as used in this research can also be termed as digital literacy. Thus, digital literacy is not just about knowing how to operate the technology, it is about understanding digital (multimodal) communication in its social context (Rowsell, 2013). I chose to use the above definition in my research because it is relevant and suitable for my research in examining Malaysian children's literacy. It also represents a solid concept of digital literacy, which is further supported by a model consisting of eight interrelated components as shown in Figure 2.1 below:

Figure 2.1: The components of digital literacy (Source: Hague and Payton, 2010)

Figure 2.1 graphically illustrates an overall view of the interrelation of the various components that constitute digital literacy. These include the following sets

of digital practices: (1) Functional skills; (2) Creativity; (3) Critical thinking and evaluation; (4) Critical and social understanding; (5) Collaboration; (6) The ability to find and select information; (7) Effective communication; and (8) E-safety. These elements explain the transitions and linkages that occur between the skills that are performed during online activities (Mohammadyari & Singh, 2015; Vincent, 2015). In this conceptualisation, digital literacy is graphically shown as a social practice which uses digital tools in meaning making and social participation. To reiterate, I believe my choice to use Hague and Payton's framework is relevant as it fits with my understanding and point of view regarding the concepts of digital literacy as social practices as I can related into my research context because the position of cultural and social understanding as one of eight components due to the implementation of my research in a Malaysian context. In light of Street's views and on Hague and Payton's framework, I developed the idea of digital literacy definition as a social practices and tried to avoid using the term 'set of skills'.

2.4 Children's Digital Literacy

Any discussion concerning children's digital literacy requires looking at what children have been doing as digital users (Davies, 2005; Marsh, 2014; Marsh et al., 2005; Merchant, 2015). Initially, as an entrance user, children that access online technologies for the first time will develop their own functional skills (Grant, 2010; Livingstone & Helsper, 2007).

For example, in order to find information using search engines such as Google, children need a basic skill in order to navigate the functions to interact with Google, e.g. how to open the web browser and to use a search tool. Through

exploration and day-by-day use of Google (or any other search engine), they will gradually develop their competencies (Given et al., 2014; Wohlwend, 2015). At the same time, they need to become critical thinkers and evaluate the content and information that they find, for example on Facebook, based on their cultural and social understanding. One example that highlights this are escort advertising or sport betting web-pages that pop up sometimes when they click on a link to read an article (Greene, Yu & Copeland, 2014). By applying E-Safety, this will help them to identify any inappropriate content and at the same time help them to cope with the situation (Guan & Subrahmanyam, 2009). Children also need to use their ability to find information using the right way, such as typing the right keyword while using the search engine and knowing how to select information from the results that appear from the search process (Greene et al. 2014). Digital literacy also "supports this process of young people becoming active meaning-makers" (Hague and Payton, 2010, p.8).

Vincent (2015), on the other hand, provides an example of how children become a problem-solvers through their quest in baking a cupcake. They search for an online tutorial on how to bake a cake through YouTube or some other site, or they can record their own baking process and share it online (Vincent, 2015). To select the best recipes, they collaborate with friends discussing the experience and, at the same time, they communicate through comment spaces by asking and reviewing other baker's feedback on that particular recipe(s) (TheCookinKids, 2012). A whole array of activities is involved, both digital and non-digital; a blended set of practices.

Another example of children's online practices is provided by recent

research by Marsh (2015). In this research, Marsh (2015) discusses a four-year old boy, Gareth, who has been heavily connected to one of the YouTube celebrities, Evan, who has 1 million subscribers through his channel, EvanTubeHD (EvanTubeHD, 2015). Since 2011, Evan, a nine-year old toy reviewer had been doing many 'unboxing' videos, which recorded the unwrapping process of his brand-new toys, such as LEGO. At the same time, in his videos, he also gave a review while playing with the toys. As Gareth is really interested in LEGO, he has been exploring, selecting and watching Evan's videos repetitively. Gareth was found to develop his own digital literacy gradually and after some time could explore YouTube independently without any help. Lastly, this celebrity-fan connection also portrays how children nowadays are playing active roles in effective selection of required information through communication in the internet. For example, in this research Evan acted as the advisor, explorer, and sharer while Gareth as cyberflaneur (Vincent, 2015).

The above examples show how children are developing their own digital literacy while engaging with digital technology at the same time as they are using different skills for different tasks.

2.5 Children's Digital Literacy Experiences

A substantial and growing body of literature has investigated children's digital practices and an increasing amount of literature on children's online experiences has also been documented. Other research that had been conducted so far demonstrate children's digital literacy experiences and place the findings into a number of categories including *access and use*; *online activities*; parents and

teachers' *mediation* and *skills* (Byron, 2008; Lenhart, 2015; Livingstone, Bober & Helsper, 2005; Marsh et al., 2005; Mascheroni & Olafsson, 2015; Plowman, 2015).

2.5.1 Access and Use

Recent findings by the Pew Research Centre in 2015 show that 92 per cent of 1,060 young American people between the ages of 13 to 17 go online every day, with 24 per cent saying that they go online continuously, 56 per cent go online several times per day, 12 per cent reporting that they go online once per day, 6 per cent going online on a weekly basis and 2 per cent that are not active internet users (Lenhart, 2015). The findings of this report are similar to the conclusions of the Net Children Go Mobile's report exploring British, Danish and Italian young people's online use, which shows that children in these countries are more active compared to children in other countries (Livingstone, Haddon, Vincent, Mascheroni & Olafsson, 2014). According to new research by Mascheroni and Olafsson (2015) conducted in seven European countries involving 3,500 children aged 9 to 17, children's internet access and usage were influenced by parental level of education and parents' ownership of digital devices, age, online experience and country. In addition, the research findings from Mascheroni and Olafsson, the Pew Research Centre and Net Children Go Mobile argue that there has been an increase in the number of active users over the past five years amongst older children (aged 10-16), corresponding to a higher percentage of smartphone ownership year by year (Lenhart, 2015; Mascheroni & Olafsson, 2015). This, they argue, is because smartphone ownership offers greater privacy, convenience and constant access to the internet (Mascheroni & Olafsson, 2015; Park, 2014; Vincent, 2015) .

Research by Olafsson et al. (2013a) found that younger children are also becoming more active online due to the increasing popularity of tablet usage such as the iPad; children go online as young as 2 years old (Livingstone et al., 2014; Merchant, 2015; Wohlwend, 2015). The United Kingdom (UK) telecommunications regulator, the Office of Communications (Ofcom) (2014) also reported that the use of tablets among children aged 5 to 15 increased from 14 per cent in 2012 to 41 per cent in 2013. These recent trends show that tablet usage is more popular for younger children while the smartphone is more accessible for older children, with laptop and desktop usage becoming the least popular compared to tablets and smartphones due to issues of mobility and size (Haddon, 2013; Mascheroni & Olafsson, 2015; Merchant, 2015; Wohlwend, 2015). Even though the internet can be accessed everywhere due to wireless (Wi-Fi) facilities, children go online most of the time while they are at home, with the majority preferring to go online in the bedroom due to increased privacy (Britto, 2007; Bulfin, 2009; Marsh et al., 2005; Mascheroni & Cuman, 2014; Vincent, 2015). Children nowadays have also been found to use the internet for the first time at a younger age than before (Grey, 2011). UK and Australian children were reported as going online as early as 6 years old whilst the average age for European children in general is 8 years old (Johnson, 2010; Livingstone et al., 2014; Mascheroni & Olafsson, 2014).

2.5.2 Skills

As discussed previously (see Section 1.1 in Chapter 1 – Research Background), digital native is a concept that was introduced by Prensky in 2001. Digital native

refers to the emerging online life of the young generation that were 'naturally born digital' and considered as "native speakers" of the digital language of computers, video games and the Internet" (Prensky, 2001, p.1). However, the concept of the digital native has been challenged by numerous subsequent studies that demostrated that digital literacy is crucial for learning in children, as many researchers argue that children "… do not naturally learn how to use new media technology on advanced, safe and autonomous standard" (Chaudron, 2015, p.13). Previous research by Marsh et al. (2005) and Levy, Yamada-Rice and Marsh (2013) discovered that children are able to demonstrate an entry level of digital literacy skills even before entering early childhood education as "… most children acquire easily and quickly basic operational skills" in handling new digital devices (Chaudron, 2015, p.13). Many researchers argue that children's digital competence can be improved through their continuous digital practices and experiences, alongside support and guidance from peers, teachers and parents (Davies & Merchant, 2009; Drotner, 2007; Lahtinen, 2012; Marsh, 2014; Levy et al., 2013).

In addition to the above findings, recent research also suggests children demonstrate self-learning activities by improving their digital literacy in order to boost their online experiences (Alvarez & Olivera-Smith, 2013; Davies & Merchant, 2009; Drotner, 2007; Lahtinen, 2012; Levy et al., 2013). This is in line with research by Smahel and Wright (2014) which indicates that self-confidence also contributes towards children's digital skills as the findings show that children with high self-esteem were found to be more confident and skillful and possess more knowledge in using the internet as well as performing adaptive skills towards new technology (Levy, 2009, 2011a, 2011b,; Levy et al., 2013). McQuillan and

d'Haenens (2009) found that the internet provides a positive impact on to the active user in terms of their confidence and motivation, as it generates positive self-perception in driving them to obtain the maximum beneficial use of the internet.

According to O'Neill and Dinh (2012), 2 out of 3 European children aged between 11-16 years old claim that they are more skillful in using online technologies compared to their parents, while younger children, aged between 9-10 years old believe their parents are more skillful. Research also found that children with parents that practice restrictive mediation (see Section 2.5.3 below), are less skillful than others (Bosman, Bayraktar & d'Haenens, 2015; Hargrave & Sonia, 2007). In Malaysia, where parental mediation is much less possible, this may explain why some children in Malaysia are less expert in managing their own digital practices (Ministry of Education Malaysia, 2014). Even though self-efficacy, activities and skills are related to developing children's digital literacy. Sonck, Livingstone, Kuipe and de Haan (2011:3) suggest that "… improving children's specific skill set is more important than improving their overall confidence".

Recent research also shows that many younger children demonstrate emerging digital practices when starting their preschool life such as demonstrating how to navigate and interact with the user interface using function tools, e.g. 'home', 'back' and 'exit' buttons (Edwards-Groves & Langley, 2009; Marsh, 2011; Marsh et al., 2005; Siibak and Vinter, 2010; Valentine, Marsh & Pattie, 2005).

Meanwhile, in recent years, there has been an increasing level of children's digital literacy for older children as they show more competency in using online technologies compared to the past two decades due to the growth of social media sites and apps (Lenhart, 2015; Lenhart, Purcell, Smith & Zickuhr, 2010;

Livingstone, Mascheroni & Olafsson, 2014; Vincent, 2015). They were also found to perform the skills that related to their online activities. For example, they show an ability in performing their creativeness in producing digital content, being active as online collaborators, continuously engaging in online communication and showing the ability to go online for information seeking (Davies, 2009, 2014; Davies & Merchant, 2009; Marsh, 2015; Vincent, 2015). However, even though the degree of engagement in all types of interrelated components in digital literacy skills are higher, children were also found to lack critical thinking "… to explore the meaning and nuances of online content", a social understanding, as well as in selecting information (Davies, 2008, p.53, 2014; see also Levy, 2009; Sonck & de Haan, 2014). A large and growing body of literature has investigated this issue and suggests that E-Safety that applies critical thinking is a crucial skill that is needed in order to help children maximise online opportunities and reduce online risks (Davies, 2008; Grant, 2010; Mascheroni & Olafsson, 2014; Sharples, Graber, Harrison & Logan, 2009).

2.5.3 Mediation

A considerable body of literature has been published on parental and teacher mediation when discussing children and digital technologies. Traditionally, it has been argued that parents and teachers have been directly influencing children's digital literacy development (Bulfin & Koutsogiannis, 2012; Bulfin & North, 2007; Given et al., 2014; Kent & Facerw, 2004). Levy (2008) suggests that bringing digital practices into the classroom can help children to improve their digital literacy skills and their self-confidence through expanding their digital literacy at

home and in school (Grant, 2010; Henderson, 2011; Koutsogiannis, 2009). However, much of the current research on mediation also pays particular attention to peer-mediation as children reported the 'growing influence of peer culture' in their online world as the majority of children informed that 'friends are helpful when something is difficult to do online', and children were found to support each other's online activities (Appel, Stiglbauer, Batinic & Holtz, 2014; Livingston et al., 2014, p. 52, 58; Sonck et al., 2011).

Duerager and Livingstone (2012), Kirwil (2009), Livingstone and Haddon (2008), Paus-Hasebrink, Bauwens, Dürager and Ponte (2013) and Sonck et al. (2011) argue that parental mediation is important in developing children's digital literacy at home. Parental mediation can be defined as the situation where the parent(s) becomes an active participant involving themselves positively with their children's online activities and in supporting their children's online safety (Duerager & Livingstone, 2012). As children spend most of their time online at home compared to other places, home digital practices are considered the most important aspect that researchers need to focus on (Bulfin & North, 2007; Gurung & Rutledge, 2014; Mascheroni & Cuman, 2014).

Previous research also shows that there are three types of parental mediation: active mediation, restrictive mediation and passive mediation (Duerager & Livingstone, 2012; Martínez de Morentin et al., 2014; Sasson & Mesch, 2014). According to (Zaman, Nouwen, Vanattenhoven, de Ferrerre and Looy (2016), restrictive mediation refers to 'the rules enforced by parents to limit and control' their children's online activities. On the other hand, active mediation has been characterised by the positive approaches and strategies where parents discuss and

explain about ‘digital world’ and ‘technology devices’ with their child, ‘stay nearby or sit with them while they go online, encourage them to explore the internet, and share online activities with them’ (Duerager & Livingstone, 2012). Duerager and Livingstone (2012) also defines that passive mediation as a situation where there is a lack of participation by parents in monitoring and guiding their children’s online activities, which the role of parents as role models is absent here.

Net Children Go Mobile reported that more than half of parents have been mediating their children’s online activities (Mascheroni and Olafsson, 2014). Through active mediation, parents were found to share their online activities with their children, discussing their online experiences and being able to help their children with their problems related to the online world (Duerager & Livingstone, 2012; Johnson, 2010; Sasson & Mesch, 2014; Valcke, Bonte, Wever & Rots, 2010). Both UK and American parents are actively mediating their children’s practices compared to other countries (e.g. Japan, Korea, Taiwan, China, Indonesia, Malaysia and Singapore) with mothers most likely to actively give support and help to their children (Hendriyani, Hollander, D'Haenens & Beentjes, 2014; Lenhart, 2015; Lin, Hope Cheong, Kim & Jung, 2010; Marsh et al., 2015).

According to Livingstone, Mascheroni & Olafsson (2014), UK parents are more active and restrictive in mediation compared to other European countries because of the amount of resources that are made available to them through the home-school relationship and also due to the role played by government which actively promotes this through government advice via media. Meanwhile, parents were reported to become more passive in mediation as their children get older as they believed that their children became more capable after years of internet use

(Livingstone et al., 2014). There are also some perceptions that parents tend to report that their children are more skillful than they, the parents are, as they are born into a digital world and some parents claimed that they believed their children know more things about it than they do (Sonck et al., 2011).

Livingstone and Haddon (2009) argue that there was a negative correlation between parents' perceptions and their children's perceptions, where the children perceived that they received a lower level of parental mediation. This is contraindictive, as the parents claimed they have been mediating their children through at a higher amount of mediation hours. This difference between their perceptions suggest that parents are confident that they gave active mediation to their children while from the perspective of the children, that amount was still not enough (Livingstone & Bober, 2005).

Many parents also argue that they are very concerned about their children's E-Safety rather than their children's technical skills (Olafsson et al., 2013a). Parents that engage in active mediation are more likely to have tertiary level education compared to parents engaged in restrictive and passive mediation, with the latter group of parents more likely to have primary education or less (O'Neill & Dinh, 2012). This is due to the fact that parents engaged in active mediation are themselves active internet user as most of them are professional worker and they use smartphones, laptops, desktops and tablets in their everyday life, compared to the less educated parents who are not considered as active internet users (O'Neill & Dinh, 2012).

Surprisingly, there was a negative correlation between parents' perceptions towards children encountering harmful content online. Parents in high risk

countries believed that the level of coping abilities for online risks was low. On the other hand, in low risk countries, parents were more likely to have a high level of confidence about their children's skills for coping with online risks. This finding from research conducted by Livingstone and Haddon (2009) certainly provides a new direction on how parents should play a significant role in helping their children to face online dangers by parental mediation.

Meanwhile, teachers also play a key role in mediating their students' digital literacy experiences (Davies & Merchant, 2009, 2014; Levy, 2011a, 2011b). Teachers were reported as giving direct influence and guidance when it comes to technical skills when children go online in the classroom (Levy, 2011b; Levy et al., 2013; Hinostroza, Ibieta, Claro & Labbé, 2015). Teachers were also found to demonstrate the importance of E-Safety in their classroom whilst at the same time being involved in children's online activities (Chou & Peng, 2011; Shin, 2015). Livingstone et al. (2011) reported that many children stated that they gain the most information on E-Safety from parents (63 per cent), followed by teachers (58 per cent) and peers (44 per cent).

With regard to peer mediation, "… support from peers is positively associated with online opportunities and digital literacy" (Mascheroni & Olafsson, 2014, p.97). Children reported that peers are their main motivating factor that encouraged them to become more creative in taking online opportunities such as processing and producing their own digital content in social media and blog platforms (Iglesias & Larranaga, 2015; Lenhart et al., 2010; Marsh, 2012, 2015; Mascheroni & Olafsson, 2014). Moreover, children reported that peer mediation is important for them to get information and help on creative and functional skills

while online, but for other information such as information and help related to E-Safety, they tended to seek help from their parents or teachers to solve their problems (Maschceroni & Olaffson, 2014).

2.5.4 Online Activities

In order to discuss children's experiences that occur during online activities, I have separated this section into two parts: online opportunities and online risks. Nevertheless, I am aware that same activities might cross these boundaries. As an example, there is some excellent open source software as well as trojan infected software disguising itself as open source. Thus, open source software can be both an opportunity and a threat.

2.5.4.1 Taking up Online Opportunities

Many researchers have argued that it is through online activities that children gain many opportunities and, at the same time, technologies also play important roles in their daily lives (Davies, 2014; Jones & Park, 2015; Lankshear & Knobel, 2006; Valkenburg & Peter, 2011, Levy et al., 2013).

Children were found to be engaged in several digital practices including processing digital content, playing games, communicating and producing digital content (Bosman et al., 2015; Lenhart, 2015; Vincent, 2015). Specifically, online opportunities can be identified through children's positive online activities, which can be categorised into three groups as follows (Sonck et al., 2011). They are as follows:

a. Content-based activities, such as schoolwork, playing games, watching video clips, reading news or downloading music.
b. Contact/communication-based activities such as instant messaging, email, chatting, WhatsApp and/or Skype.
c. Conduct/peer participant activities such as blogging, posting photos or participating on file-sharing sites.

Livingstone and Helsper (2010) also argue that there are six types of online opportunities: (1) Information; (2) Communication; (3) Entertainment; (4) Participation; (5) Creativity; and (6) Expression. According to this argument, as an internet beginner, children will climb each stage in the 'Ladder of Opportunities'. The 'Ladder of Opportunities' is a "hypothesized sequence of activities" that starts with basic activities such as seeking information, and progressing to interacting through online communication or by playing online games and using their creativity in expressing themselves or getting involved in participatory activities (O'Neill & Dinh, 2012, p.2). O'Neill and Dinh (2012) reported that the majority of children are only involved in doing basic activities and only a minority reaches the top of the 'Ladder of Opportunities'. Subsequent research suggests that children do more activities related to communication, information and entertainment but have less experience in online participation, creativity and expression (Manches, Duncan, Plowman & Sabeti, 2015; Mascheroni & Olafsson, 2015).

According to Livingstone et al. (2014), European younger children aged between 3-8 use online technologies for gaming, watching various types of media (online streaming), educational purposes (information seeking, arts activities),

taking photographs and recording videos. They are also exploring websites such as YouTube, Google, CBeebies and Wikipedia but with less frequency. The sequence suggested by O'Neill and Dinn's 'Ladder of Opportunities' may not be followed in such a linear way, although it may be that many young people would not reach higher competencies without mediation by peers, teachers or parents – as my research showed (see Chapters 4).

For European and American older children, several studies have revealed the highest percentage of online usage is through social networking sites, especially Facebook (Blackwell, Lauricella & Wartella, 2014; Mascheroni & Olafsson, 2015; Omar, Daud, Hassan, Bolong & Teimmouri, 2014). Older children were also found to be active in processing and producing digital content through social networking sites and apps such as Facebook, Snapchat, Instagram and Twitter (Lenhart, 2015; Mascheroni & Cuman, 2014; Vincent, 2015). Previous studies have also indicated that older children enjoy and were also reported being active in using the internet for communication purposes due to the accessibility of messaging apps like WhatsApp, Snapchat and Facetime (Hinostroza et al., 2015; Lenhart, 2015; Smahel & Wright, 2014; Vincent, 2015). Older American girls, however, were found to be more active in using messaging apps, whilst older boys were found to be more active in playing online games also with other online players (Lenhart, 2015). Other than for entertainment and communication purpose, younger children also use the internet as an educational resource for information seeking that relates to school assignments (Aslanidou & Menexes, 2008).

2.5.4.2 Encountering Online Risks

To date, a substantial and growing body of literature has investigated the issue that older children are exposed to experiencing higher online risks as they tend to take up more opportunities due to better access, greater digital literacy skills and are spending more time online (Guan & Subrahmanyam, 2009; Terras & Ramsay, 2016; Valkenburg & Peter, 2011). Online risks can be defined as "the possibility that something unpleasant or unwelcome will happen" or any "situation involving exposure to danger" that is related to online activities (Oxford Dictionaries Online, 2015).

Livingstone et al. (2014) list the top eight inappropriate internet usages that can expose children to online risks. These are: (1) Exposing personal details to strangers; (2) Visiting pornography websites; (3) Encountering aggressive or hateful content; (4) Bullying; (5) Sexual harassment; (6) Contact with people not known face-to-face; (7) Offline meetings with online contacts; and (8) Potentially harmful user-generated content.

Table 2.1 (below) provides a comparison and overview of the exposure of children to online risks reported by Livingstone et al. in 2011 and 2014. Interestingly, these findings present a mixed picture of the pattern in online risks to children that change over time. Livingstone et al. (2014) argue that the clear trend of an increasing percentage of participantss involved in the EU Kids Online research in seeing hate messages might be due to the rise of messaging apps for smartphones which allows everyone to send messages very quickly and directly to receivers without seeing their responses. However, a decreasing percentage of participantss receiving sexual messages might be because of the modification in

privacy features in the profile functions in social networking, for example the features that provide users with the option of preventing or blocking suspicious people or strangers (Ciccarelli, Chen, Vaz, Cordier & Falkmer, 2015; Feng & Xie, 2014; Park, 2014).

Online Risks	**2011 (as a %)**	**2014 (as a %)**
Seen hate messages	13	23
Received sexual messages	12	5
Seen porn online	11	11
Received nasty messages	8	8
Seen pro-anorexic sites	8	14
Meet online contact offline	4	3

Table 2.1: Online Risks Exposure in Net Children Go Mobile: The UK Report (Livingstone et al. 2014, p.5)

Mascheroni and Olafsson (2014, p.107) reported that "online risky experiences do not necessarily result in harm" as recent findings by EU Kids Online shows that children who spend more time online tend to be more skilful and therefore managed to cope and experience less harm from those online risks (Sonck & de Haan, 2013). On the other hand, children undertaking fewer activities and less skilled children were found to be more vulnerable even though the possibility of encountering online risks is consequently lower, but they experienced more harm (Livingstone et al., 2011). This is explained by research showing that, by taking more online opportunities and encountering more online risks, children gradually learn how to cope by developing their own E-Safety via three main coping strategies, which are: passive responses, proactive responses; and communicative

responses (O'Neill & Dinh, 2012). Even though higher internet usage might expose children to encounter more online risks, it is better than restriction, as the findings show that by encountering more online risks, children are taking up more online opportunities in learning and seeking information on how to cope with it, compared to children who spend less time online and therefore take fewer opportunities (Hargrave & Livingstone, 2007; Helsper et al., 2013; Lantzy, 2008; Soldatova & Zotova, 2013). This resonates with findings by Bosman et al (2015), d'Haenens and Tsaliki (2012) and Stakstrud, Olafsson and Livingstone (2013). According to Mascheroni and Olafsson (2014), the, majority of children claim that they are more likely to talk to their mother (71 per cent) regarding their online risky experience, followed by peers (57 per cent) and father (54 per cent). 64 per cent of them also reported that it is very unlikely for them to talk with their teacher about their experience of online risks (Mascheroni & Olafsson, 2014). They also reported that, on the one hand, young children and older boys prefer to tell their parents about the online risky experiences, whilst on the other hand, older teenage girls were more comfortable discussing this with their friends. This argument shows that peer-mediation is important in dealing with online risks in order to avoid harm.

Aside from the above findings, parents and children seem to have a different view of what is happening in the home, as parents tend to claim that they have been mediating their children more often than the children themselves reported that they had been (Mascheroni & Olafsson, 2015). This is a major problem as the children themselves are not aware that they are exposed to online risks and, even worse, sometimes the parents also fail to recognise risks that appear in their child's online activities due to their limited skills and lack of experience (Livingstone & Haddon,

2009; Martínez de Morentin et al., 2014). This is in line with previous research. For example, Davies and Merchant (2009) who argue that educating young children about online risks and how to protect them is more effective through providing them with real experiences under supervision. It is more relevant compared to providing technical protection such as blocks, filters, application and other controls. Therefore, they argue that it is necessary for parents and teachers to guide children and provide the right information about online risks and E-Safety.

2.6 Relationship Between Online Opportunities and Online Risks

The purpose of this section is to review the relationship between online opportunities and online risks. The internet is increasingly recognised as a platform to nurture the future of our young generation (Vincent, 2015). The majority of children have said that they have been encouraged by parents and teachers to explore the online world as it offers many benefits that can enhance their academic performance (Burnett, 2013; Mendoza, 2013; S. Z. Omar et al., 2014). However, in the past decade a number of researchers have sought to determine the online challenges rather than online benefits, through exploring online technologies. Such research has influenced and ignited panic amongst parents which lead to some trends in parental decisions to restrict internet usage as a way to prevent their children encountering online risks (Ktoridou, Eteokleous & Zahariadou, 2012). Omar et al. (2014, p.367) argue that "… the more parents applied active co-use mediation, the less the children use the Internet positively", which highlights the misconception of parental mediation. This is due to some action taken by parents such as restricting internet access or to an extent cutting down the usage of online

devices such as tablets, smartphones and laptops. Many researchers disagree with these drastic actions of stopping and controlling children's internet usage. This is because it will decrease children's opportunities to learn online even though parents claim they did it in order to protect their children from online risks (Boyd & Hargittai, 2010; Byron, 2008; Neill & Staksrud, 2014).

While some previous research has focused on the dangers of the online world, to date there has also been research which argues that the internet does benefit children who start using it from an early age as long as they are educated to use it appropriately and on how to encounter online risks (Kolikant, 2010; S. Z. Omar et al., 2014; Tynes, 2007). Romero (2014) and Tsatsou, Pruulmann-Vengerfeldt and Murru (2009) also argue the need for parents to be more positive about children's development that aspires from online opportunities in order to prepare them to become a better digital citizen. To achieve this, we need to focus on how to balance opportunities and online risks. It has been shown that by minimising online risks, children are able to enjoy the online benefits at the maximum level (Leung & Lee, 2012; Martínez de Morentin et al., 2014; Sasson & Mesch, 2014).

Livingstone and Haddon (2009) have also classified children's online opportunities and risks from available research findings, as shown in Table 2.2 below. Table 2.2 shows an overview of online risks and opportunities that occur within online usage. It also reveals the different roles of children as recipients of mass-distributed content (one-to-many), children as participants in an interactive situation predominantly driven by adults (adult-to-child), and children as actors in an interaction in which they may be the initiator (peer-to-peer). This evidence

suggests that children nowadays are the main players in constructing their own knowledge, and as such are capable of controlling their online world.

		Content: Child as recipient	Contact: Child as participant	Conduct: Child as actor
OPPORTUNITIES	**Education learning and digital literacy**	Educational resources	Contact with others who share one's interests	Self-initiated or collaborative learning
	Participation and civic engagement	Global information	Exchange among interest groups	Concrete forms of civic engagement
	Creativity and self-expression	Diversity of resources	Being invited/ inspired to create or participate	User-generated content creation
	Identity and social connection	Advice (personal/ health/ sexual etc.)	Social networking, shared experiences with others	Expression of identity
RISKS	**Commercial**	Advertising, spam, sponsorship	Tracking/ harvesting personal information	Gambling, illegal downloads, hacking
	Aggressive	Violent/ gruesome/ hateful content	Being bullied, harassed or stalked	Bullying or harassing another
	Sexual	Pornographic/ harmful sexual content	Meeting strangers, being groomed	Creating/ uploading pornographic material
	Values	Racist, biased info/ advice (e.g. drugs)	Self-harm, unwelcome persuasion	Providing advice (e.g. suicide/ pro-anorexia)

Table 2.2: A classification of online opportunities and risks for children (Source: Livingstone and Haddon, 2009, p.10)

Byron (2008), in her independent review 'Safer Children in a Digital World' published on 27th March 2008, highlights that even though the risks are everywhere, children should have their own power in controlling their own cyber world, so that they can enjoy maximum advantages of the educational, social and entertainment benefits that technology offers:

> *"Trust is important, and children should be encouraged to share what they do on the Internet, but at the same time their privacy should be respected; being over protective is not a solution either"* (Paul Walmsley, age 14 in Byron, 2008, p.80).

This review also addresses how we can guide children to be online in a safe way while protecting themselves from any threats, and harmful or inappropriate materials. From the feedback and messages in her review, Byron (2008) strongly demonstrates that in order to assist children in enjoying online opportunities, schools and other services must play vital roles in promoting cyber safety among children. Following this, Byron suggested to the UK Government that it performed four comprehensive steps in order to empower children and raise the skills of parents. These are: implementing cyber safety through the school curriculum; ensuring new teachers are fully prepared with cyber safety skills and knowledge; engaging with children and families through Extended Schools by delivering learning courses in ICT, media literacy and cyber safety in order to help parents gain a deeper understanding of cyber safety issues; and, finally, taking steps to ensure that Office for Standards in Education, Children's Services and Skills, UK (Ofsted) holds the system to account on school performance in integrating the implementations.

In order to portray the idea of handling online challenges to enjoy online benefits, the Byron Review elaborates a useful analogy that provides a broader perspective on how risks are managed at public swimming pools. Byron (2008) argues that we should teach children how to protect themselves while online in the same way we teach in the offline world. We teach children how to swim, and at the same time we put up gates, signs, hire a lifeguard and design a shallow end to protect children (Byron, 2008, p.108). By providing children with necessary survival skills through swimming lessons and a swimming pool environment conducive to swimming, we manage to guide them to explore the leisure of swimming without stopping them because of fear. The 'survival skills' mentioned here is one of the components of Digital Literacy, which is E-Safety.

E-Safety skills play a vital role in protecting children from online risks to enjoy online opportunities. E-Safety is an ability to perform the appropriate, safe and responsible acts, use and manners on the internet in order to protect us from online risks (Bryant, 2013; Ribble, 2009a, 2009b, 2011; Sharples et al., 2009). E-Safety can also be defined as the actions individuals take to minimise the dangers they could encounter, and also in a safe and responsible manner when using internet-capable technology (Pusey & Sadera, 2011). This includes protection against online predators, unwanted communication, viruses, spyware, unsolicited marketing and advertising (Frechette, 2005).

Through developing their E-Safety skills, children would take charge by becoming resourceful participants instead of being ‘powerless victims’ in the online world (Staksrud & Livingstone, 2009). This would help them to create a positive online experience and enjoy the maximum opportunities. In addition, they would

learn how to minimise risks by enhancing their critical awareness. Aside from becoming a better digital citizen, E-Safety would also prepare them in handling their own online risky experiences in a safer way (Ribble, 2009b; Soldatova & Zotova, 2013).

This discussion has given an account of research based in Europe, Australia, Canada and the United States. As mentioned previously, there are important cultural differences in Malaysia, my research context, which I now reflect on.

2.7 Malaysian Context

In Malaysia, there are three large-scale research reports conducted by the Ministry of Education Malaysia in 2013, 2014 and 2015. The first report in 2013, 'A National Survey Report 2013 Safety Net: Growing Awareness among Malaysian School Children on Staying Safe Online' involved 9,651 school children between the ages of 7 to 19 years old and focused on examining the level of awareness of E-Safety among Malaysian school children (Ministry of Education Malaysia, 2013). This research used self-completed questionnaires that were conducted throughout the country via ICT teachers.

The findings reported that only 68 per cent of children have a computer with internet access and 58 per cent of the children reported that they went online for the first time in the company of immediate family members or other relatives, while 17 per cent did so with a friend and 9 per cent with teachers. Sixteen per cent of the children had their first experience of using the internet alone. The majority of Malaysian children are likely to go online for approximately 8 hours or less per week, while 16 per cent spent 28 hours per week or more online. Most of them (80

per cent) accessed the internet at home, 27 per cent at free Wi-Fi hotspots, 19 per cent at cyber cafes, 17 per cent at friend's house, 14 per cent at someone else's house and 7 per cent at other places. Most students reported that they use multiple devices to go online, with desktop computers being the most common device used (35 per cent), followed by laptops (20 per cent), smartphones (17 per cent), tablets (15 per cent) and mobile phones (13 per cent).

The main online activities are exploring social networking sites like Facebook, which represents 68 per cent of the participants. Other popular online activities include surfing websites and playing online games. 54 per cent of the participants also reported that they feel safe when online, with only 33 per cent concerned about their online safety and just 3 per cent saying that they are unsure.

The Ministry of Education Malaysia's (2013) report also identified online bullying as the main risk and concern of children in Malaysia. This might be because 27 per cent have been bullied online, with 13 per cent of the victims still being bullied up until then, and 6 per cent of the children choosing to keep quiet when bullied. Furthermore, it is significant that nearly half of all participants said they know of a friend who has been bullied. This might be the key reason why online bullying produced the highest level of concern from the majority of participants.

Even though 59 per cent of participants in this report were aware of the importance of online safety, only 26 per cent said they know how to protect themselves. 46 per cent of participants have computers located in a communal area and 44 per cent have parental controls on their online usage. Two thirds of the

participants also reported that their parents supervised their internet usage, and 38 per cent of the participants have parents who talk about online safety with them.

The second report in 2014, 'A National Survey Report 2014 Safety Net: Capacity Building among Malaysian School Children on Staying Safe Online' involved 13,945 school children between the ages of 7 to 19 (Ministry of Education Malaysia, 2014). This report examined several factors that related to internet-related behaviours such as online safety, cyber-bullying, support networks and personal concerns. The majority of the survey participants in this study (80 per cent) were reported as being aware of the importance of online safety, but 40 per cent did not know how to protect themselves. The report also reveals that 45 per cent of participants showed a low level of E-Safety skills.

Further, the majority of the participants (83 per cent) did not apply any online coping strategies when online, with 30 per cent reporting that "they either take no action at all or take only one action toward online safety" (Ministry of Education Malaysia, 2014, p.4). The report also presented an overview of the most common types of online bullying identified according to type as follows: (1) Being called mean names (78 per cent); (2) Receiving nasty messages (75 per cent); (3) Being ostracised (68 per cent); (4) Having lies spread about them (68 per cent); (5) Being hacked (61 per cent); (6) Receiving embarrassing photos/videos (58 per cent); (7) Over-sharing personal information (57 per cent); and (8) Being threatened (50 per cent). The highest group of bullied children are those aged between 13 to 15 years (43 per cent).

The report also found that children are more likely to turn to family members followed by teachers for help when they experienced bad online

experiences. Even though this shows that family members are considered the most important person for children to share their online activity worries with, some parents (4 out of 10) never talked to their children about the importance of E-Safety skills. Surprisingly, the majority of Malaysian children also reported that their parents had not established any rules for internet use (Ministry of Education Malaysia, 2014).

The third large scale research 'Growing Digital Resilience among Malaysian Schoolchildren on Staying Safe Online' was conducted by Ministry of Education Malaysia in 2015, involved 18,279 students across the country that completed a questionnaire that focused on 'type of online risk they face and their level of resilience towards such risks' (Ministry of Education Malaysia, 2015a, p.4). This research was undertaken to help and provide information for parents and teachers concerning digital citizenship. There are seven independent variables that were evaluated during this study, which are: (1) Existence of Problematic Situations and Negative Experience; (2) Peer Pressure; (3) Parent Children Gap; (4) Sexting); (5) Cyber-bullying; (6) New Risks); and (7) Dealing with Negative Experience/Meditational Strategies.

The majority of participants (14,363) were between 13 years to 15 years old (78.6%). The findings also indicated that 7,084 (39%) of the participants went online almost every day, 3,523 (19.3%) went online 3 to 5 times a week, with the remainder using the internet less than 3 times per week.

On a Likert-Scale of 1-5 (Strongly disagree, Disagree, Somewhat disagree, Agree and Strongly Agree), this report also presented findings on 'Parent-Child Relations', with the majority of participants agreeing that they 'follow the rules

about Internet use which are set by their parents', 'help their siblings when they are bullied through the Internet' and 'have parents who will help them if they are bullied through the Internet'. On the 'Influence and Perception of Friends', a majority of participants reported that they agreed that they know of friends who are addicted to the internet (Ministry of Education Malaysia, 2015a, p.14).

This study also indicated that Malaysian children felt uncomfortable about cyber-bullying and that "it is also likely that they have received hate mail and nasty messages" (Ministry of Education Malaysia, 2015a, p.27). However, they reported that there is a high likelihood that their school counselors or help centre staff are active in helping the affected children. Participants also reported that when they faced negative experience online, they performed the right coping strategies such as changing the privacy settings or blocking the person, telling their teachers, warning the person not to contact them again, lodging a report with the police, asking friends for help and ignoring the person. Compared to the previous studies by the Ministry of Education Malaysia 2013 and 2014, there was an increasing percentage of children's capacity to use coping strategies when experiencing online risks. Compared to findings in 2013 and 2014, there was also an increase in the level of confidence of Malaysian children in handling negative incidents themselves, as well as many reporting that they could help their peers to 'mitigate problematic situations'. They also reported that they know how to seek help from teachers and the help centre, and this shows that they had a significant level of E-Safety awareness. These new findings also revealed that Malaysian children were able to behave appropriately as they reported that they have learnt about E-Safety in schools.

Cyber-bullying and internet addiction are also listed at the top of the list of online risks. This is in line with research findings conducted by the Ministry of Education Malaysia 2013 Report which stated that 9 per cent of Malaysian children are concerned about online bullying. Further, in the Ministry of Education Malaysia 2014 Report, Malaysian children reported that they were now more concerned with their online privacy (24 per cent) and online addiction (25 per cent). From the findings, it seems that the Malaysian government had been quick to diagnose these children on the basis of the survey and that seems somewhat 'sensationalist' without defining what they had meant by 'cyber-bullying' or 'addiction'. This is also in line with many other findings that had been reported in the Malaysian research landscape (Fauzi, Ayub, Abidin, & Suwirta, 2014; Hassan & Rashid, 2012; Omar, 2017; Soh, Chew, Koay, & Ang, 2017). Such direction however, has contributed to the ideas that the technology is bad for children as it brings negative impact in their lives.

Previous research findings by the Ministry of Education in Malaysia are also in line with findings by other researchers, for example, Baboo, Pandian, Prasad and Rao (2013) and Omar et al. (2014) who argue that there are multiple locations where children access the internet, with accessing it at home having the highest ranking, followed by a cybercafé, school, a friend's house, someone else's house and free Wi-Fi hotspots. Baboo et al. (2013) also stated that 14 per cent of 1,200 children participating in their research claimed that they first went online before the age of 8 years. Also, the average age of participants for when they went online for the first time was at 12 years old. Baboo et al. (2013) also claim that half of all Malaysian children carried out self-learning to know how to explore the internet. Malaysian

children's main online activities according to Omar et al., (2014) are: (1) Exploring social networking sites; (2) Searching information through online search engines; (3) Communicating through online social networking and instant messaging apps; (4) Seeking information for learning purpose; and (5) Playing online games, downloading music and watching streaming content. This indicates that they prefer to go online for entertainment rather than for educational resources (Omar et al., 2014) and my research also sees educational activities as often difficult to separate from entertainment activities (see Chapter 4).

Seeking information for schoolwork is listed the fourth most popular online activity among children between the ages of 9 to 16 years old in Malaysia. In contrast, this online activity ranked number two in other developing countries. For example, seeking schoolwork information is the second most common online activity among children in China (91 per cent), Korea (96 per cent), Singapore (84 per cent), Taiwan (94 per cent), Indonesia (80 per cent) and Japan (71 per cent) (Gayatri, 2014; Lin et al., 2010). This shows that even though Malaysia is one of the developing countries, the way in which Malaysian children use the internet is different in comparison to other children in neighbouring countries and other parts of world – 96 per cent of European children also take up this type of online opportunities as their most popular activity (seeking information for schoolwork).

In conclusion, Malaysia has been given a picture of great concern about Malaysian children that go online independently, nervously, persecuted and at high risk. Thus, due to the moral panic in Malaysia regarding children's online safety, the majority and the extant of research carried out in Malaysia, to date, has focused on E-Safety instead of seeking to gain a deeper understanding of the current digital

practices among Malaysian children. Until recently, only a few qualitative research projects using interviews as a research instrument have been conducted in Malaysia. Also, from the literature review that I have presented above, the majority of extant research in Malaysia has been carried out using self-completed questionnaires. Further, to date, there has been no research focusing on Malaysian children's digital literacy practices in both the school and home.

In comparison to the European and US based research, there are few insights that Western research on children's digital practices can offer in helping me to understand the Malaysian context. First, Malaysian children were found to lack guidance and experience in their online practices. Second, they were also found to start going online at a later age. And lastly, the majority of Malaysian parents did not mediate their children's online practices. As it happened, my own research found that the picture is more complicated than this – but that the Malaysian practices were often rather different to those described in 'Western' literature.

2.8 Discussion of the Literature Review

To summarise, the purpose of this literature review was to view the trends in children digital literacy experiences within the past 10 years and to see how it had changed and is still changing. It is clear from the research reviewed that digital technologies are used across the world and that practice varies globally. There are two key differences about the research in the Malaysian context than the research carried out in other locations which are: (1) The nature of the research has been different; and (2) The cultural context is different. My research drew more on recent traditions reflected in social, qualitative approaches modeled by New Literacy

Studies. I have regarded young people's engagements with technology as social practices.

To be specific, based on my discussion on existing literature within this area, this research conducted by me is needed for a number of reasons. First, previous literature has shown that Malaysia is unique because Malaysian children use online technologies differently from other childern and they are therefore not like the rest of the world. It was proven that across the globe, children are not using digital tools in similar ways (Grant, 2010; Jones and Lea, 2008, 2011; Martinez de Morentine et al., 2014). Second, there is insufficient research in the particular context of Malaysian children's digital practices, especially their current practices at home and school. Finally, no other research has explored these issues by going into the Malaysian home and school in order to get an all-round perspective on Malaysian children's digital literacy experiences.

Undertaking the literature review on children's digital experiences around the globe and the relationship between online opportunities and online risks has helped me to gain a deeper understanding of online technology usage among children in countries other than Malaysia. In addition, the findings from previous research in the Malaysian digital context have also been useful in identifying what Malaysian children have claimed about their online safety experiences. However, research previously undertaken by the Malaysian government in 2013, 2014 and 2015 were more focused on online safety.

Critically, there is a gap in knowledge regarding recent trends and data on the current digital practices of Malaysian children and the nature of their internet usage. This is because of the lack of information on Malaysian's children online

experiences across home-school settings and insufficient attention has been paid to Malaysian children's digital literacy practices and their management at home and school. Therefore, this also leads to the main issue of this research, which is that I need to explore what is happening in Malaysian homes and classrooms to get a clearer idea of children's digital practices and needs.

My research employed a mixed-methods approach as recommended by EU Online Kids, a well respected, reliable thematic European research networking since 2006 on how to research children's use of online technologies (Lobe et al., 2007; Neill & Livingstone, 2011; Olafsson et al. (2013b). This distinguishes my work from previous research by the Ministry of Education Malaysia and from any other previous research set in a Malaysian context. I hoped to gather more nuanced, in-depth, and rich data. Further, my research collected qualitatively different multimodal data from the Malaysian children's own perspectives by carrying out interviews with them; discussions through a focus group; observing and photographing young people's digital practices in school and at home.

In addition, investigating this from the teachers' and parents' perspective helped me to understand the children's online experiences and thus provides more detailed information in specifically understanding Malaysian children's online experiences. This research was also important as it attempted to understand Malaysian children's engagement with online technology, their perceptions of online opportunities and risks, and what kind of learning was involved through their online activities.

I believe my study enriches the information and knowledge that we already had. This study is also significant in many ways as I hope it will have important

implications for the key players, including Malaysian children, teachers, parents and government. It is my cherished hope that the findings from my study will make a significant contribution to ICT education in Malaysia and possibly provide a basis for further research in the area.

2.9 Summary

Based on the literature review, I have formulated the following questions with the aim of assessing what young people do when using the internet and what role teachers and parents can play in supporting their development. In relation to a small case study of 5 (five) of young people,

1. What do Malaysian children do online at home and in school?
2. What do Malaysian children see as the opportunities and risks offered by the internet?
3. What kind of learning are Malaysian children involved in through their online activities?

So far, I have presented and discussed the existing literature relevant to my study. In the following chapter, I discuss the research methodology that I adopted for the purposes of my research. This includes discussing the importance of positionality. Further, the next chapter sets out the case-study approach, the selection of participants, research methods, data analysis, the interpreting and reporting process and ethical considerations concerning my research.

CHAPTER 3
METHODOLOGY

3.1 Introduction

This methodology chapter presents the importance of my positionality within this research before discussing the adoption of a mixed-methods methodological approach, a qualitative and quantitative approach involving how I carried out questionnaires, interviews and observations. Further, this section will set out the data analysis part.

3.2 Positionality

Clough and Nutbrown (2012, p.10) highlight the importance of positionality: "The positionality of the researcher affects the research design and research processes as well as the ethical practices which are inevitably present throughout any study involving human beings". Thus, the purpose of this section is to present myself, and by highlighting my relevant academic background, career position and my personal experience, help explain the issue of subjectivity in the design of my study, for example, the research scope, approach, and methods in relation to what I have done in my research, as well as the way I outlined my PhD study.

I hold a Bachelor of Education (Information Technology) Degree and a Masters in Instructional Technology from Malaysian public universities. As such, I have studied many subjects that are related to Information Technology theory and application. At the same time, I have also taken classes that focused on educational

theory, teaching methodologies and learning information technologies in addition to teaching information technology, instructional technology and instructional design. Subsequently, I started my career as a teacher in a secondary school before commencing work as a tutor at Sultan Idris Education University where I taught teacher trainees (including handling lab tutorials for subjects in the area of educational technology). Through my teaching experience, I have developed the belief that digital technologies for enhancing the learning process. In addition, throughout my teaching experiences in the university, I perceived that my students were comfortable using online technology devices in their daily lives, like using smart phones to do online banking transactions, surf social media networking sites, watching YouTube and they also were able to apply their knowledge and skills for educational purposes such as in searching for information in order to do their assignments and projects.

My initial interest in digital technologies was ignited through my own experience as a young child growing up in the 1990s, during which I myself experienced constantly craving for the internet as I found and did a lot of things that helped in my life journey. Based on my childhood experience, a lot of online opportunities that I grabbed focused around communication: I started using instant messaging applications such as Yahoo Messenger and mIRC (Internet Relay Chat) to make new friends from overseas, which helped me to develop my English language skills.

As a Malaysian, I have fallen in love with education and technology in a global context. As a young person, I thought of myself as a world citizen and have been inspired to travel to other countries in search of information about the many

beautiful places outside of my country. As such, I have already seen much of the planet. Making good use of my vacations since college, I have backpacked with friends and sometimes undertook solo backpacking and have travelled to 13 countries. Further, I have 'virtually backpacked' to other vacation places through the internet. As a backpacker, the internet has provided me with a lot of opportunities to go online and plan my next destination such as buying flight tickets and booking hostel rooms.

Other than using the internet for my backpacking hobby, I also depended heavily on the internet during my undergraduate years, as I was active in forums that were related to Information Technology. And I always used to log in to the education forums to seek help regarding my assignments, especially when it came to the technical parts such as how to format LINUX operating systems on your computer or how to build your own desktop computer. Now, as the owner of an iPhone, I must say that I am connected 24 hours a day to the internet as it is part of my multi-tasking student life.

Through reading recent literature, this has provided me with a broader understanding of what is happening in the home, although those studies are mainly originating from outside Malaysia. Therefore, I wanted to look inside Malaysia because I believe my country is unique in its own way, and also because I am motivated to explore in-depth about the current digital practices of Malaysian children and the management of their internet use at home and school, especially with a particular focus on what Malaysian children do when they go online in Malaysian context. This provided an overall picture as to whether the children are becoming involved in harmful things or whether it is similar to the digital practices

experience of children outside of Malaysia. As mentioned in the Introduction section, before this, I viewed current digital practices in Malaysia as being in a dangerous position. However, my positionally in this field has shifted during the course of my PhD journey (this is discussed in Section 1.0, and further elaborated on regarding my shift of view in the section 6.5.1 in Chapter 6.

All of the above has triggered my curiosity and interest in becoming committed to the area of educational technology by working with students, teachers and parents. I also believed that my position as an academician teaching Educational Technology subjects at a University requires me to contribute something towards the improvement of teacher training quality.

3.3 Case-study Approach

This section focuses on the methodological design adopted for the purpose of this study. Wellington (2005, p.97) explains methodology as theory for obtaining knowledge that involve critical activities by "… considering, reflecting upon and justifying the best methods', which is simply the specific techniques for collecting data that will provide the "evidence base for construction of knowledge."

Based on the above explanation, it is clear that methodology can be described as the root of any research that provides the whole picture of the research process. Therefore, for the purposes of this research, I have adopted a descriptive case-study approach for the following reasons:

> *"… a descriptive case-study is one that is focused and detailed, in which propositions and questions about a phenomenon are carefully scrutinized and articulated at the outset*" (Tobin, 2010, p.289).

As explained further in Section 3.4, I went to school (Phase 1) to distribute the questionnaire and from there, five volunteer participants were chosen for the home visits (Phase 2: Home observations and interviews) followed by the school visits (Phase 3: Classroom observations and focus group discussion).“A case comprises just one individual, classroom, school, or program”, and this research was a case study because it focused on a small group of 16 years old participants from the same school (Fraenkel & Wallen, 2008, p. 430). As the case study research involves “the study of a case within a real-life, contemporary context or setting”, I believed this approach was the best strategy to adopt for my research since I explored real life digital practices across home and school settings (Creswell, 2013, p.97).

Through case-study design, in a specific place and time, I managed to look at real-life cases that were in progress in addition to gathering accurate information. It also helped me to identify individual’s unique digital practices at home and to identify small group’s unique digital practices during their online activities at school too.

As I conducted this research involving a small group, the usage of case study design in my study was relevant because it is “more compelling, and they are more likely to lend themselvess to valid generalisation” (Fraenkel & Wallen, 2008, p. 431). However, I was also always aware that I should not simply use ‘replication logic’ by avoiding showing that this is about Malaysian children’s digital pratices in general because this case study research was only about several individuals and their digital practices and therefore does not attempt to represent Malaysian children in general in this single research (Yin, 2009).

3.4 Mixed Methods Designs

As mentioned previously in my discussion concerning the literature review, after carefully considering the issues and problems in methodology in researching children's experiences, as noted by Neill and Livingstone (2011) I followed the recommendation by the 'EU Kids Online' researchers in designing my research. Based on their previous research experiences, Brian O Neill, Bojana Lobe, Leslie Haddon, Kjartan Olafsson and Sonia Livingstone recommend the mixed-methods design by combining qualitative and quantitative approaches as the best methodological approach in researching children and online technologies as it will "… capture fully the richness of their experiences" (Lobe et al. 2007, p. 13; see also Neill & Livingstone, 2011; Olafsson et al., 2013b).

By conducting descriptive case-study research, I was able to understand in detail and to obtain in-depth knowledge through the investigation and exploration of real-life by implementing "… multiple sources of information" including questionnaires, focus groups, interviews, observation and audiovisual material (Creswell, 2013, p.97).

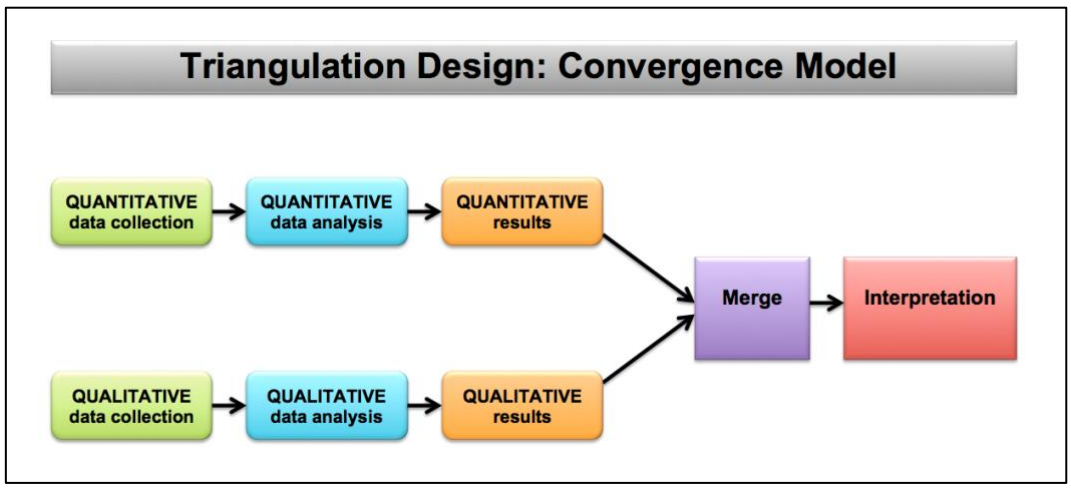

Figure 3.1: Triangulation mixed methods designs: Convergence model (Source: Creswell & Clark, 2011)

As shown in Figure 3.1, there are four types of mixed methods designs which are: Triangulation; Embedded; Explanatory; and Exploratory (Creswell, 2012a). For this research, I opted to use the triangulated mixed methods approach. Figure 3.1 also suggests that triangulation mixed methods design (convergence model) were used to "simultaneously collect both quantitative and qualitative data, merge the data, and use the results to understand a research problem" (Creswell, 2012a, p.557). The purpose of implementing a triangulation design in my research was because I wanted "to bring together the differing strengths and non-overlapping weaknesses of quantitative methods (large sample size, trends, generalisation) with those of qualitative methods (small *N*, details, in depth)" (Patton, 1990, cited in Creswell & Clark, 2011, p.62).

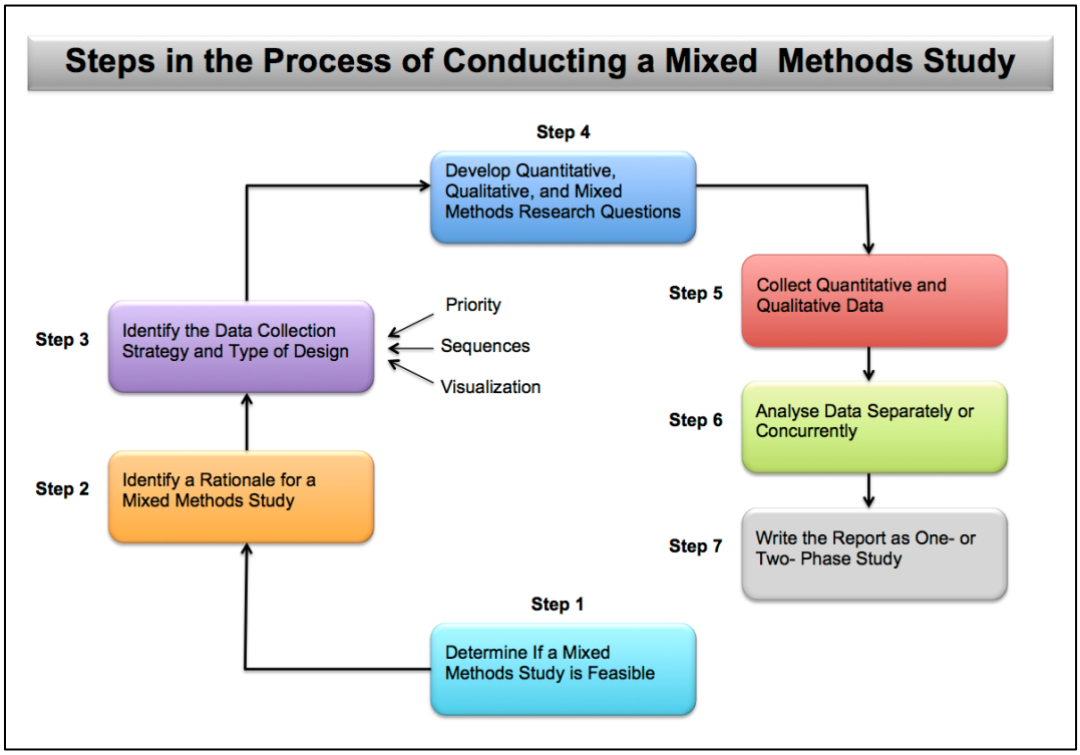

Figure 3.2: Steps in the process of conducting a mixed methods study (Source: Creswell & Clark, 2011)

Figure 3.2 shows the steps that I adopted in conducting this research. Once I identified a rationale in using the mixed methods approach in my study, I started to develop and design my research instruments for data collection. I used a questionnaire to obtain the data to describe the participants' internet usage and access, level and digital literacy skills, parent and teacher mediation and their online experiences. As my research also aimed to investigate Malaysian children's individual online experiences and perceptions towards online opportunities and online risks, the in-depth semi structured interview "as a complementary method' to the questionnaire gave me chance to ask '"why" questions (who/what/when/where/why) rather than yes/no questions, and open-ended rather than closed questions", and explain that "I don't know" is an acceptable reply, which can be seen mentioned in the two surveys by the Ministry of Education Malaysia and Olafsson et al. (2013b, p.12).

Using a focus group helped me to examine children's online digital "practices, perceptions, and beliefs in the context of their peer-related activities", and "how they communicate about their media and Internet interests and experiences" (Olaffson et al., 2013, p.12). This is because the role played by friends was also found to be of importance in children's online world due to the growing influence of peer culture as mentioned in previous literature which stated that children were found supporting each other's online activities (Appel et al., 2014; Sonck et al., 2011).

The ethnographic observation approach was employed to observe what Malaysian children do when they go online and their online activities in the classroom and at home. I spent time in the homes talking to parents and children,

watching their activities, asking them about what they were doing and how they learned things. I took photographs which also formed part of a rich data set.

In this thesis, the term 'method' is used to represent 'research techniques' while the term 'methodology' is used to represent the process of describing, discussing and analysing these research techniques in order to understand and explore the research process in depth (Wellington, 2015).

Also, in the later sections of this chapter, 3.5, 3.6 and 3.7, I explain how I conducted my data collection, the analysis, and the process of interpreting the findings to prepare it for the presentation of my thesis.

3.5 Selection of Participants

<table>
<tr><th>Participants' categories</th><th>Number of participants</th><th>Methods</th><th>Settings</th></tr>
<tr><td>Teachers</td><td>3</td><td>Interview</td><td rowspan="3">Computer Lab</td></tr>
<tr><td>Students, aged 16 years old</td><td>80</td><td>Questionnaire</td></tr>
<tr><td rowspan="2">Volunteer students</td><td rowspan="2">5</td><td>Observation</td></tr>
<tr><td>Focus Group</td><td rowspan="2">Home</td></tr>
<tr><td></td><td>Observation</td></tr>
<tr><td>Parents</td><td>5</td><td>Interview</td><td></td></tr>
</table>

Table 3.1: Participants for this research

This study was carried out in Kuala Lumpur for several reasons. Firstly, it has the most diversity in terms of cultural variation and the highest number of children using technology in Malaysia (Ministry of Education Malaysia, 2013). Secondly, it is my current hometown, where I lived before coming to the UK to study. Also, my sister's home is located in this area and as such provided me with free

accommodation and easy access to the schools and homes for my data collection. The third reason why I targeted Kuala Lumpur is because of the triangular networking between myself, the schools and the university, which was my workplace (I was currently on study leave). Once I decided to conduct my data collection in Kuala Lumpur, I contacted Kak Shelly as she has 16-year old daughter, Hanna. She was my former neighbour in my home town, so I have known her for years. Due to Hanna's suggestions, and the WhatsApp conversations I had with her, I discovered that it was more convenient for me to approach Hanna's school, which was incidentally the nearest school in the area, in order to recruit other participants. Fortunately, there was also an existing collaboration between my university and the school for the teacher trainees' practical program. Therefore, it was easy for me to approach the teachers and schools using my existing network. In addition, the relationship between Kak Shelly and myself, as former neighbours, helped me significantly in recruiting volunteers for the home visits as she placed her trust in me. She was the one that who encouraged other parents to participate in my research through their teacher-parent WhatsApp group.

3.6 The Participating School and Surroundings

The school that I selected for the purpose of this research was a normal-state school in Kuala Lumpur. The school was open from 7.30 am in the morning until 1.30 pm in the afternoon. The school entry requirements were the UPSR (Primary School Certificate) for Form 1 entrance and PMR (Lower Secondary Certificate) for Form 4 Entrance, and the school was open to registration from the surrounding residents. It was a well-known school for its sports programme, with students performing well

in sports tournaments: the school was listed as a top performer for football and netball. The total number of students (Form 1 to Form 5) was nearly 600, coming from a mixed socio-economic background. The school had 6 blocks of classrooms, a library, a canteen, a huge sports field, and consists of other standard facilities like all other national secondary schools in Malaysia. Like other schools in Malaysia, it was also equipped with Wi-Fi internet connection, and a hard-wired internet connection in the school computer labs.

3.7 Research Methods and Data Collection

As mentioned in Section 3.3, this descriptive research adopted a case-study approach because it enabled me to undertake a deeper examination and gain an in-depth understanding and an all-round perspective through real-life intensive descriptions of a particular person or group that is being studied, rather than just in general (Wellington, 2015).

I also adapted the mixture of questionnaires, focus group and interview questions from the EU Online Kids and the Ministry of Education Malaysia. Further, such an approach was useful for my data richness because the EU Online Kids research toolkit is already recognised as it is used in European countries.

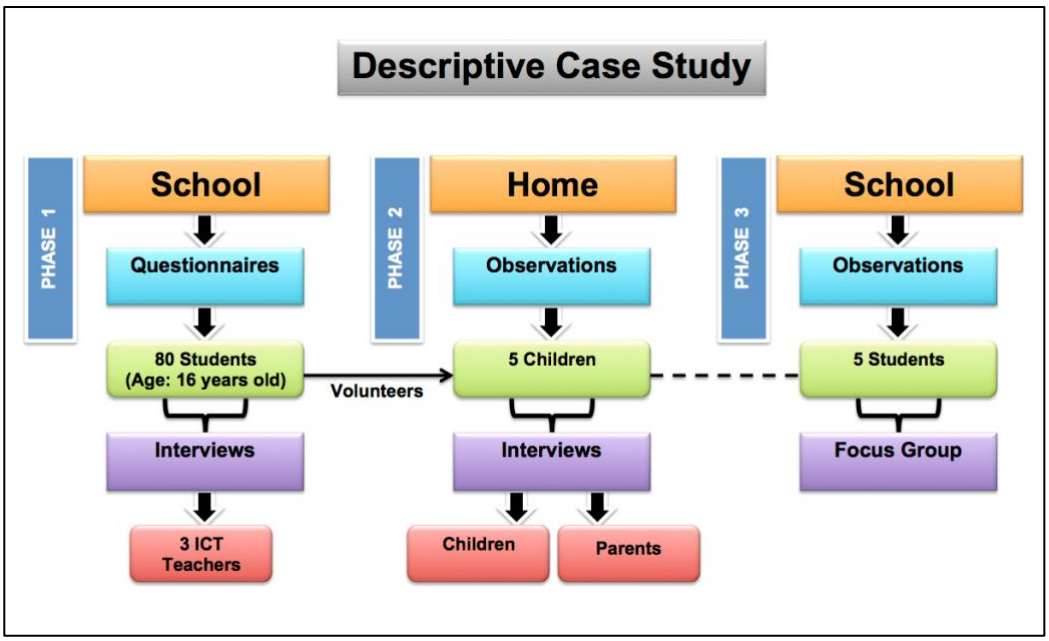

Figure 3.3: Data collection diagram

Before scheduling the questionnaire session with the participants, I conducted a pilot study for the questionnaire and interview questions with one child, one parent and one teacher from a different school. This was crucial for my study to ensure that the questionnaire session operated smoothly and that any persistent problems, if any, were addressed during the pilot study. Bryman (2012, p.263) argues that "piloting also has a role in ensuring that the research instruments as a whole function well". As discussed previously, data collection was carried out through three subsequent phases: Phase 1, followed by Phase 2 and Phase 3 (see Figure 3.3).

In Phase 1, as explained in the previous section (see Section 3.4), I went to the selected school first because I needed to recruit my participants for the home visits. For the first visit, I distributed a set of self-completion questionnaires for the students and then continued by interviewing the teachers individually. For Phase 2, I undertook three house visits for each family. During the first and second visit, I

undertook an observation and interview with parents and children separately. For the last visit, I undertook interviews to discuss any issues because I needed more information based on the previous two visits. Also, any lack of interpretative results in the previous two research instruments (questionnaire and observation) were remedied through these interviews.

Then I continued with Phase 3, which involved visiting the school six times. The same volunteer students were observed individually in the teaching and learning process (computer lab settings). For my last school visit, I conducted a discussion with a focus group after the school session.

3.7.1 Research Questions and Methods

According to Wellington, in order to address each of the research questions (see Table 3.2 below), the researcher should consider the appropriate research method using "a question-methods matrix (horses for courses) strategy" (Wellington, 2000, p.50). As shown below, my research involved four types of research method, namely - questionnaires, interviews, observations, and focus group.

Research Questions	**Research Methods**
1. What do Malaysian children do online at home and in school?	Questionnaire Observations Interviews
2. What do Malaysian children see as the opportunities and risks offered by the Internet?	Questionnaire Interviews Focus group
3. What kind of learning are Malaysian children involved in through their online activities?	Questionnaire Observations Interviews Focus group

Table 3.2: Selection of research methods that had been used in answering the research questions.

For question 1, in order to answer this question, I investigated children's online usage, access to the internet, digital device ownership, duration of use, range of activities, number of online activities using questionnaires, interviews (focus group/individual) and observations. This also included the role of parents at home and the role of teachers at school, which involved me going to both home and school settings to determine if there are any differences in their online activities across these two locations, in what ways they are using online technologies and to what extent parents and teachers are involved in mediation. Further, I examined correlations, intersections and variations between what children reported in their questionnaires and the respective individual interviews, the focus group and my observations.

Secondly, for question 2, as part of the scope of the question, I included some questions about user background (socio-economic), children's online positive and negative experiences and perceptions towards the internet. I used interviews, a focus group and questionnaires as my research instrument to investigate this area.

Lastly, for question 3, in order to examine what kind of learning Malaysian children were involved in through their online activities, I investigated using questionnaires, interviews and observations, and identified which type of online opportunities they are taking up, and in which level they are at according to the 'Ladder of Opportunities' (Livingstone & Helsper, 2007). I was also interested in how children's online activities were embedded into their home life, whether their digital activities helped their daily life routine, and whether it helped their self-development and their learning.

3.7.2 Self-completed Questionnaire

A self-completion questionnaire is an approach whereby "participants answer questions by completing the questionnaire themselves" (Bryman, 2012, p.232). Utilising this type of questionnaire was very important in this research as it helped me focus on key aspects during the observations and to re-construct the semi-structured questions for more flexibility in the interviews both in the school and at home. I went to the school first to distribute this questionnaire (Phase 1 as shown in Figure 3.3 – Section 3.6.1) before carrying out interviews at home and at school.

The key themes that emerged from the questionnaire were participants' internet access and use; online activities; parent and teacher mediation; and digital practice details. The questionnaire also explored participants' socio-demographic status, duration of online use and their range of online activities. It also gathered information on participants' knowledge, attitudes, beliefs, normative standards and values in order to get an overview of participants' digital practices, online experiences and their management at home and school (Bryman, 2012). These questions also related to their daily digital practices, including: how many devices they used; how often they used the internet; and how many hours they went online. Thus, data from the questionnaires provided a broad picture of the participants in order for me to prepare for subsequent data collection in Phase 2 (home visits) and Phase 3 (school visits). As mentioned in the previous section, gaps in information were often compensated by home observations and interviews as well as classroom observations and focus group discussion. It was here that I could see how a mixed method approach was very useful.

The research questionnaires used in this study were adapted from the questionnaires used by the EU Kids Online Research Toolkit and CyberSAFE in Schools. They were adapted in order to remove any irrelevant and therefore confusing parts with regard to the specific aims of this research (EU Kids Online, 2014; Ministry of Education Malaysia, 2013, 2014). Based on the EU Online Kids' recommendation, Olafsson et al. (2013b) argue that there are some types of question that need to be avoided and/or reconsidered as children were facing difficulties in calculating the number of hours that they spent online. As all previous research in Malaysia in this area used self-completed questionnaires to investigate children's online experiences, children might be confused when answering subjective and broad questions such as 'How many hours do you spend online?'. This is because some of them have 24-hour internet access through their smartphones, and thus many of the participants might have felt that they were online all the time (Olafsson et al., 2013b).

Furthermore, the questionnaires had been designed in the Malay language because it was easier for the children to understand and communicate. It also helped me to obtain more information from the participants in our mother tongue. This questionnaire was translated into an English language version and can be accessed in Appendix E.

3.7.3 Observations

After administering the questionnaires, I observed the Information and Communication Technology subject class five times as a participant-observer. There were two main reasons for picking the ICT class for the purpose of this

research. First, it is a subject requiring students to use technology the most. Therefore, I was able to observe how they used it. Second, this research was also looking at the IT teachers' mediation. So, by observing their classes it helped me to see and understand what the current situation is in the computer labs.

This method was important for me as observation is "one of the key tools for collecting data in qualitative research" (Creswell, 2013, p.166). My focus during the observations were on the physical setting of the digital devices in the classrooms and at home; the participants in doing activities; various types of online activities; interactions while using the internet and conversations between peers, students-teacher and children-parents (Creswell, 2013).

For the ethnographical observations, I made field notes as well as capturing pictures of the children's online activities at home. These observations involved observing parent mediation while children were online. These observations also were mainly focused on the children's online experiences and their management at school and home. The observations were conducted using an adaptation toolkit based on the EU Kids Online Research Toolkit (EU Kids Online, 2014), CyberSAFE in Schools - Guidelines for Parents, and the books 'Digital Citizenship in Schools' (Ribble, 2011) and 'Raising a Digital Child: A Digital Citizenship Handbook for Parents' (Ribble, 2009b). Adaptation of the observation tools focused on four aspects which are: (1) Access and use; (2) Online activities and digital literacy skills; (3) Online opportunities and online risks; and (4) Parent and teacher mediation and children's online management at home and school. Some of the field notes checklist included observations based on the following questions:

1. What they are doing on their computer?
2. What websites are they going on?
3. What interests have they got?
4. What online activities do they like and enjoy?
5. What kind of online activities do they do with their classmates and teachers at school?
6. What kind of online activities do they do with their parents at home?
7. Is there any difference in their online behaviours across home and school settings?

3.7.4 In-depth Individual Interviews

While the questionnaire had been given to students, the semi-structured interview involved each student/parent who participated in the home visit, and each teacher. Interviews were chosen because it is the best strategy to understand and explore individual attitudes, thoughts and values in different perspectives that could not be reached through questionnaires and observation (Cohen, Manion, Morrison & Bell, 2013). Therefore, I decided to conduct interviews as they provided significant and valuable data through the wider areas of discussion that they can cover.

Through semi-structured interviews, I included questions on online opportunities experience; online risk experience; children's online management at home and school; digital confidence; on parent and teacher mediation, and perceptions about current digital practices. To be specific, the use of individual interviews with students and parents were mainly focused on specific topics that were based on their home settings such as participants' digital practices; what

Malaysian children do online at home; what they perceived as positive and beneficial when using the internet at home; what they perceived as being potentially negative or problematic when using the internet alone or with family; how they managed their online activities at home and about parental mediation of their online activities (Wellington, 2015). The same questions were also asked to teachers but based on the school settings and included some additional questions on the current ICT curriculum and their perceptions regarding their students' digital practices in the classroom. As with the questionnaires, the interview sessions were also conducted in the Malay language.

3.7.5 Focus group

Bryman (2012, p.502) argues that the focus group can be defined as:

> "*a form of group interview* [which] *contains elements of two methods: the group interview, in which several people discuss a number of topics; and what has been called a focused interview, in which interviewees are selected because they are known to have been involved in a particular situation*."

The focus group involved a group discussion as it benefitted me as the researcher because the participants were "more likely to relax, warm up and jog each other's memories and thoughts" (Wellington, 2015, p.148), which contributed other inputs and added more information compared to the individual interviews and questionnaires. The focus group was based on a group discussion in structured conversation and was mainly focused on participants' digital practices outside their home; what they did online in school and outside their home; what they perceived as positive and beneficial when using the internet outside the home and what they perceived as being potentially negative or problematic when using the internet

outside of home or at school. As with the questionnaires, the focus group discussion also was conducted in Malay.

3.8 Analysis of Data

Data analysis is the process of "breaking down the topic or object into its component parts and understanding how those parts fit together" (Hammond & Wellington, 2013, p.9). It is a responsibility of each researcher to make sure that they are able to conduct a systematic process of analysis because it "involves a progression of refining, categorising, and exploring the meaning the data impose to the contexts and vice versa" (Hanif, 2016, p.116). Data analysis is also a crucial part because "the task is to do one's best to make sense of things" (Patton, 2002, p.570).

3.8.1 Analysis of Quantitative Data

In order to generate descriptive statistics from the quantitative data, I decided to use IBM SPSS software Edition 23, which I downloaded from the Corporate Information and Computing Services and activated it under University of Sheffield's license. I started the process of the analysing by first organising all the data. My initial plan was to analyse 80 questionnaires; however, due to incomplete answers by participants, 5 questionnaire transcripts were eliminated. In order to generate descriptive statistics, the questionnaires were analysed using the descriptive approach that focused on the central tendency for describing and summarising the group of data and by presenting a combination of tabulated descriptions. As I am familiar with SPSS software, which I used before for my undergraduate and masters theses, the process ran smoothly. However, because I

last used this software five years ago, I asked for help from an expert to recheck my analytical results to ensure the results were right.

3.8.2 Analysis of Qualitative Data

At first, I planned to use N-Vivo for the coding process and analysis process as it organises my data more easily and because of the user-friendly interface. This software has also been designed in order to manage all the unstructured data, focusing on qualitative data analysis and at the same time it is also suitable for quantitative data. This should have helped me in working with large amounts of data (field notes, audio recordings, interview transcriptions, focus group discussions) and to make sense of my information for organising data into themes with coding (Bazeley & Jackson, 2013; Hamid, Omar & Sariffudin, 2005; Richards, 1999). However, after I started using it for two weeks, the demands in learning to use N-Vivo took too much of my time and I found it was quite complicated, so I decided to organise and prepare the data analysis manually as I was unable to take the risk of losing so much time (Creswell, 2012a). By doing the qualitative analysis manually, I felt more flexible as it allowed me to invest more time into thinking in analysing the data. At the same time, I was also able to view it from different perspectives. I believe that my decision not to continue using N-Vivo did not affect the quality of my data analysis as:

> "*Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance, yes. But no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer, known only when-and if-arrived at*" (Patton, 2002, p.432).

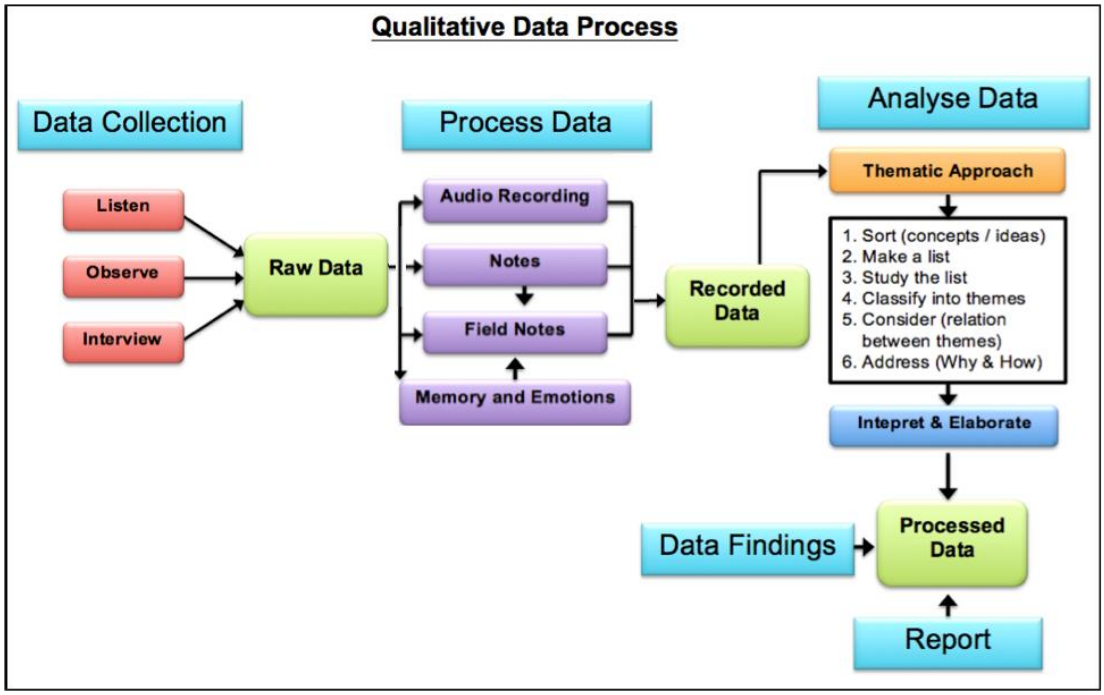

Figure 3.4: Adaptation of qualitative data processing and analysis diagram (Source: Ramadan, 2014)

Figure 3.4 graphically portrays the overall process of the qualitative data analysis for my research. The conceptualisation of the qualitative data analysis process should:

> *"consist of preparing and organising the data (i.e. text data as in transcripts, or image data as in photographs) for analysis, then reducing the data into themes through a process of coding and condensing the codes, and finally representing the data in figures, tables or a discussion"* (Creswell, 2013, p.180).

For my data analysis of the qualitative data, I implemented an analytical strategy suggested by Creswell (2013) to obtain the most important findings relevant to my research and guided by the research questions. Further, I adopted the thematic approach (see Figure 3.4). The thematic approach refers to a qualitative analytic method for "identifying, analysing and reporting patterns (themes) within

data. It minimally organises and describes your data set in (rich) detail" (Braun & Clarke, 2006, p.79). According to Clarke and Braun (2013), this approach helps to identify and analyse patterns of data by providing the researchers with a deeper understanding of their research.

Referring to Figure 3.4 after processing the raw data from the audio recordings, field notes, observations, interviews and focus group, I sketched out a mind map of ideas after reviewing and scanning all the recorded data and at the same time, I wrote down notes from each data set. Subsequently, I studied the notes several times in order to dig out any hidden meanings and looked for extra information and set out conclusions from each data set. By working with words and sentences, I identified the meaningful contents and codes and was able to classify each code into themes. Once the themes had been established, I studied and reviewed it again and again in a loop process to find any significant relationship between the themes. From there, I related the themes and contextualised it with the literature from previous research. In order to answer the research questions, I addressed the core points which were 'Why?' and 'How?'.

In terms of the translation process, the raw data was processed through transcribing, interpreting and analysing in the Malay language. This helped to retain the originality of the data as some meaningful data might get lost in translation due to linguistic and cultural differences (Bryman, 2012). Finally, the data findings from all phases were translated into English to create a report in my findings and discussion chapter.

Aside from translation from Malay to English, I also found that there were difficulties regarding understanding my participants' words and stories during the

interviews due to a communcation barrier as we were from two different generations (i.e. an age gap between myself and my participants (16 years age gap).

In order to overcome this problem where the children in my research used a range of different linguistic repertoires, and they sometimes used language I was unsure about the meaning of, I often asked them to explain particular words, terms and short forms. Further, I showed my interpretation findings to them and asked their help once again to clarify whether my understanding of their 'youthful' expressions retained the correct meanings and nuances. One example is the usage of short form (abbreviation) in their WhatsApp conversation such as 'BBNU'. 'BBNU' is a short form of the Malay 'budak baru nak up'. However, my understanding of 'budak baru nak up' was totally different from what they meant (in a younger generation context). 'BBNU' in their context had the same meaning as 'novice' or 'beginner' in English. In contrast, if I wanted to say 'novice' or 'beginner' in Malay, I would use the following 'budak mentah'.

3.8.3 Interpreting and Presenting Mixed-Mode Research Findings

This research utilised the mixed methods approach. As such, once I finished analysing my quantitative and qualitative data, I combined the findings again. Then, through the triangulation process, I reviewed and tried to relate both findings from the qualitative and quantitative analysis in order to construct the discussion. I tried to understand the concepts in helping myself in making interpretation of the findings.

In addition, I decided to present my findings in two seminars and one conference in the UK in order to get input, comments and feedback. I also presented

my findings in a Malaysian seminar because I needed input, comment and feedback from Malaysian experts and academics who could understand and provide me with input from a cultural perspective and social context as I did my research in Malaysia. I also met a professor from a well known and prestigious university in Malaysia for a double cross check and to discuss my data findings. Aside from that, my supervisor also gave me great support and became the backbone of my research in 'auditing' my findings.

Merriam (1988. p.192) argues that "there is no standard format for reporting case study research", therefore for the presentation of the data findings, I chose to use a narrative style as the writing structure. Narrative reporting refers as "a written passage in a qualitative study in which authors summarize, in details, the findings from their data analysis" (Creswell, 2012b, p.262). After interpretation of the research findings, 'the process of the construction of the final narrative' (see Chapter 4) was integrated based on key themes and individual case study of 5 participants (Cohen et al., 2013, p.553). As there is no standard setting for narrative reporting, it gave me freedom and flexibility as I could design how I wanted to present my findings and discussion. Stirling (2014, p.87) argues that through narrative presentation, it provides space for the researcher to decide on "which sections of data I chose to keep and which bits to lose", as, according to Chase (2005, p.656) the "narrative communicates the narrator's point of view, including why the narrative is worth telling in the first place". However, as a guideline, I followed the narrative writing structure for a case study as suggested by McCree and Daykin (2017, p.2) that focused on the following five pillars which are:

a. Introduction - how is the case related to your question
b. Background to the place and context
c. Who is in the context?
d. What happened?
e. How does that answer your question?

3.9 Ethical issues

I carefully considered the ethical issues regarding this study. The British Educational Research Association (BERA) Ethical Guidelines for Educational Research (2011, p.5) highlights the importance of ethical consideration as "Individuals should be treated fairly, sensitively, with dignity, and within an ethic of respect and freedom from prejudice". Therefore, I ensured that this research was conducted ethically to protect the participants of this study from any harm and to know what to do in the worst-case scenario.

3.9.1 Home Visit Ethics

First of all, I was aware that by going into people's homes, they were exposing themselves to the outside world through my research. By letting me enter their homes and accessing their private space, the participants were taking a huge risk. I was aware that it was a brave and generous decision for them and it was a difficult thing to be involved in this type of research. I needed to keep alert to the fact that I should always be protecting my participants in any situation. I ensured that they felt safe while conducting this research, and at the same time, I needed to stay alert to cultural and religious aspects. I was also aware that there might be some issues that

may happen during my home observations and individual interviews. In any activities that I was involved, I asked permission from parents and children from time to time to make sure that they were comfortable with my fieldwork, including asking their permission to record audio and visual data.

3.9.2 Harm, Risk and Sexual Content

As I was conducting research involving children's online experiences and their digital practices, I was aware that I needed to keep their answers confidential. However, I also made sure that I was careful and prepared in case I identified any participants that have gone through any bad experiences resulting from their online activities such as receiving any threatening messages, sexual abuse from online contacts that they meet offline or facing online bullying. Even though I needed to follow research ethical guidelines, in which it was compulsory to keep all data confidential and anonymous, it was my responsibility to protect and avoid any situation in which my participants could experience any dangers or stop them from continuing to happen.

This study was also subject to Malaysia's National Child Protection Policy as I was working with 16-year old Malaysian children in this research. In Malaysia, any person under the age of 18 years is defined as a child. If I did identify any incidents of bad experience such as if the children disclosed something harmful, for example, they met someone offline or received sexual online messages with someone, or were involved in online gambling. I would have first consulted with the parents about the issue. At the same time, I would have consulted with an expert researcher in Malaysia, who was my supervisor for my Masters dissertation,

Professor Dr Raja Maznah, who understood and knew the Malaysian research culture very well. Furthermore, kept updating my supervisor with regard to these matters. I also clearly explained to the children that they could tell me anything and that all the answers they give during interviews would be treated as confidential. However, the most important element here was their own safety, and so, if I had encountered something suspicious through their disclosure, the children needed to be aware and understand the actions that I would have taken in order to protect them. Thankfully, my data collection process was successfully conducted and ran smoothly without any such incidents.

3.9.3 School Visit Ethics

This study had been subjected to the University of Sheffield's ethical review regulations. In addition, I applied for authorisation to undertake research in the school and university in Malaysia from the Malaysian Ministry of Education and the Malaysian Economic Planning Unit. Following these steps, I applied for official permission from the school principal to carry out the data collection.

3.9.4 Informed Consent

Once I identified the participants who will be involved in this study, I provided them with the information sheet and explained it to them directly, face-to-face. I obtained informed consent from my participants (children, teachers and parents), protected their privacy and ensured they were fully aware that they were free to withdraw from the study at any time.

I went through several steps in gaining consent from the school. I firstly met the ICT teacher who was at that time waiting for me at the school's principle office. There, in front of both of them, I thoroughly explained about my research and showed the school principal the approval letter that I received from the Malaysian Ministry of Education to conduct research in the school. During the short conversation, I asked for his consent to conduct five observations during the ICT teaching and learning session.

Our discussions ended up with the school principal giving me permission to conduct my research in the school, with no photographs allowed to be taken in schooltime. However, he allowed me to take photos of the ICT computer lab out-during the lesson times. The teacher, Cikgu Dino (Cikgu means Teacher) showed me the school surroundings and we completed my introduction to the school by eating a complimentary breakfast provided by the school canteen.

During my first session, all of the ICT periods were on the same day, giving me a chance to enter each classroom, provide a briefing on my research to each ICT teacher and their students, obtain consent from each of the participants, and distribute the research questionnaires. I also announced the need to recruit five volunteers for home visits. At the same time, Cikgu Dino told me that he has previously explained my intention to recruit five volunteer parents and students for the home visit in teacher-parents Form 4 WhatsApp group. All of the computer lab observations were conducted immediately upon finishing the home visits. As a result of discussions with teachers, I chose to attend the sessions that only involved hands on skills from online activities which were more suitable for my research purpose. Once again, before I started my observation for each lesson, I obtained

consent from participating students, and reminded the whole class that I only observed those particular volunteer students and did not focus on any other students.

3.9.5 Confidentiality and Anonymity

Before each procedure (questionnaires, observations and interviews), I carefully and clearly explained to the participants the purpose of this study, and informed them that all the data collected through the research would be protected using cloud storage: this could only be accessed using a password, and I would be the only person who knew this password. Further, all collected data, information, questionnaires, observation field notes, audio recordings and interview transcriptions would subsequently be destroyed by permanently deleting the soft copy files and putting the hard copy through a paper shredder at the end of the research. For the home visits, it may have been a difficult situation as people might have been sensitive about being watched by strangers. Therefore, I contacted them prior to conducting the research in order to build relationships based on trust. In Malaysia, we were in the situation where parents had the right to know everything about what teachers were doing in the classroom, but what parents were doing at home was still considered a private matter. That is why I decided to invite the participants to join on a voluntary basis, and stressed that their confidential data would be kept and would remain anonymous. However, I explained carefully to my participants that even though all data would be kept confidential, this would not apply if I encountered any risky situations during the data collection which might involve harm, risk and sexual content as I mentioned earlier in Section 3.8.2. Other ethical issues that I had envisaged were about my own safety when making home

visits. I also had ensured that the participants felt safe enough that they welcomed someone into their homes that they had never met before.

In addition, I also used the 'nicknames' for my participants that involved in data collection at home and school and blurred their faces in the photos in order to protect them as I was concerned about their safety and privacy as I also inserted their home's photos.

Lastly, aside from using pseudonyms, I also plan not to use many of the images in this thesis for online sharing, presentation and /or publication after the viva. Instead I have filtered and blurred the images of my participants and of their homes, in order to mask the identities of my participants.

3.9.6 Power Relations

Based on my direct experience in the field of teacher training, I understood that there might be some doubts amongst participating teachers regarding my classroom observations. However, I made it clear that I was not there to inspect or judge them, either on behalf of myself or of the government or anyone else or any other institution, but that I was there to gain an understanding and that I was in the position of someone who had been teaching teacher trainees before. Furthermore, I made it clear that I was undertaking the data collection for my own research and not reporting it to the Ministry of Education as their details were kept anonymously.

3.9.7 Freedom to Speak

There are issues in previous research that have addressed the way adult researchers "try to reinforce their own opinions and lead a child to a specific direction" (Olaffson et al. 2013, p.19). In order to focus on the children's own experiences, I carried out a focus group discussion in school and one-to-one interviews at home. By being with their friends, the focus group enabled the children to feel more comfortable in answering questions, whereas the one-to-one interviews gave them their own 'space' so that they could give or share any information that they would not feel comfortable doing so in a group setting. For the same reason, an interview alone with participants without their parents also gave them privacy in answering my interview questions.

CHAPTER 4
ANALYSIS AND FINDINGS

4.1 Introduction

As I explained in my Methodology chapter, I went to the school first to distribute the questionnaires (Phase 1), followed by home visits (Phase 2) and ending my data collection process with classroom observations and a focus group discussion (Phase 3). Therefore, in this chapter, I present the analysis and findings for the qualitative and quantitative data, commencing with the questionnaire and subsequently with the findings from the home and school visits.

To be specific, I start with statistics from the quatitative data, and continue by presenting my home visit findings in stories. There are five stories for home visits; one story for each family (Section 4.3). I decided to do it in this way because of the way in which the themes blended and interacted, and also because of the way the families moved from one technology to another. I also wanted to show how technology was embedded in each family's practices. The stories are partly *shaped by the questions that I asked them in the interviews* and partly *shaped by what the family chose to show me*; and because they selected what they thought was the most important and salient activities in their life.

In Section 4.4, I present five stories for the school visits; one story for each student; each lesson. It was slightly different compared to the home visits' stories as the digital practices that took place in the computer lab are mostly *shaped by the online activities based on the tasks in each lesson pla*n. However, certain practices

are *shaped by the participants themselves while they went online while doing and finishing their school projects and tasks*.

Later in Chapter 5, I discuss both parts (quantitative and qualitative data) in relation to each other. By addressing the research questions, I discuss in-depth by the themes that emerged from *the statistical data* and *these stories* and subsequently related them to Hague and Payton's *Digital Literacy Framework* (Hague and Payton, 2010).

4.2 Quantitative Data from Questionnaire

Due to the overwhelming amount of data findings and limited word-count and time, I only included the descriptive statistics for the findings that I found very important, which mostly related to the main discussion in Chapter 5. However, in this section, I do not present the quantitative data findings into key themes as I found it was easier for me to discuss it in-depth, together with data findings from the qualitative data derived from home and school observations in Chapter 5 as I mentioned previously (Section 4.1).

As also mentioned earlier in Section 3.6 (Methodology Chapter), I distributed 80 self-completed questionnaires. Due to incomplete responses (total of 5 questionnaires), I only analysed 75 questionnaires. Even though 5 of my participants did not complete the questionnaires, for me it was a good indication in terms of getting reliable and honest feedback from my participants. It also indicated that my participants understood the informed consent and that the explaination that I provided regarding the questionnaire was clear enough. This was because participation was on voluntary basis so I believed that I had managed to ensure that

they were fully aware that they were free to withdraw from the study at any time. Therefore, I felt happy that five students had chosen not to complete the questionnaire.

Gender of Participants	
Gender	**Percent (%)**
Male	45
Female	55
Father - Age	
Age	**Percent (%)**
Below 40	15
40-49	57
50-59	24
60 and above	4
Mother - Age	
Age	**Percent (%)**
Below 40	13
40-49	74
50-59	9
60 and above	4
Family Income	
Level	**Percent (%)**
Low Income	33
Middle Income	34
High Income	33

Table 4.1: Demographics of Participants

Figure 4.1 shows the percentage of participants in relation to their gender: boys (45%) and girls (55%). For the father's age of participants, 15% reported that their father's age was below 40 years old, 57% (41 to 49 years old), 24 % (50 to 59

years old) and 4% (60 years old and above). Meanwhile, a majority of the participants reported that their mothers were between 40 to 49 years old (74%), with the remainder as 50 to 59 years old (9%), below 40 years old (13%) and 60 years old and above (4%). Regarding the the socio-economic background, 33% of participants were from Low Income Families, 34% from Middle Income Families, while the rest (33%) were from High Income Families. Overall, it can be seen from the above data that the distribution of gender and socio-economic background was quite balanced.

First Time Went Online (When/Age)	
Age	**(%)**
4	1
6	3
7	5
8	3
9	12
10	29
11	25
12	16
13	3
15	3
First Online Activity (With Whom)	
With Whom	**(%)**
Parents	9
Siblings	41
Friends	20
Relative	7
Teacher	4
Alone	11
Others	8
First Online Activity (Where-Location)	

Location	**(%)**
Home	72
Cyber Café	15
Relative's Home	5
School (Computer Lab)	8
First Online Activity (What)	
Online Activities (Website / Apps)	**(%)**
Search Engine Website	19
Social Networking Website	23
Online Games	45
YouTube	13

Table 4.2: First online experience

As shown in Table 4.2, the participants also reported that they went online for the first time as early as 4 years old (1%), 6 years old (3%), 7 years old (5%), 8 years old (3%), 9 years old (12%), 10 years old (29%), 11 years old (25%), 12 years old (16%), 13 years old (3%) and 15 years old (3%).

A majority of the participants went online for the first time at the age of 10 to 11 years old (59%), and 1% at age 4 and 3% at age 15. Further, a majority of the participants were accompanied by their siblings (40%) when they went online for the first time, followed by friends (20%). Other than that, 8% reported that they went online for the first time with other people, 4% with teachers and the rest of the participants (11%) went online alone for the first time.

Regarding the first location were they went online, the majority went online for the first time in their home (72%), followed by a cyber café (15%), school (computer lab) 8%, and a relative's home (5%). In addition, the participants of my study stated what online activity they were involved in when they went online for

the first time: online games (45%), social networking websites (23%), searching online using a search engine website (19%) and YouTube (13%).

Overall, it can be seen that the participating children in my study started to use online technologies at the young age as early as 4 years old. Majority of them (90%), went online for the first time when they were still in primary school and only 6% of them started to go online later in secondary school. Half of them also were accompanied by their family members when they went online for the first time and 20% reported their friends were with them when they go online for the first time. Majority of them also went online for the first time at home (72%) and also majority of them played online games as their first online activity (45%).

First Device Ownership Age	
Age	**(%)**
1	1
3	1
8	3
9	5
10	7
11	7
12	29
13	21
14	11
15	12
16	3
First Device Ownership	
Device	**(%)**
Mobile Phone	12
Smartphone	70
Tablet / iPad	4
Computer desktop	7
Laptop	7

Table 4.3: First digital device ownership

As for age of first device ownership, the participants reported that they owned a digital device as early as 1 year old and half of them owned a digital device between 12 to 13 years old. The majority of them (70%) reported that the first digital device they owned was a smartphone, followed by mobile phone (12%), tablet/iPad (4%), computer desktop (7%) and laptop (7%).

Internet Usage – School Day	
Hours	**(%)**
Little or nothing	20
About half an hour	23
About 2 hours	9
About 3 hours	4
About 4 hours	8
About 5 hours	8
About 6 hours	4
About 7 hours or more	7
I go online 24/7	7
Don't know	10
Internet Usage – Weekend or Holidays	
Hours	**(%)**
Little or nothing	3
About half an hour	5
About 2 hours	8
About 3 hours	5
About 4 hours	9
About 5 hours	7
About 6 hours	5
About 7 hours or more	16
I go online 24/7	25
Don't know	16
How Do You Go Online (Multiple Options)	
Internet Connection	**(%)**
Home Internet Connection	81
Free WiFi (Public Place)	52

Mobile Internet Connection (Prepaid/Postpaid)	77
No	4

Table 4.4: Internet use and access

As shown in Table 4.4, the participants in this study reported that during school days, 20% went online for little or nothing, 23% went online about half an hour, 11% went online for about 2 to 3 hours, 20% went online for about 4 to 6 hours, 7% went online for about 7 hours or more, 7% went online continuously and 10% did not know how much time that they had spent online on school days. Other than that, 25% said that they went online continuously, 16% went online for about 7 hours or more, 21% went online for about 4 to 6 hours, 18% went online for approximately half an hour to 3 hours, and 3% of participants did not go online at all during weekends or holidays.

Location (Usage Frequency)				
Location	**Several time each day (%)**	**Daily or almost daily (%)**	**At least every week (%)**	**Never (%)**
Bedroom/ private room	57	20	15	8
Home (communal areas)	47	25	15	13
School (computer lab)	13	5	82	0
School (classroom)	5	7	8	80
School area	4	9	11	76
Public place	13	20	20	47
Cyber cafe	17	23	15	45
Relative's home	7	29	19	45
Friend's home	8	24	32	36
Other places	15	32	29	24

Table 4.5: Location for going online

Overall, 81% of participants reported that they had internet connection at home (multiple options - participants were able to select more than one option), with 77% of participants having an intrnet connection through their own smartphones which included a complete internet mobile data package. 77% of my participants accessed the internet through their smartphone every day using internet mobile data.

The participants in this study also reported that they went online at several places: bedroom (57%), communal areas in their house (47%), school computer lab (13%), 17% in a cyber café (17%), 8% in a friend's home (8%), relative's home (7%), classroom (5%) and in the school area (4%).

Digital Device Ownership (personally own)	
Device	**Percent (%)**
Mobile Phone	28
Smartphone	79
Tablet / iPad	17
Computer desktop	20
Laptop	48
Games console	16
Smart TV	11
None	3

Table 4.6: Digital device ownership

A majority of the participants (79%) reported that they owned a smartphone, followed by 48% (laptop), 20% (desktop computer), 28% (mobile phone), 17% (iPad or Tablet), 16% (games console), 11% (Smart Television) and only 3% of participants not owning any digital device.

Type of Device Usage				
Location	**Several time each day (%)**	**Daily or almost daily (%)**	**At least every week (%)**	**Never (%)**
Mobile Phone	13	21	15	51
Smartphone	51	32	8	9
Tablet / iPad	15	16	29	40
Computer desktop	9	21	44	25
Laptop	11	27	52	11
Games console	11	16	25	48
Smart TV	11	24	13	52
Others	4	20	4	72

Table 4.7: Type of device usage

A majority of the participants reported that they used several devices when they went online. 51% used smartphones to go online several times everyday, followed by tablet and iPad (15%), laptop (11%), games console (11%) and smart television (11%).

Most Online Activities' Preferences (descending order)	
Online Activities	**Ranking**
Contact/communication-based online activities	1
Content-based online activities	2
Conduct/Peer participants activities	3
Main purposes in using the Internet *online opportunities*	
Main purposes	**Ranking**
Communication	1
Information	2
Entertainment	3
Participant	4
Creativity	5
Expression	6

Main purposes in using the Internet (Boys)	
Main purposes	**(%)**
Communication	38
Entertainment	29
Information	15
Participant	10
Creativity	5
Expression	3
Main purposes in using the Internet (Girls)	
Main purposes	**(%)**
Communication	35
Information	29
Entertainment	16
Participant	10
Expression	6
Creativity	4

Table 4.8: Most online activities / Main purpose in using the Internet

Other than the data presented above, participants in my research most preferred to go online for (in descending order): (1) Contact/communication-based online activities, (2) Content-based online activities; and (3) Conduct/Peer participants activities. Their main purposes for going online were (in descending order): (1) Communication; (2) Information; (3) Entertainment; (4) Participant; (5) Creativity; and (6) Expression. In details that were based on the participants' gender, it can be seen that most boys (40%) and girls (35%) went online for Communication and participants went online the least amount of time for Creativity and Expression purposes; with boys (5%: creativity and 3%: expression) and girls (6%: Expression and 4%: Creativity). It can also be seen that there were differences in position ranking for Entertainment and Information in term of preferences for boys' and girls' here.

In conclusion, in this section, I have presented but not discussed the quantitative data extracted from the analysed questionnaire answers. Later, in Chapter 5 (Discussion), I refer to this data while addressing the research questions.

4.3 Qualitative Data: Home Visits

This section presents the findings from the interviews, questionnaire discussions and observations that I conducted at home. As noted in the Methodology Chapter, I visited each participants' house a total of three times. In this section, I describe my observations and interviews by introducing each family and their neighbourhood first, followed by the process of getting to know the family, the Digital Tour, and then I focus on the children's digital practices, including her/his family practices too. Again, as mentioned before, I purposefully organised my findings as a series of narratives to provide a sense of how each family had its own character, its own way of managing technology in ways that reflect their family values and the way they lived their lives.

4.3.1 Family Profiles: Family 1 (Hanna)

4.3.1.1 Introduction to the Family and Neighbourhood

Figure 4.1: Hanna's house (low cost terrace residential area)

Family 1 consisted of a two-parent family. Being in the army, the father was rarely at home and sometimes would be away at military camp for as long as 2-3 weeks at a time. After such a stint, he would be given leave lasting 1 week to be with his family. The mother was a housewife; she had a huge responsibility, as she was required to manage all her children and her family affairs while her husband was away to serve the country. Before I even entered her house for the first time, I imagined that her life must be extremely hectic, managing 5 children under her sole care.

The father had a Lower Secondary Certificate of Education, whilst the mother had a Higher Certificate of Education. The father had worked in the army since he was 16 years old, and the mother had never been employed outside of her home as she got married immediately upon finishing high school. The other family members included a 22-year-old eldest son, a 20-year-old elder daughter, the 16-year-old participant, Hanna, and two younger brothers, aged 13 and 5 years old, respectively. This family resided in a low-cost terrace house in a residential area surrounded by a multicultural community, where Indians, Chinese and Malays live together.

I was familiar with this family as they used to be my neighbours in my hometown, Sungai Petani in the northern part of Malaysia, before they moved to this new place. A good friend of my mom, the mother was one of the people that helped me to identify and list the schools that I should select when initially planning to conduct this research. Her social skills coupled with her extensive social network in the surrounding neighbourhoods helped me gain considerable access to my participants.

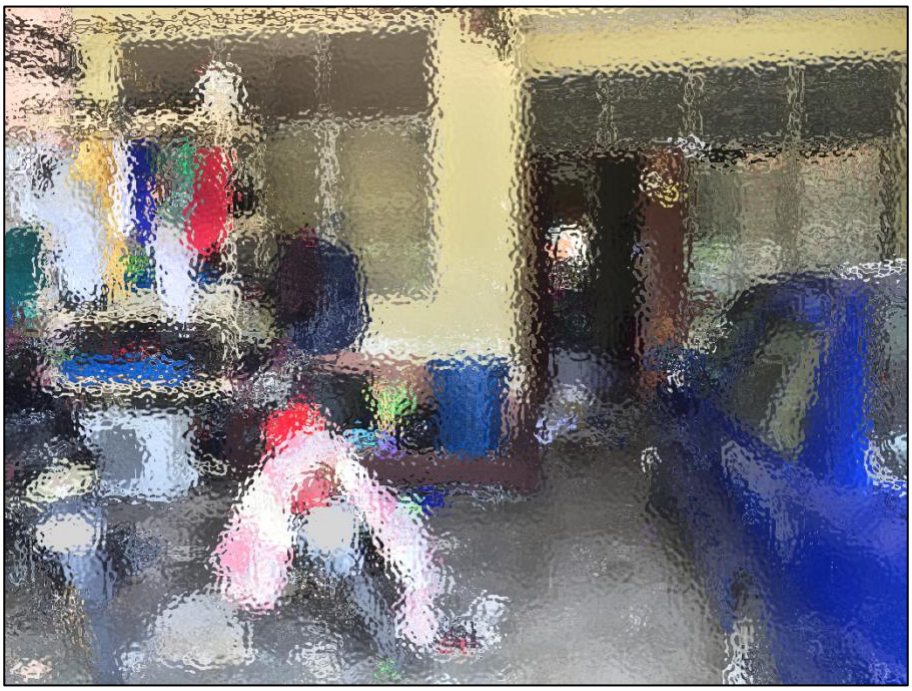

Figure 4.2: The entrance of house

Although we were neighbours for three years, I had never entered her house before, for at that time I had already moved out of my mother's house and started to work in Kuala Lumpur, the capital city of Malaysia. Not residing permanently at my mother's place gave me very limited opportunity for such a visit. During my first phone conversation with her, whom I shall now refer to as 'Kak' (Sister) Shelly, she showed interest in becoming one of my participants. As mentioned in the Methodology chapter (see Section 3.4), she even offered further assistance by circulating information about my research to her network of friends as well as to the mothers of Hanna's friends. She also helped by asking them if they were interested in participating in this research. She was happy to join, as she held a positive view about how technology had become embedded in her family's daily life and she was curious as to how significant technology is to them.

Although I had known this family for many years before they became involved in the project, the research took our relationship to a new dimension and I was able to see the family in a new way, from a researcher's perspective. As a former neighbour, I only knew this family as an outsider, and I used to greet Kak Shelly when we 'bumped' into each other, as she was always in a rush to send her children to school or went out to run errands. It was a great opportunity for me to be inside their house and observe their daily life by focusing on their usage of the internet. This was because, during the home visits, I was able to observe this family's digital practices, and how this family used technologies in different ways partly due to their economic difficulties. I saw how they used technologies to overcome some of their difficulties, and how they used technology despite their difficulties.

4.3.1.2 Getting to Know the Family

After having not met each other for 3 years, we agreed that the first home visit would take place in the first week of February 2016. I made attempts to arrange a visit a few times earlier, but Hanna was too busy with her netball practice and tuition classes. I could not help feeling nervous, as I had never entered her house before even when we were neighbours. She greeted me, invited me to come in and served me a mug of iced tea in order to welcome me. During that time, it was the El-Nino phenomena in Malaysia, where the temperature was uncharacteristically high, and it was sweltering even at night. She apologised for Hanna's hectic schedule and decided that that day was a perfect time for me to do the house visit. I told her that I was afraid that I might disturb her because it was rather late in the afternoon, as

sometimes, in the Malay culture, people tend to spend this time unwinding with family members. Normally, in Malay culture, people will do home visits during the day time, usually before 5 pm. We only visit at night during festivals like Eidul Fitr, when homes become an 'open house' for guests during the entire month of the festival.

While drinking tea, Kak Siti told me that her husband had just came back for the weekend and left with her other children to the nearest park to roller-blade, but Hanna and the other two younger brothers, Boboi and Badrul, were sleeping. Boboi was sleeping in the master bedroom, while Badrul had fallen asleep in the living room.

Kak Siti then awakened Hanna and told her that I had already arrived. Hanna woke up and asked for my permission to wash her face and refresh herself. It was a hectic day for Hanna, Kak Siti told me, because she had a netball practice all day and had just recently returned after 3 hours of tuition in the evening. Kak Siti informed me that she sent Hanna for tuition for three school subjects, English, Maths, and Biology, as requested by Hanna herself. Although I was treated as a guest, it was clear that the family wanted to carry on as usual and show me their 'normal' life as shown in Figure 4.3. It seemed to me that for Kak Shelly, digital literacy was something she had thought about and has been keen to develop in her children as well as herself. This is because she used a smartphone herself and found it an invaluable device in helping her to manage her family. So, she and her husband were very positive about the usage of smartphones and other digital devices by her children. As can be seen in Figure 4.3 (below), the digital devices were centred within their living room as an entertainment hub which consisted of a smart

television, television and radio. From my observations, Hanna felt comfortable when using her smartphone at any time without any restrictions.

Figure 4.3: Living room

In Figure 4.3, Hanna can be seen using her smartphones, while Boboi was watching YouTube and Dekwan, the other younger brother, was deeply asleep, having previously fallen asleep while watching the television. Boboi was watching a cartoon series on television, although sometimes he stopped awhile and joined Hanna to watch a music video on her smartphone. This relaxing atmosphere made me feel more calmed and relaxed as I felt that they were comfortable with me being inside their house.

4.3.1.3 Digital Tools as Life Enhancing

For approximately half an hour, Kak Shelly gave me a short informal introduction about her family and told me some stories regarding her family's digital literacy. She was also very excited when she told me about her digital experiences, as in her opinion she was just a normal housewife, but since she had bought a smartphone, she was quite happy, as sometimes being a housewife can be quite lonely especially during schooling hours. As all her children went to school, she tended to get bored easily and it was also stressful for her as socialising with new neighbours could be difficult. She cherished the times when we were neighbours as she said that my mother was an open minded old lady, and totally different from her new neighbours. The internet, from her perspective, "opened colourful windows of the outside world", to her, in what she alleged as her dull life. The internet also injected excitement in her marriage, as it allowed her to communicate frequently with her husband when he was away at the military camp.

4.3.1.4 Weaving Ethics in to the Research Field

Our conversation regarding her new neighbours was cut short by Hanna who asked me politely about my research. She smiled when her mother started to mention that she has gradually improved in her English subject because of her E-learning online activities. I then explained to Kak Siti and Hanna about the research and asked for their permission and consent to be involved in this research. They signed the relevant consent forms and then I continued with Hanna, while Kak Siti asked permission to watch live streaming of a drama series on their Smart Television. She showed me her new TV Box with around 100 channels listed on it, and said that

they just subscribed to the service for RM 300 (approximately GBP 50) per year. Here in the heart of family, I was able to see right from the start how fluidly the Apps and tools moved with the people across space and time. Our conversation was fluid, moving across topics of ethics, digital tools, education and leisure activities. As such, the conversation mirrored the way digital tools and activities wove through all aspects of their lives.

4.3.1.5 Digital Tools Can Aid Conversation

I had previously met Hanna during the distribution of my questionnaires at her school. She was very quiet during our first meeting, but she was considerably talkative in our WhatsApp conversation and chattier with phone in hand. I was concerned that she was still shy and might not be very comfortable with me from the last time I saw her at her primary school. She asked me about my life in England, my studies and how to get a scholarship to study abroad. By talking to her and giving her tips regarding scholarships, the relationship between us became stronger. As we were talking in her bedroom, it gave us privacy; she seemed to gain confidence in talking to me about personal aspects of her life. She told me about her feelings and how she felt her family had placed high hopes on her to succeed in her high school examination. She told me that both her elder brother and sister started employment after completing their high school, so if she succeeded to continue studying at a higher education institution, her family would be very happy for her.

She also told me that she did some research online about which fields she could choose with regard to further education but she got confused by the sheer

amount of information. She had an interest in Mathematical subjects, but her friends said it was not a marketable field. However, I advised her that she should focus on things that she likes, that such an approach is the only way one can go further in life. While talking to me, she switched on her laptop and showed me the Lim Kok Wing University website. In the same way that Hanna became more confident in interacting using WhatsApp, so too she became more confident when our conversation was mediated by the laptop. She was able to illustrate aspects of the conversation through the text on screen, and as we both held our gaze on the screen she seemed more confident in talking and leading the conversation. This showed me that she could confidently and comfortably use a digital device as a prop to help conversation.

A private university in Malaysia, Lim Kok Wing University is very well known for its creative technology degrees. Hanna told me that she was also interested in the field of Mass Communication and it would be a 'dream come true' if she could enter Lim Kok Wing University. However, she acknowledged that it would probably be too expensive. She asked me whether she could contact me through WhatsApp after she received her high school results to ask my opinion regarding the matter, and I encouraged her to contact me if she needed help regarding her decision choosing the course for her tertiary education. In this way, I could provide mutual benefit from my presence in the home.

4.3.1.6 Digital Tools: Awareness of Her Own Practices

No	Family Members (Living in the house)	Digital Devices Ownership	Internet Access and Use
1	Father, age 44	Smartphone	Moderate internet user, went online few times per week
2	Mother, age 40	Smartphone	Active internet user, went online everday (mobile data)
3	Brother, age 22	Smartphone Laptop	Active internet user, went online everday (mobile data)
4	Sister, age 20	Smartphone Laptop	Active internet user, went online everday (mobile data)
5	Hanna, age 16	Smartphone Laptop	Active internet user, went online everday (mobile data)
6	Brother, age 13	Mobile phone	Low internet user, went online once a month.
7	Brother, age 6	No ownership of a digital device	Active internet user, went online everday (mobile data)

Table 4.9: Digital Devices Ownership and Internet Access and Use among Hanna's Family Members

We continued our conversation to discuss her digital practices both in her home and school settings. We started by discussing some sections of her answers in the questionnaires. Hanna also reported to me the digital devices ownership and internet access and use among her family members as can be seen in Table 4.9. At the same time, I asked her to give me a short 'Digital Tour' about the kinds of digital device that she had in her house (Davies, 2012). She went into her brother's room, and brought into her room another laptop. She told me that there were 3 laptops in the house, one belonged to her, whilst the other two belonged to her elder brother and sister, respectively. However, if her laptop slowed down she would use her brother's laptop. When I was asked why it was slow, she told me it was because of

the Photoshop software on her laptop and that it was too demanding for her computer. This showed me that while she was keen to extend her repertoire of digital skills, the tools available in her home were not always able to keep pace with her desires.

This house did not have a Wi-Fi internet connection, however, if the family really needed to use a Wi-Fi connection they usually used their neighbour's Wi-Fi connection for free. Their neighbour offered them to use it for free if there was any emergency and provided the password of their Wi-Fi connection. However, this family only used their neighbour's Wi-Fi connection if their internet mobile data ran out of credit and only used it for emergency purposes, as they were aware that their neighbour's connection also had a limited data quota. Aside from their neighbour's Wi-Fi, they normally used their own internet data for smartphones, and by tethering an internet connection with their smartphones for laptop usage. This convenient but complex arrangement meant that the children of the family, like the mother, were always aware of the financial aspect of computer-mediated communication. The uses of technology were woven through with monetary considerations.

I also observed that there were two televisions when I entered the house, a Smart TV and an analogue (non-Smart) TV. Hanna told me her siblings always fought with each other, so their father bought an additional new TV so that they could enjoy each other's favourite shows separately. But her father did not allow anyone to bring the television inside their own room. She told me it was quite weird at first, as you can hear the dialogues of each other's drama or shows, although it became normal after some time. After all, they still enjoyed gathering together in

the living room. In addition, this also revealed how technologies can be used side by side, as during my observation Kak Shelly was watching a YouTube video in the commercial breaks between the dramas that she usually watched on the TV. This unusual arrangement regarding the TVs might be considered weird, but considering that people nowadays use technology side by side in different ways, this was a new input for me. And around us, nowadays, we can see people using their smartphones while doing work on a computer and/or browsing an iPad while watching TV. Therefore, I could relate the 'ordinary' every day on how people's digital lives evolved through time with this family.

Aside from the laptops and TVs, Hanna showed me her own smartphone and some of the Apps installed on it. The Apps included YouTube, Instagram, WeChat, and WhatsApp. She reported that her parents normally gave her around RM 30 (approximately GBP 5) per month to buy the credit top up for her mobile phone internet service (3GB internet data quota).

She seemed very reliant on her smartphone. I realised that from early on; the moment she woke up from her sleep and went out of her room, her right hand was holding a towel, and her left hand was holding the smartphone. Her mother, Kak Siti, even made jokes that Hanna's smartphone was stuck to her always as she would listen to her songs' playlist whilst taking a shower. When I asked regarding her online activities at home, or outside the school, she told me the first thing that she would do when she woke up was to check her instant messaging (WhatsApp and WeChat) and Instagram. This usually took her around 30 minutes, and only then would she wake up and go for a shower. In Hanna's school days, other than using her smartphone for communication, she normally used it to watch YouTube

and sometimes would search for information related to her school work. But she prefered to use her laptop to search for information as the screen is bigger. By using her laptop, it helped her to remain focused and avoid her from getting distracted by her smartphone whenever she wanted to do her school work. It seems that Hanna had developed a set of practices for working with digital tools, where she used different devices for different tasks, according to the characteristics afforded by each device. In other words, her choices were not haphazard, but informed by experience.

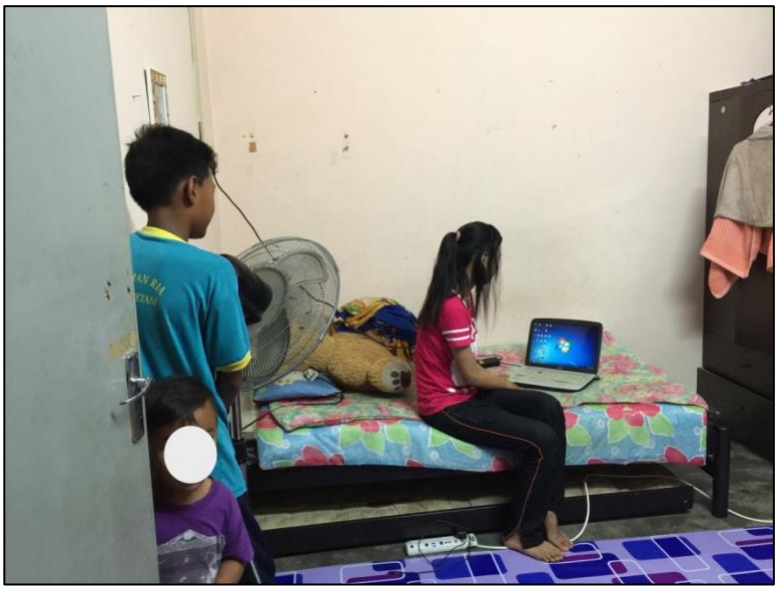

Figure 4.4: Hanna switched on her personal laptop

While waiting for her laptop to be fully switched on and finish installing the Windows' updates (Figure 4.4), she quickly scrolled through the latest updates by her favourite Malaysian actress's Instagram profile (Figure 4.5). We also discussed her first online experience when she was 11 years old. It was in her new school computer lab, where she used an online search engine to obtain information on the topic of "Photosynthesis" and she and her school friends created a PowerPoint

presentation. She told me it was a ‘nightmare’ for her during that time as she had never used a computer or the internet before. As her father was in the army, it was normal for her family to be regularly transferred and moved to a new place after residing 2 or 3 years at one location. During that time, she had just moved into that school as her father had been transferred from Sabah (located in the South of Malaysia) to Kedah (located in the North of Malaysia). Her previous house and school was in the rural area, and kids there loved to play outdoors and play physical games in contrast to her new environment.

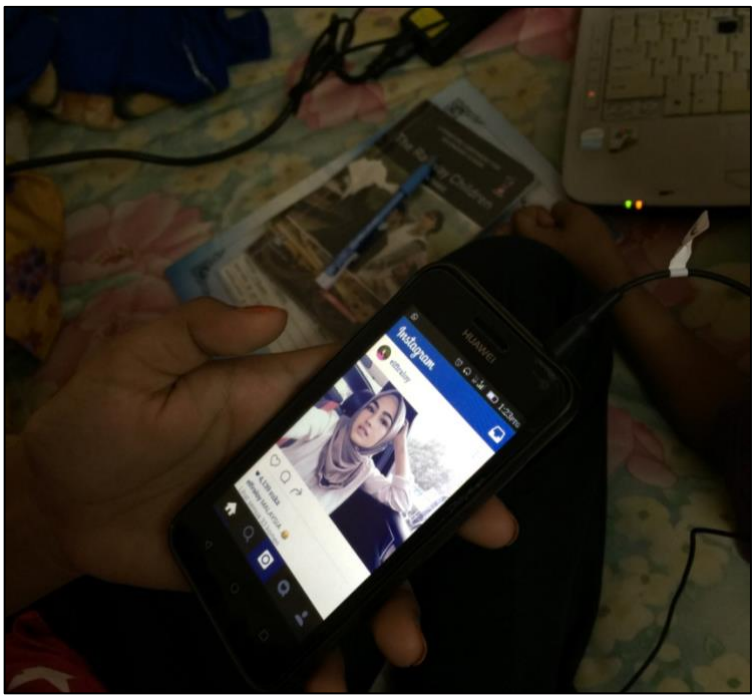

Figure 4.5: Hanna browsing her Instagram account

Recounting her first online experience, Hanna was initially afraid to touch the mouse, to touch the screen, to press the keyboard, and she was ashamed because when she looked around everyone seemed very familiar with the computer. This shows that not all young people were comfortable using digital devices which can

be linked to the previous discussion in Chapter 2 (Literature Review) concerning the inaccuracy of the theory of digital natives; I discuss this in the Discussion chapter. However, Hanna was glad that her teacher helped her by asking her background, and slowly she was taught how to move the mouse around and type keywords into the search engine. Starting from there, she registered herself into a Computer Club which provided her with an extra privilege to use the computer and the internet as a club member. Like other club members, she was given the role of a 'computer lab prefect' to monitor other students' activities during and after school hours. This was an advantage to her as it enabled her to use the computer more frequently and she became more confident in using the internet.

4.3.1.7 Migrating Family and Technology as an Anchor

For Hanna, moving to Kedah from Sabah when she was 11 years old influenced considerable changes to her family life, especially with her new school and her new activities as a member of the computer club. At first, she felt that she preferred to be in the computer lab in her own space, as she thought it was not easy to get new friends. However, through joining the school computer club and interacting with club members and other students, and registering students logged in and logged out of the computer lab a few times each week, Hanna argued that it provided her with a safe and comfortable environment where she could study and have fun online; and that later, when she became more confident socially, she was more able to mix with others and spend more time with them out-with the computer club.

She reported that she was very stressed at first because of the new environment, but, through the computer lab activities, she was happy to do online

activities together (for example, when she searched for information, prepared presentations using Powerpoint, and played educational games). Through online technologies, this gave her a stability to build a new friendship network while keeping online friendships going with former classmates, as I discuss in the next section. As for her family, they always contacted their extended family, for example, grandparents through video calls to keep them updated regarding their new settlement in Kedah, by sending them videos and pictures of her new home and new environment.

4.3.1.8 Digital Tools: Children as Global Mediator

Hanna reported that after leaving her previous secondary school, her family moved to Kuala Lumpur, a big metropolitan city, a hectic world, and for her it was very fascinating. As her family moved to Kuala Lumpur, her father bought her a second smartphone as a gift for her excellent achievement in her primary school certificate examination. Her aunty also gave her mother a second-hand laptop that she did not use anymore. It was observed that the status of digital objects in this family were highly valued by all members (i.e. prized objects, rewards).

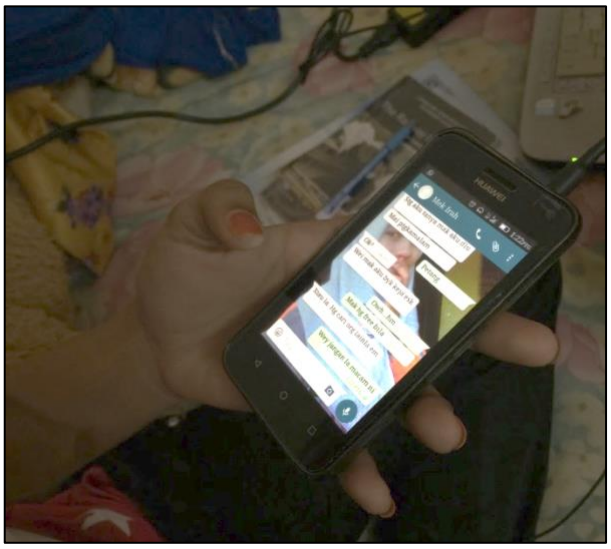

Figure 4.6: Hanna messaging her friend using WhatsApp

This time round after moving home, Hanna found adjusting to her new school and new environment easier because she can contacted her old friends back in Kedah as her parents gave her a new smartphone. So, part of her routine was to keep her friends updated about her new school, new environment and new world through WhatsApp conversations. She reported that by using WhatsApp, this really helped her to build new friendships with friends in her new school too. The first day she transferred to a new school, the class leader added her to a WhatsApp group and Facebook class group. As she was a shy person (her view), sometimes it was easier to communicate and converse through WhatsApp than in face-to-face contact. She told me that she used to struggle to start a conversation with her new friends, but by observing as a silent reader in their classroom WhatsApp group, she identified which one of her friends were more approachable or had the same interests as her. Time spent on WhatsApp to communicate with her new classmates also gave her more opportunities to adjust to her new school. Some of her friends

who had never spoken to her personally in the classroom did private message her and they got to know each other and exchanged information about the school.

The internet made Hanna's life easier. The transition to a new place and school was not as stressful compared to how things were before she owned a smartphone. As a new member of her new school, it was easier for her to communicate through WhatsApp to ask about school work. In comparison to her previous experience, where Hanna would have kept silent and tried to do school work on her own based on what her teachers were teaching in class.

Currently, as she prepared for a crucial examination next year, she spent around two to three days per week at her friend's house, in a small study group, to do revision together. They gathered at Nur's house, because it was the nearest one to their school, and because Nur's mother was their class teacher. Therefore, Nur's mother sometimes helped them do their school work in between her chores. One more thing that she liked about doing school work at Nur's house was that she had access to a high-speed internet connection. Spending time at Nur's place also meant that she could save on the internet quota on her smartphone. At the same time, with high-speed internet connection, it was very helpful to be able to search for information for their school project. It can be seen here that a high-speed and stable internet connection contributed added value to one's personal learning experience: a house with good internet infrastructure therefore provided a conducive learning environment as I witnessed that Hanna enjoyed spending her time outside of school hours at Nur's house due to the high-speed internet connection as it provided her access to find information in order to complete her school work. It seemed that for

Hanna, the financial cost of online activities was a strong influencing factor on what she did and where.

4.3.1.9 Autonomous Learning at Home

Hanna told me about her project from last year for a Short Film School Competition. To enter, Hanna and her group had to make a video using Movie Maker, and their entry won a consolation prize: out of 30 entries, three teams were selected as the top winners, while only 5 received a consolation prize and the rest did not receive anything although every participant were given a participation certificate. It is important to note that this was only her second time using Movie Maker after being introduced to the software in computer lessons in Form Two, when she was just 14 years old. Hanna reported that she learnt many basic skills about Digital Literacy during the first three years of secondary school, from Form 1 to 3 while studying the ICT Literacy subject. In order to compete in the short film project, she told me that they needed to record a video, including editing both the video clips and background music. They learned a significant amount about the advanced features on YouTube. This showed that Hanna's school has been supportive of their students' digital literacy's development as the teachers kept encouraging their students to use online technologies for learning by encouraging the students through coordinating an annual Short Story Competition. Indirectly, Hanna and her friends cooperated and collaborated both during school hours and outside school hours to complete the short story project, which Hanna enjoyed doing. Further, the school project seemed to blend in with her recreational activities and friendships. By using

digital tools to work on her school stories, Hanna was able to use the same digital tools and social network of friends as in her social life.

4.3.1.10 Making Links Between Home and School

Hanna and her team borrowed a printed manual from their computer teacher; however, as it was an old version tutorial of Movie Maker, they decided to watch the updated version of the tutorial step-by-step on YouTube. During the process, Hanna brought her laptop to Nur's house and they used their laptops side-by-side, with Hanna's laptop (on the right) displaying the tutorial and Nur's laptop (on the left) showing the YouTube tutorial. In this organized system, in a group, they slowly learnt about Movie Maker, and kept rewinding the videos whenever needed. It seemed that their friendship was strongly mediated by digital technologies. Reflecting on Hanna's membership of the computer club, it also seemed that this was a good investment of her time in those early days as it helped to lay the foundations of her new friendships with her new classmates.

In addition, Hanna told me about a YouTube Movie Maker tutorial video that she had found that was really inspiring and interesting, and said that she had subscribed to the following channel "LittleWorldOfEline". She loved this channel and said that it would have been a great opportunity and resource if she had found it earlier when doing the short film project. She liked the channel because the YouTuber was a teenage girl and her videos looked fresh and sweet, suitable for people her age. She showed me the channel and I found that it was a really interesting tutorial video because the YouTuber was a teenager so it was easy for Hanna to relate to the YouTuber. It seemed to me that Hanna preferred to go online

to search for YouTube tutorials compared to printed materials and that she enjoyed multimodal, autonomous learning.

Through her stories about her online activities browsing YouTube videos, this showed that through online technologies, Hanna was able to search for reliable information related to her daily life, and at the same time she was able to reflect how certain information that she found online could be used in helping her to finish school work or complete her school projects. Therefore, it appeared to me that some of Hanna's digital literacy skills were developed at home, and she used these for the purpose of studying as there were a few online activities that took place outside the school. Further, Hanna also used such skills and shared online information with her friends at school. Hanna also reported, through the outside school activities that focused on the short story project, that her friends helped each other by showing and demonstrating new digital skills, such as how to convert a video format and add subtitles to the video. The new digital skills that were learnt outside school hours showed that Hanna and her friends could learn new skills that were not taught at school, and that they were also competent at finding extra and valuable information by completing their school projects independently without help from teacher.

4.3.1.11 Online Collaboration: Friends

Talking about her online activities at home, Hanna reported that during week days she always took a nap when she arrived home after a long day, and woke up around 4.00 pm and took a shower before starting her school work. If she did not have a study revision group at Nur's house, she stayed at home and finished her school work alone.

If she encountered difficulties in solving her school work at home, Hanna would snapshot the exercise and ask about it inside her WhatsApp group conversation. If she needed a faster response, she called her friends using the WhatsApp call feature. She reported that she used WhatsApp considerably while doing her school work, especially when it came to Mathematics. Her 'Math's Sifu', Raisya, would always be in the 'front line' when answering and solving mathematical calculations. However, there were a few times when they were unable to solve the problem, so they posted to their class WhatsApp group in order to receive feedback from the other classmates. Some of the mathematical problems were solved by her respective classmates, and some were solved by their teacher; sometimes their teacher even posted the calculation around 1 am in the morning. Compared to her online activities such as watching YouTube to solve a technical skill required for video making that had been done collaboratively with others, as can be seen in Figure 4.7, Hanna preferred to use WhatsApp to find a solution to her school work regarding Mathematics, which she did alone. This showed the variants of internet usage for Hanna's school work, in particular the distinctive way in which she used different platforms showed a certain set of digital literacy skills where she judiciously selected from a range of tools.

Figure 4.7: Hanna messaged her friends asking about her school work

After finishing her school work, she normally joined her family to watch television, or she would be inside her bedroom, lying in bed and watching videos or music videos on YouTube or browsing on Instagram for 2 to 3 hours before sleeping. Her favourite type of videos other than music videos by famous Malaysian and Western artists, were videos on DIY bedroom decorations and travel blogs by teenage travellers from around the world. She browsed using her smartphone Apps, opened YouTube and showed me two YouTube videos. Once again, it seems that technologies had woven their way into every aspect of Hanna and her friend's lives.

One of the YouTube videos that Hanna showed me, concerned ideas and tips on how to creatively decorate your own room. She informed me that they had tried a few ideas and implemented them in Nur's bedroom when she moved into her new house. They went to the Arts and Crafts shop together, bought some items along with a medium-sized tin of paint and started to decorate her room. Everyone

was given their own space to express their creativity: Raisya managed the space near the headboard, Hanna chose to decorate framed photos beside the study desk, and Nur and Siti decorated their study space. Nur was jubilant with the result. Although Hanna viewed Nur as a dull person who loves dark colours, when they injected some ideas into their bedroom decorations, Nur loved it so much. And in their circle, they found that Nur's bedroom was like their space for secret missions to protect their privacy and their belongings. Hanna chose and selected their Instagram photos carefully and printed them out using Nur's colour printer and decorated the blank space beside her friend's desk.

Throughout my observations, Hanna enjoyed online opportunities, especially surfing YouTube videos due to the wider range topics and contents. I observed that Hanna was a homely type of person, but through YouTube and her friends online networking, she still gained benefits in a new way of socialising by connecting to people that shared the same interests in communicating using WhatsApp with friends outside of class.

4.3.1.12 Hanna As Mediator: Problem Solver

Our conversation stopped when we became distracted by Hanna's younger brother who had just woken up from his sleep. As can be seen in Figure 4.8, Boboi, 5 years old, came in and asked what we were doing while his sister kept telling him to go away. He asked for his eldest brother's laptop and after Hanna gave the laptop to Boboi, he went out and started to watch YouTube in their parents' bedroom. I asked him before what were his favourite YouTube videos. He told me he liked to watch

"Upin Ipin", a Malaysian animation series, and he loved to watch "Lego Speed Build Videos".

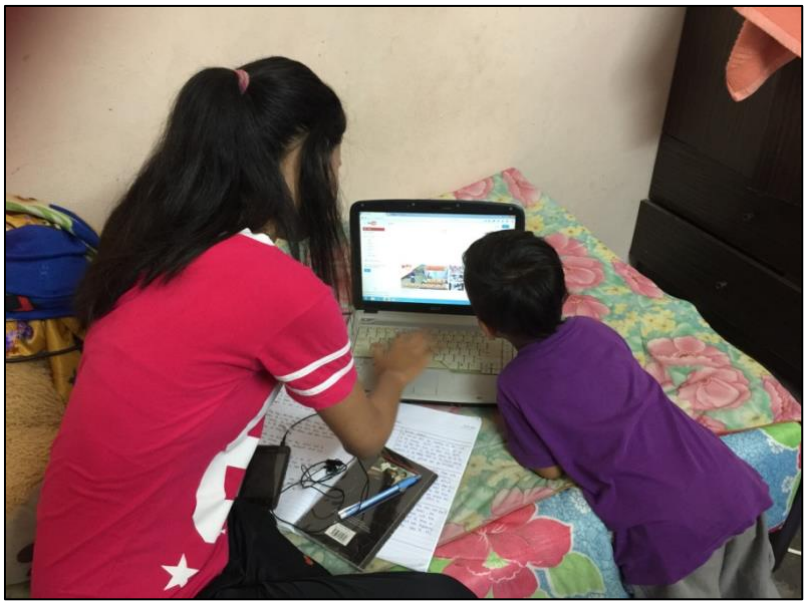

Figure 4.8: Boboi was observing Hanna doing her school work

Her mother, Kak Shelly already subscribed to these channels, so he also played games offered by the channel. This clarified that Hanna positively took part in guiding her young brother in managing his online activities and Kak Shelly as their mother was aware of what her children were doing online. Through her subscription selection of YouTube channels, she checked which channel that Boboi loved to watch and made decisions based on her evaluation as a mother.

After 10 minutes, Boboi came in again and told his sister that the YouTube video was not working properly. Hanna took the laptop and checked the internet connection, which revealed that it showed an error and was disconnected. She took her mother's smartphone and checked the credits and the current usage of the broadband internet. She found that the credit had already run out and told her

mother about it. Kak Shelly was in the kitchen and told her to top up her internet broadband credit online using her mother's online internet banking account. Using her own laptop, Hanna then logged into the Maybank website, typed in her mother's username and password and purchased the top up online. This indicates that Hanna played an important role in this family's digital practices. Aside from being a technical problem solver, Hanna also was given power in this family's financial roles by taking charge in making buying decisions. From my observation, Hanna seemed very confident in purchasing things online. Her mother really trusted her by allowing her to have direct access to the username and password in order to access her mother's personal bank account. This reveals that being a good digital user had also helped Hanna in building her digital reputation as an expert in this family, and this seemed to mean that Hanna had earned a very high-level familial position. This may have been due to the regular absence of the father because of his duty, and it seemed that Hanna had been trained to be involved in this family's decision-making processes: as I observed during my home visits, she always come forward in suggesting a solution to her mother on how to solve problems, instead of waiting for a solution identified by her mother.

4.3.1.13 Digital Tools Offer Varied Opportunities

I went into the kitchen where Kak Siti was cooking, and she reported that Hanna was her first child to be exposed to the internet from a very young age. As their previous house was in a village, in a rural area of Sandakan, Sabah, in East Malaysia, the elder sister and brother were not exposed to the internet at a very young age. Referring to those old days in Sandakan, the mother noted that even the

phone signal was bad and they always lost phone coverage, with the result that phone conversation always got disconnected. She herself started to use the internet when they moved to Kedah, located in Peninsular Malaysia as can be seen in Figure 4.9.

Figure 4.9: Malaysia map

Therefore, the mother believed that Hanna had gained numerous online opportunities especially when it came to her daily life, for example being able to contact her former classmates in Sabah. Kak Shelly reported that the internet made Hanna happy, and for the first time, she adjusted herself well to her new environment. This suggests that her mother was aware that by giving Hanna a smartphone, it helped her to build new friendships as she also had the opportunity to maintain friendships from her former school. As Hanna was the first children that was exposed to the internet from a young age, it seemed that Kak Shelly believed that by going online, Hanna could get lots of benefits, as well as being able to develop her digital skills to a high-level compared to her older siblings, who only started to use the internet at an older age.

4.3.1.14 Digital Tools Embedded in Family Practices

Kak Shelly was also happy with the fact that Hanna learnt a lot of things online. And she herself would always be there, sitting beside Hanna when she was browsing on Instagram. Sometimes she even asked Hanna to help her when she searched for products on Instagram, and she always tried to find them by using "#" in the search box on Instagram. She even asked Hanna to buy some products online if she was too busy handling the house-hold chores. Kak Shelly told me that she guided and monitored Hanna intensively during her early years using the laptop and internet. Luckily, she said, Hanna was very confident and understood very well how to use the computer as she had gained experience as a Computer Club member in her primary school when they lived in Kedah.

Throughout my observations, Hanna certainly seemed to know how to use many different kinds of websites as well as knowing how to use lots of different types of digital tools in-order to accomplish her different daily tasks, and for study purposes. It also can be seen that Hanna was given responsibilities within the household, and that she seemed to enjoy them when they were centred on the use of digital technology. It was also very clear that her mother also contributed to this positive aspect as Kak Shelly trusted her by giving her that responsibility. This explained that by being a good mentor for Hanna in guiding her through her online activities, her mother successfully represented an important point on why parents should play an important role in developing children's' digital literacy skills.

It was also interesting to note that the mother was very positive about how far technology has helped her in her daily life too. She reported to me that she had

learnt to use a smartphone and the internet by herself with the help of her younger sister. Her husband gave her a smartphone as an anniversary gift, but when she asked him how to use it her husband told her to explore it by herself as he did not have any idea either. At the same time, her younger sister gave her an old laptop. Her sister taught her how to use a smartphone and how to search on the internet if she was having a problem, and how to select the right keywords to get the required answers. With such tips and strategies, Kak Shelly learnt by herself day-by-day in developing her own digital literacy. Therefore, it appeared that Kak Shelly has great insight in understanding the importance of digital knowledge and that she has not only taken the initiative to teach herself, but also to communicate the importance of the digital skills to her children.

At the same time, when Hanna started to use the smartphone, they both shared the same interests, and it was easier to pass some of the important things to do to Hanna such as ordering and buying items online. Online surveying and buying skills were important to Kak Shelly, as she found that it was always cheaper online compared to buying the same things from a shop on the street.

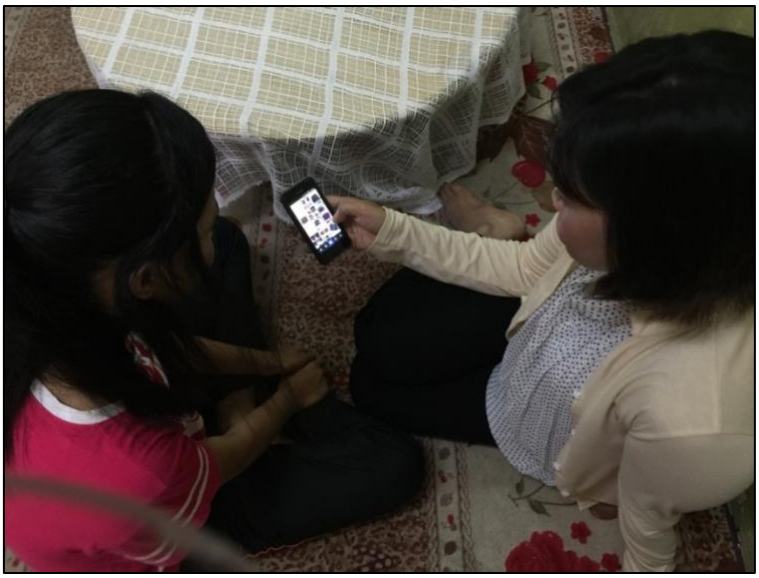

Figure 4.10: Hanna and her mother browsing Instagram for window shopping

While Kak Siti told me about buying online, Hanna browsed "11street.my", their favourite online shopping website. I found the chemistry in this mother-child relationship really interesting. Some children might be reluctant to assist their mothers regarding internet issues, but for Hanna it was a pleasure. She reported that she was happy to be in charge regarding helping her mother settle important things in the house. And of course, it gave her some advantages including sometimes giving her some veto powers in deciding what they would buy, as she liked to read reviews and testimonials. This indicates that by having a real task to do, given by her mother, indirectly, Hanna had held the position of expert in her family. This was clearly very motivating for Hanna as she told me that it felt good to be the centre of attention and to be able to help her family members accomplish assigned tasks.

Other than "11street.my", Hanna and her mother also liked to use "mudah.my" to buy and sell used items. Sometimes people even offered free items

online just to let them go as soon as possible. She pointed to her room, and showed me that her bedframe was free, as she had found an advertisement in which the previous owner wanted to let it go for free. They even adopted their two kittens from "Mudah.my" for free, as the previous owner wanted to move from their current house into a condominium which did not permit them to keep pets. This revealed that Hanna appeared to understand economic issues and could see how the internet could be used to negotiate a better life for her family.

4.3.1.15 Comments

These were fascinating days spending time with Hanna and her family, observing the digital practices that took place in this cheerful family. From my visits, I successfully obtained so many inputs through shared stories, conversations about her future and so much more. Even though this family was a from a lower income background with a limited budget to spend in providing internet infrastructure in their home, I was impressed by the ways her mother managed her children's digital practices at home and the ways in which her family integrated online activities in every aspect of their life. I also came to understand the key role that the mother played in her children's education and their relationship with digital technologies. Despite her low level educational background, Kak Shelly took lot of self-initiative in-order to improve her digital skills as she believed that this was the only way for her to understand how children nowadays used the internet and took part in it, and she tried her best to provide support and encouragement so that her children gained the maximum online opportunities. Kak Shelly was also willing to learn new information and skills from Hanna and was always interested regarding her

children's online experiences. This illustrated how continuous support and encouragement from her mother had helped Hanna to develop a high level of digital skills.

4.3.2 Family Profiles: Family 2 (Hazaq)

4.3.2.1 Introduction to The Family and Neighbourhood

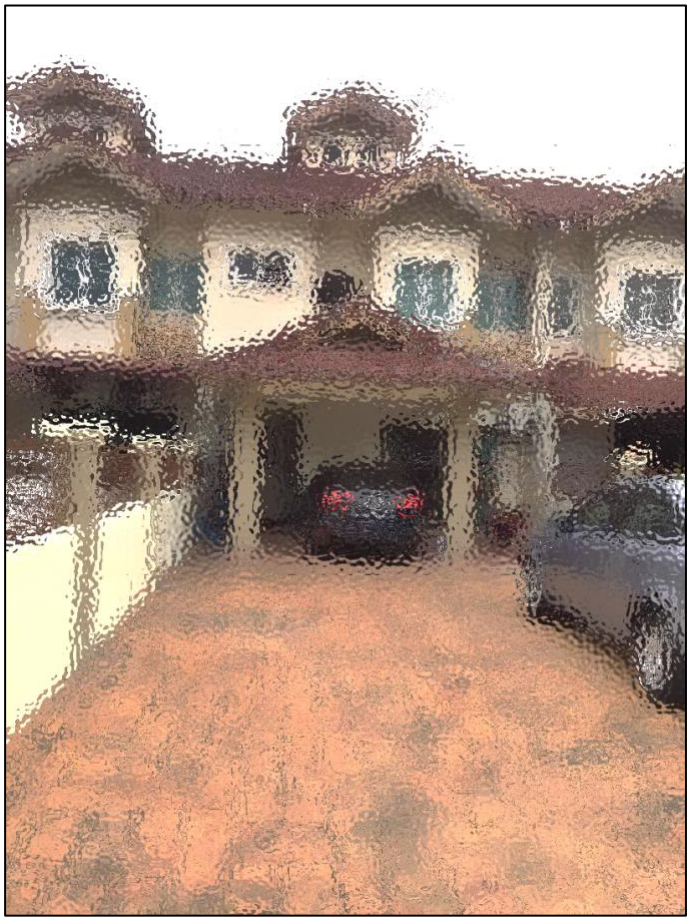

Figure 4.11: Hazaq's house

Family 2 was a one-parent family. Their house was a two-storey terraced house located in an exclusive residential area. The participant (a 16-year old young man and a 9-year old younger sister) who lived with their mother, an IT consultant and

a Master of Business Administration (MBA) degree holder. Their father, a senior engineer, lived separately in a different state and normally visited the family on a monthly basis. Aside from that, they had a full time Indonesian maid who stayed in the same house.

The participant, Hazaq, attended school in the morning session, and his sister attended in the afternoon. Hazaq stayed at home during the afternoon with the maid. The mother normally arrived home around 7 pm in evening. Due to this reason, he preferred to stay in his own bedroom after finishing the school session. The mother, Kak Lofa, 39 years old, was my older sister's friend and they had known each other since university. My sister also knew Kak Shelly as their children were studying in the same school. Therefore, it was easy for me to communicate with the mother as I knew them personally and had once visited them previously, during the Eidul Fitr festival celebration season. On the first home visit, the mother welcomed me by preparing a tea-set that comes with Malay traditional snacks, Malay curry-puff.

When I arrived, both children were in the living room. Hazaq was browsing through his Instagram using his smartphone while his sister was busy browsing through her iPad (Figure 4.12). The mother was watching her favourite drama on a 40-inch smart TV. There was a PlayStation sitting at the side of television rack, and a laptop on the dining table as the mother was doing her office work while watching TV. She had been working as an IT consultant at Microsoft's sub-company for more than 10 years.

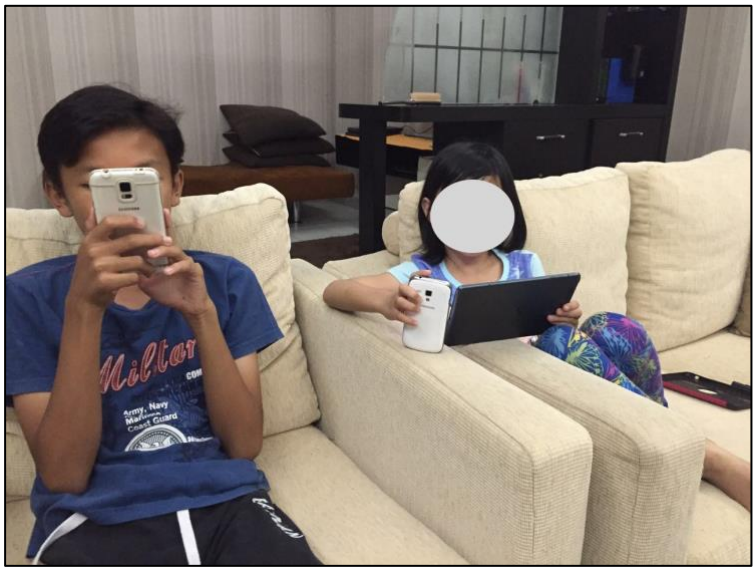

Figure 4.12: Digital practices took place in the living room (an old arrangement)

We started our conversation with me introducing myself to the children, as the last time I met them was about 8 years ago. I explained to them about my research and asked for their permission, and they agreed by signing the consent form. The mother was very interested in my project as it focused on technologies and their use. Hazaq was also excited as I explained that my research was more than just looking at technology usage for educational purposes. As the mother worked as an IT consultant, she needed to stand by to work at any time. This was why her house was fully equipped with a high-speed broadband internet connection. She also preferred Hazaq and Diana (the daughter) to stay at home under the maid's supervision, and preferred Hazaq to play games at home rather than playing at his friends' house. However, she told me that sometimes Hazaq and his friends went to Starbucks after the school session to do their school work.

Figure 4.13: Living room (new arrangement)

The first time I arrived for the home visit, the living room was divided into two sections, a section for 'chit-chat' completed with a sofa set, while to the side there was a small section separated by a book rack that was used as an entertainment hub as there was a television rack. During the second visit, I realised that the living room had been re-arranged into one huge section with all the entertainment hub centre together (Figure 4.13). Kak Lofa explained that she rearranged it because she preferred all the family members gathered in the same place, even though sometimes they were doing different things. For example, Hazaq would use his smartphone, Sofea (the youngest sister) used an iPad, and Kak Lofa would watch TV.

For the mother, the new arrangement was the main centre of the house activity where they spent time together doing activities at the same place and it was easier for her to monitor what her children were doing and to have conversations with them as she frequently asked them about their daily activities especially their school activities. Sometimes, her children were finishing their school work in the living room together and she monitored them together.

When I compared this family with the previous family, the setup for the two houses was almost the same. The main family activities occurred in the living room. As with the previous family, Family 1 (Hanna), even though they were a big family that consisted of two parents and 5 children, the father made the decision that everyone had to be in the small living room if they wanted to watch television regardless of there being two TVs. The same family value also existed in this family as the television was situated centrally, in the living room and it was assumed they would view it together.

Even though this house was bigger compared to the previous house, Kak Lofa still preferred them to gather in one place, spending their free time together, and Kak Lofa informed me that her children were rarely in their own room, except during the daytime, as Hazaq preferred to be in his room because he wanted to play online games, and because he preferred to do his school work there as his mother was not at home during the day. Other than that, once the mother arrived home from her work, they spent time together in the living room, especially after dinner time.

No	Family Members (Living in the house)	Devices / Digital Devices Ownership	Internet Access and Use
1	Mother, age 40	Smartphone Laptop	Active internet user, went online everday
2	Hazaq, age 16	Smartphone Laptop iPad Playstation	Active internet user, went online everday
3	Sister, age 9	Smartphone iPad	Active internet user, went online everday

Table 4.8: Digital Devices, Ownership and Internet Access and Use among Hazaq's Family Members

As can be seen in Table 4.10, Hazaq reported to me the digital devices ownership and internet access and use among his family members. During the Digital Tour conducted by Hazaq, Hazaq told me that he has his own smartphone, iPad and laptop. His sister also owned a smartphone and an iPad. Other than that, there was also a Playstation in the house located on the television rack. Hazaq's laptop was in his room and sometimes he brought it down to the living room to use it while watching TV. The high-speed internet connection and the ownership of several digital devices provided me with an initial impression that the children in this family had everything at home. This was clarified by Kak Lofa earlier when she stated she preferred that her children stay at home; this was the main reason why she provided great internet infrastructure, and to avoid Hazaq going to a cyber cafe. However, she permitted Hazaq to go to his friend Luqman's house to play online games there as Luqman's mother is a housewife, so she did not worry about letting Hazaq out as there would always be an adult present who could monitor them.

In the same way as the previous house visits for Family 1 (Hanna), I started the session with a discussion of the questionnaire that Hazaq had previously filled out (during the school session), which I discuss later in the Discussion chapter.

4.3.2.2 Digital Tools for Tackling Loneliness

Talking about his first-time online experiences, Hazaq told me that he went online to create a Facebook account, assisted by his mother, at the age of 12. His mother also bought him a smartphone at the age of 12. Since then, he always went online everyday as their home has broadband internet with an unlimited data plan and his smartphone also subscribes to the data plan. This was due to his mother who had always kept track of his activities. He considered himself as an active internet user, as he went online 'all the time'. By describing he had a boring life, only staying at home after the school session and finishing school works (Figure 4.14 - below), he was grateful that he had a smartphone. Otherwise, Hazaq told me that he would be 'bored to death', which was always how he felt every time he went back to his grandmother's house which was in a rural area and did not have internet coverage.

At that time, he exclusively communicated with friends on WhatsApp. He used to have a WeChat App, using it to chat with strangers to 'kill boredom', but he found it suspicious and felt exposed to risks, so he deleted it. Therefore, at the time of the research, he preferred to communicate with contacts whom he knew personally. It seemed by kept himself busy playing online games, finishing his school works and contact his friend using WhatsApp had been considered as the best way to occupied himself.

For me, this loneliness that he reported might be because he was alone after school hours, only accompanied with their maid and because his only sister was at different school session and their mother was at work. It also can be seen that digital devices held an important position in Hazaq's daily life as he was attached to his smartphone and laptop all the time. However, it also seemed that Hazaq was not as bored as his own description led me to believe first of all, as it turned out that he was actually having a productive time when he went online.

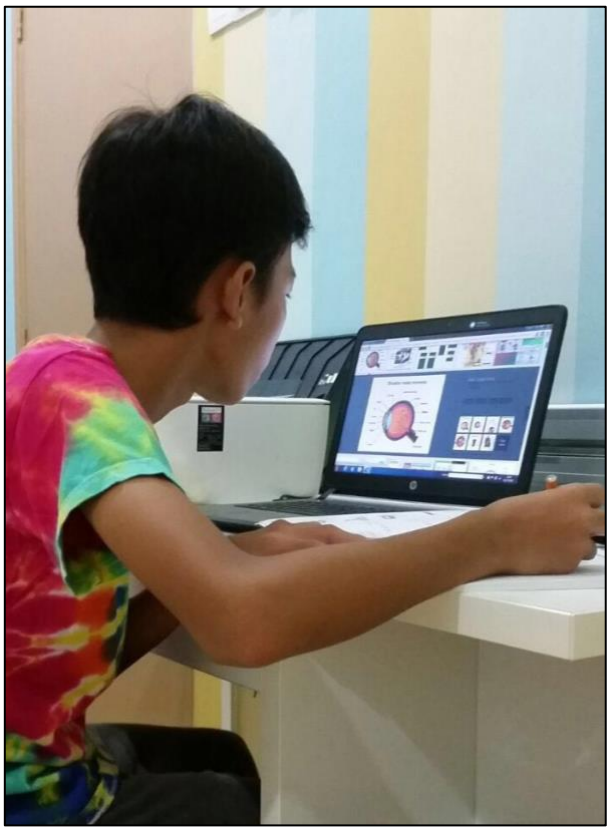

Figure 4.14: Hazaq did his school work in his bedroom

Hazaq and his friends also had their own WhatsApp group for their soccer team and online games team. They not only talked about soccer and games but also talked about their daily life activities. He said that owning a smartphone had

resulted in his life being more content and happy compared to when he was at primary school. At that time, nobody was at home after the school session aside from the maid, but she always too busy with house chores. This meant that he only watched TV which only displayed the same cartoons, or played the same games on the PlayStation, both activities alone by himself. By having digital devices such as a smartphone and a laptop connected to the internet, he could search for new movies and explore new games, as he explained to me.

Even though he was playing the same online game for now (called Dota 2), he felt satisfied because he played together with his teammates. The feelings while playing online games were not the same as previously, when he played on the PlayStation alone. The reason for this was that participating in online games made him feel important and proud with his great track record as a game player. Doing school work also became easier for him as he used WhatsApp to communicate with his friends to ask about school work if he felt stuck or faced any difficulties while finishing it.

From our conversation, I could determine that Hazaq was very dependent on his digital devices in his daily life as I observed that he loved being online with others and feeling happy about his friends' online presence. I also found that by going online, this helped Hazaq deal with his stressful and apparently lonely environment.

4.3.2.3 Gamification in Boosting User Engagement and Participation

Figure 4.15: Hazaq's favourite online game, Dota 2

Based on Figure 4.15, in order to play Dota 2, Hazaq told me that he needed to play as part of a team. Therefore, Hazaq and his classmates formed a group of five players. Each team had their own team identity, and while playing this game they needed to coordinate each members' role. They also planned their strategy and played in a formation which included a defensive tri-lane and two solo heroes. That was why they needed to set a time every day when everyone on the team was available to play it.

I found that by playing online games, Hazaq was developing his engagement and participation skills. During my observation, by playing this complex and complicated online game, Hazaq and his team mates needed to communicate with each other using video chat, voice chat or by typing into chat rooms which were also made available as part of this game. It needed commitment from all members, to engage from time to time and to participate actively. In order to keep their social reputation in this game, they needed to collect more points and

increase their score. They also needed to engage as proactive team members as the game operates in real time, so they were always required to be alert and to participate in decision making. As a reward, they received recognition in their display scores and gained better badges for their achievements.

When I compared Hazaq's online activities with those of Hanna (Family 1), it was clear that these two children did different online activities. Hazaq like to play online games that required real-time communication with his team mates, meaning that he needed a high-specification gaming computer with high-speed internet connection, while Hanna's online activities required other tools that required a low internet connection such as YouTube. This is a key difference, which may explain why Hanna preferred to go to her friend's house that had a high-speed internet connection as a low-speed connection could have contributed to frustration when she went online.

Hazaq also mentioned to me that he actively engaged and participated in online forums and discussions. It was a good source for him to get new knowledge, learn new strategies, and get updates with the latest news about Dota 2. Information exchanges with experienced game players also helped him to become a better player, through applying new methods or strategies to be implemented while playing online and to develop his own playing skills.

The competitive way in which he involved himself in these games reminded me of the competitive way in which Hanna (Family 1) and her friend Nur worked together when they created their video. They worked as a team and learned together which strategies to use. This kind of engagement with a project (short story for

Hanna and online games for Hazaq) meant that children chose to learn knowledge and exchange new skills while they were supporting each other in doing so.

4.3.2.4 Transferring Online Knowledge into Real Life Skills

Playing online games every day, Hazaq was also interested in exploring online websites to gain new knowledge, tricks and skills on how to play soccer .As a school team player, it was compulsory for him to always play better and learn new skills. Sometimes, especially during the rainy season, the training would be cancelled. During such occasions, the coach instructed Hazaq and the other players to watch a few online videos on how to play soccer, for example, how to shoot a free kick and the right way to do it. Even though face-to-face coaching was the best way to learn new skills, he sometimes learnt new tricks and skills by watching online videos. He told me that he never took a free kick in the right way until he learnt it online, and that he practiced it during training session.

He also developed his skills kicking a ball with faster momentum by watching many videos that taught basic skills and tricks about it. Although the traditional way to learn soccer was on the field, Hazaq said that sometimes it was better to learn it from video as they will teach it from the basic skills upwards. During the training session, the coach usually demonstrated some techniques for right leg players, but for a left leg player like Hazaq, it was difficult for him to imitate other players. However, by watching online videos, he found many left leg football players; further, playing in this way was explained in a very simple way so

that he was able to practice it on the field and transferred his new knowledge with his left leg teammate. He said that it helped him lots and motivated him more.

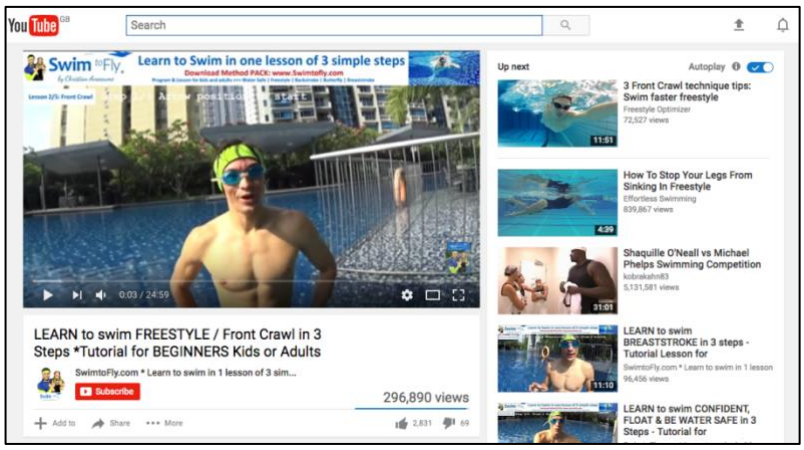

Figure 4.16: SwimFly.com, a YouTube channel which Hazaq had subscribed to learn swimming skills through online tutorial

As shown in the Figure 4.16 above, aside from gaining new knowledge and learning new skills on how to improve his ability as a football player, he also learnt a lot of new skills from YouTube videos regarding how to swim using a few techniques. As he had never learnt or underwent any swimming training, he learnt it by himself by following a few techniques introduced in YouTube videos. This started when he followed his friend to go swimming at the swimming pool in his condominium. At first, he just jumped into the pool and swam around, as none of his friends knew how to swim correctly. He then went online and searched for tutorials and learnt it step by step and tried to implement it when he went swimming. It was quite difficult at first, but after repeatedly practicing the techniques consistently, he successfully acquired the skills. Later, he taught his friends how to swim using freestyle and breaststroke techniques. His friends were surprised when he told them that he learnt all those skills from online tutorials.

From my observations of his online activities researching information and selecting the right content, I found that Hazaq could think critically. The ‘How to’ videos seemed very popular on YouTube and based on my observations of both Hazaq and Hanna, there were definite parallels in their online activities in which they went online and searched for information and successfully learnt new skills.

4.3.2.5 Digital Tools in Enhancing Academic Performance

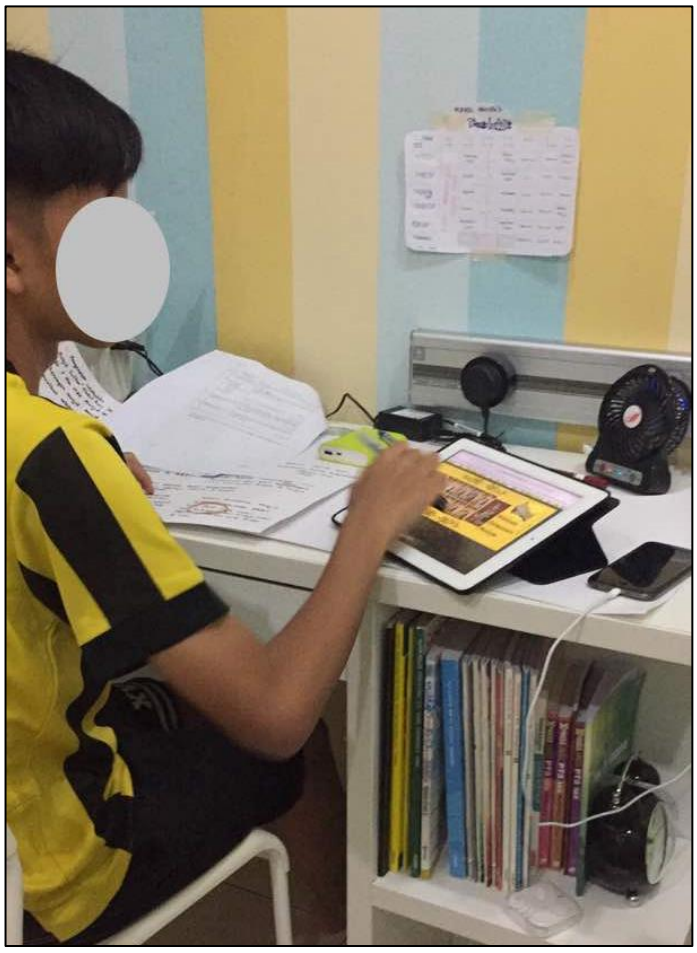

Figure 4.17: Haziq used an iPad to search for information for his school work

Other than using online technologies for his daily life and sports activities, Hazaq also went online when he searched for information for study purposes. As his school integrated online technologies into the teaching and learning processes, he was also actively involved in online learning. In Figure 4.17, it shows how the iPad was being used at the same time with the smartphone and also at the same time he was referring the paper-based materials. It also seems that he was working across different materials and digital tools and Hanna in Family 1 also did the same things too (see Figure 4.7)

At his school, teachers and students were encouraged to use Frog VLE (a Virtual Learning Environment), where teachers uploaded notes, exercises and other study materials for students to download. Sometimes, Hazaq went online to answer online quizzes. Hazaq found it was very useful for future reference, and he was also interested in the online forum to discuss school work. For him, it seemed very organised and sparked his interest in learning especially when it came to difficult subjects such as Biology and History. This shows that Hazaq was more eager to learn independently outside the school hours, the non-traditional method where Hazaq could take control over his own learning process which motivated him to learn more.

For Hazaq, it was easier to understand and helped him to memorise important points. As an example, he would go online to access "Eduwebtv", a YouTube channel created by the Educational Technology Unit (Malaysian Ministry of Education) to watch videos if he did not understand what he had learnt at school. For Hazaq, History was a boring subject, but he liked the channel because it described the topic by producing a story in-order to explain it more clearly. By

watching the subject in a colourful audio-visual medium, he sometimes remembered the images and the storylines, and it helped him in answering the examination paper. And for Biology, as it was very abstract for him, he usually browsed through each animated video by topic even before he covered the topic in school (refer to Figure 4.18).

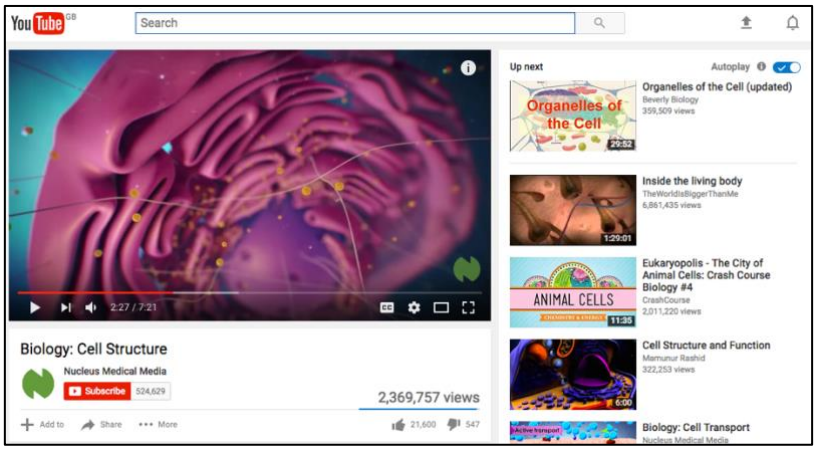

Figure 4.18: Hazaq's Favourite YouTube channel for Biology

Watching the videos meant that Hazaq could access and grasp the information. He described himself as a lazy reader, therefore he preferred to watch videos, stating that sometimes he even watched such videos during his free time. For examination purposes, he normally got the notes, especially mind maps, from his neighbour friend from a different school. He printed these using a colour printer and used them for revision. During the examination period, he also joined a study group where they normally stayed back after school at a Starbucks to do revision. They also brought a laptop when they searched for information or looked for past papers that were easily found online. Interestingly, Hazaq considered himself a lazy reader; however, he seemed to be very involved in quite a lot of elaborate study

activities using a wide range of resources to support his work (Figure 4.19). He actually seemed very sensible to me, as he used study skills strategies proven to be very beneficial. He used texts that were multimodal, and like a lot of people he therefore felt that he was not working as hard as those that simply read written text. He seemed to adopt popular critical points of view, that using the Internet was lazy. However, it was clear he spent a lot of time researching for good resources.

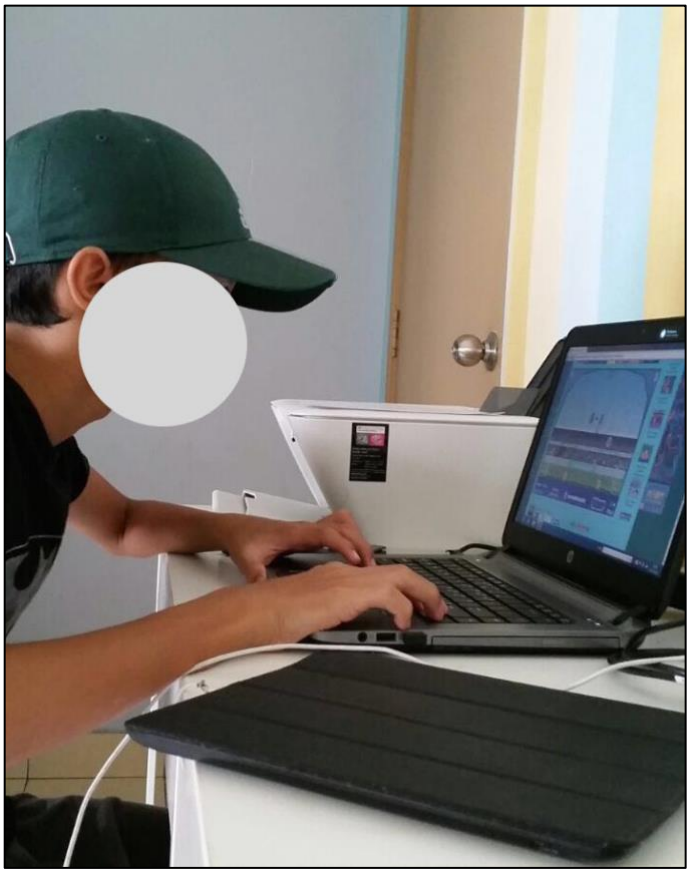

Figure 4.19: Hazaq's usage of a laptop and an iPad for study purposes

As his school provided parents with the ability to access their children's performances at school, he started to study more seriously compared to before. His father also sometimes logged into the so-called FROG VLE and asked him about his studies if he saw any low grades. The Frog VLE also automatically sent an alert

that informed parents if they had any quizzes or exercises, so his mother kept her eyes on him, and right after the quiz ended, his mother also went online to check his score. This was also one of the reasons why he became more focused on his studies at that time. Other than that, by having a virtual learning platform, all student performances were displayed online and compared with each other. This motivated him to study harder. He also argued that his academic performance improved after implementation of the Frog VLE.

Figure 4.20: Features and Tools in Hazaq's school Frog VLE

It was observed here that by having his own personal learning environment space such as Frog VLE (Figure 4.20) that had been integrated in his school, Hazaq seemed very eager in organising and managing his own studying materials and

notes, and he was even able to monitor his own progress as he aware that his parents had access to it. However, he reported to me that he was having difficulties in browsing this ‘one stop centre’ system at his school due to the unstable internet connection and slow computer which contributed to disturbance to use it at school rather than using it at home. This shows that even though the facilities were provided at school, the low speed of internet connection and low spec computers at school demotivated students to use it. This made me wonder whether other students that did not have internet facilities at home had the opportunity to fully utilise this system.

4.3.2.6 Digital Tools in Encouraging Creativity and Self-Expression

As an active Instagrammer, he updated his Instagram every day. By having an advanced high-spec smartphone, Hazaq stated that he always made sure that the photos or videos that he captured or recorded were of the highest quality. He only posted what he thought of as ‘good content’ as he said that was the way he expressed himself, and that was the way he represented his identity. Many followers complimented him, and sometimes asked him how he edited his content. The free Apps on PlayStore helped him a lot in editing his videos and photos. He told me that he never just uploaded photos or videos without a motive, as for him, Instagram was his precious life journal. Sometimes, he inserted a quote in his photo reflecting his feelings of the day or sometimes he edited the videos using special effects to represent his mood. Instagram was also a good platform for him to show his creativity as it was also possible to make his Instagram profile more outstanding

than others. It was clear he wished to present a positive identity that others would respect.

He also used Adobe Photoshop to edit photos and videos. He learnt the software by himself by following online tutorials and told me that he never struggled while learning it because he already had advanced skills as he used to edit photos using Microsoft Paint and edit videos using Microsoft MovieMaker.

If he experienced any difficulties, he referred to his friends who were more skillful than he was to teach and guide him. As Adobe Photoshop was a paid software, he downloaded a cracked version from Torrent which he knew was illegal but still proceed with the downloading and the installation process as he reported that he could not afford to buy it. However, he stopped using Adobe Photoshop after he discovered and learned a new open source video editor software called Lightworks. For Hazaq, Lightworks was simpler compared to Adobe Photoshop, and easier to learn. His current project was to produce a video for his school football team. Hazaq and his group were in the process of collecting materials for the project. The project was about the hectic life of being a football player.

As graphically shown in Figure 4.21, for the current project, Hazaq used the Lightworks software for video editing purposes. A professional software, Lightworks took a high degree of skill in order to use it effectively due to its complexity, tools and features. In Figure 4.21, at the right above of the image, it can be seen that Hazaq was editing a football match video clip and editing it into a shorter clip as he cut and combine only certain parts of it

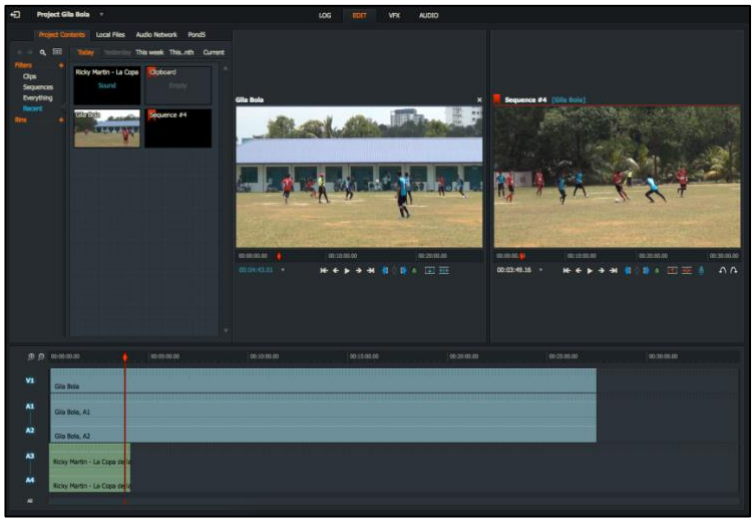

Figure 4.21: Hazaq's current school project for his football team

At the above image, there was an audio editing section, where Hazaq imported two different songs and edited it to match with specific video clip parts. It seemed that Hazaq was able to access information online through online tutorials and successfully developed his own independent and autonomous learning environment by exploring his own potential to use this kind of sophisticated software. Hazaq's online activities also represented a wide range of activities that involved expressing himself and enjoying creativity projects that showed he demonstrated a high level of digital literacy skills.

4.3.2.7 Digital Tools to Mediate Son-Father Relationship

Apart from using WhatsApp for communication with his friends and mother, Hazaq also used his smartphone to interact with his father. Because his father lived in a different state and was always busy with his job, using an online platform was the

best way for Hazaq to keep in touch with his father. Sometimes he and his sister used the iPad to make a video call to talk with their father. Struggling with his parents' divorce, as an older son, he said their divorce made him feel 'broken inside'. Even though he looked cheerful, he said he felt sad about what had happened between his parents.

At first, he was reluctant to talk with his father, but as his father kept sending him messages every day he said this gradually made him 'softer' inside. Before this, he felt that his father had been distant towards him and his sister. However, with WhatsApp and Facetime, he felt that his father would always be there for them. He was also the main mediator between his mother and father. He would be the messenger if his mother needed to update his father, or if his father needed to inform or update something to his mother, such as their monthly life allowance.

From our short conversation on this issue, I saw how digital tools offered opportunities in providing a platform that facilitated long distance relationships between Hazaq's father and his children.

4.3.2.8 Hazaq as an IT Junior Apprentice: Problem Solver

Hazaq learnt how to use digital devices and the internet from his mother. This started when he was 12 years old, when his mother bought him a smartphone and gave him her old laptop, and always stayed at his side to help him learn how to use them properly. Therefore, he learnt a lot of things from his mother, from resetting his smartphone to factory settings, installing antivirus software onto his laptop, to how to format a new installation of Windows. As his mother graduated in Computer Science, she transferred her IT expertise to Hazaq. When he finally acquired some

advanced skills on how to use his smartphone and iPad, and learnt how to troubleshoot his own laptop problems, he then became the main problem solver at home. If there was any technical problem at home, he would solve it.

Currently, he was also guiding and monitoring his sister's online usage. He made sure that his sister browsed and explored suitable content for her age. During the second home visit, he had just finished installing a YouTube Kids App onto his sister's iPad, under the instruction of his mother to search for it. During our session, his sister browsed through the Apple Store and asked him to download new free Apps. He then installed the Apps, and guided his sister on how to play the games. His mother also told me that the previous day his laptop displayed that his Windows 10 software needed to be activated as it kept displaying a "fake" alert and how he managed to solve the problem by himself by seeking information on the internet, successfully identifying that the problem occurred because his laptop was infected by a 'Fake Windows Activation' adware. He found an online article about it, and then followed the step-by-step process suggested in the online article on how to use an Adware Cleaner software, which successfully solved the problem.

Other than having important roles at home, he was also an important person among his friends. Once, he did a face-to-face workshop at his house, teaching his friends how to build a computer from scratch. As a gamer, a high-speed computer was a must, however it was very expensive to buy such a computer. The best way was to buy all the components such as a motherboard, SSD hard disk, RAM and other computer parts separately and build it. Even though he had learnt from his mother how to format a computer, he had never built a computer from scratch. He then watched online tutorials, and tried to disassemble and reassemble it back.

However, he encountered problems with the BIOS setup, but solved the problem by getting advice from his IT teacher. Since then, he has helped his friends, whoever had a limited budget, by accompanying them to a computer shop to buy parts and components and then helping them to build a high specification games computer at home. It seemed that Hazaq clearly had high status amongst his friends because of his digital expertise even though he described himself as being bored most of the time. Nevertheless, I learnt that he was highly industrious, very popular, talented and keen on developing his own self efficacy. This showed that Hazaq gained most online opportunities which contributed to the high level of his digital literacy skills as he was very confident and able to guide his friends in managing their usage of digital devices.

4.3.2.9 Comments

Visiting Hazaq's house provided me maximum access by which to observe and interview him regarding his digital practices at home. I was very fascinated by the ways he effectively managed his digital practice at home. Although Hazaq stated, through his stories, that he was a 'boring' young boy as he told me on my initial visit, my field trips showed me an overall perspective that Hazaq possessed a very high level of digital literacy skills. Continuous guidance from his mother Kak Lofa helped him shape himself from a novice digital user to a very highly skilled user as he was not only able to manage himself in his online activities, but also seemed to play an important role among his friends which put him at the top position whenever they needed help concerning digital devices. I could see that he brilliantly transformed online knowledge into his daily life, proven by his ability to teach

himself through online tutorials such as how to swim using different styles and how to use new software by following online tutorials; this provided me with the information that he had gained lot of opportunities by going online. Focusing on his learning purposes, he also seemed to enjoy his own personal learning environment which motivated him to learn more using online platforms even though he described himself as a 'lazy student' because he disliked reading printed class notes. However, he managed to resolve his academic problems by selecting the right online materials to help him, thereby increasing his academic performance. His readiness towards autonomous learning shaped by his online learning activities also gave me lot of information on how going online cultivated students' ability to find and select online information and critically use it for studying purposes. I must also say that a reliable high-speed internet connection and other digital infrastructure at his home provided by his mother also played an important role in developing his digital practices at home.

4.3.3 Family Profiles: Family 3 (Chichi)

4.3.3.1 Introduction to the Family and Neighbourhood

Figure 4.22: Chichi's house

Family 3 consisted of a two-parent family. A businessman who owned an engineering service company, the father was rarely at home as he was usually out for meetings at the project sites which were located outside the city. The father, 43 years old, had a Bachelors degree in Engineering. The mother, 43 years old, a housewife, also had a Bachelors degree in Human Resources. The mother used to work as a Human Resource Senior Executive for more than 10 years before she resigned to focus more on her family due to her husband's work commitments.

The participant, Chichi, was a middle child, and had an older sister, age 18 years who was currently studying for a degree in a different state. She also had one younger brother (10 years old) and one younger sister (7 years old). The mother,

Kak Melur, was a good friend to the IT teacher whom I liaised with for my research. As her daughter, Chichi was also very interested in IT. She volunteered herself right away in the classroom, when I announced that I needed volunteers for my home visits. I had a little conversation with Chichi right after the school session, and she gave me her contact number with the promise to contact me after discussing the proposal with her mother. Luckily, her mother also agreed to join as a participant. We had several WhatsApp conversations and she agreed after she talked to Kak Shelly, the mother of Hanna, who was my first participant in Family 1. Both mothers found this was a good platform to reflect upon the ways they managed their children's' online activities at home and while it would also benefit the children.

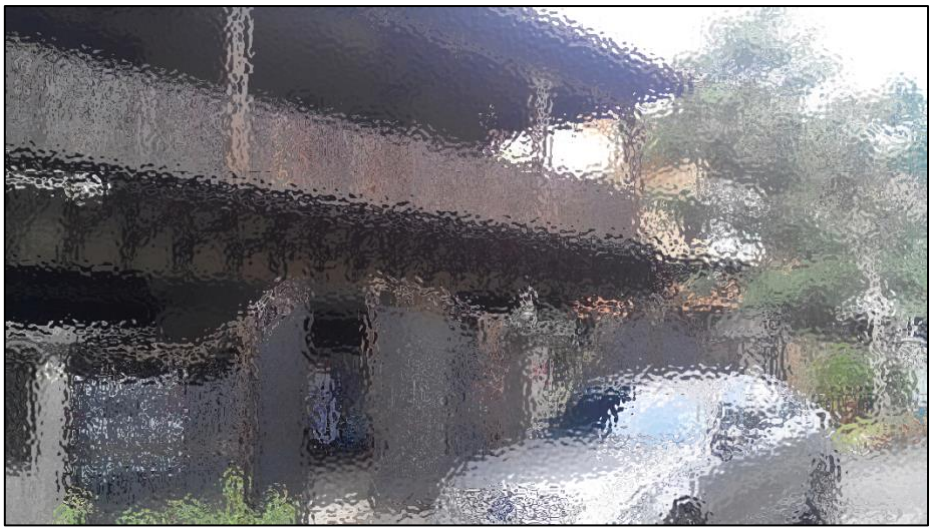

Figure 4.23: Chichi's house located in an exclusive residential area

This family lived in an exclusive residential area, a gated community with access via a security guard. I needed to register as a visitor in-order to enter their housing area. The house was a very extensive property, originally two houses renovated and the border wall demolished to connect them. The interior design

could be described as luxurious with expensive imported furniture. It had 8 bedrooms, 6 bathrooms, 1 outdoor mini gym, 2 living rooms, 1 dining area, and a small swimming pool and mini playground. Even though the house was spacious, the mother preferred to manage her family by herself by doing all the household chores with the help of her daughters. When I arrived, the daughter had just finished taking her shower, and she straight away went to the kitchen and brought me a drink and some snacks for teatime. This shows me how independent Chichi was, without being instructed by her mother she knew what to do to entertain a visitor. She told me that she had just finished her debate training session at school. This was the family that placed importance on etiquette, manners and regulating their behavior; as it subsequently turned out, this approach to life could also be seen in their relationship with digital technologies.

I explained to Chichi and Kak Melur about my research and asked for their permission, and they agreed by signing the consent form. After a short conversation of approximately half an hour, the mother then excused herself to finish some household chores, leaving me alone with Chichi at the dining table. At the side of the dining table, the younger sister was doing her school work, a colouring-in task, whilst the younger brother watched some drawing tutorials on YouTube using an iPad. Chichi then told her brother that his time was up, and that it was now her turn to use the iPad. Each of them were allowed to use the iPad for one-hour each day, as the mother was very strict about the time they were allowed to spend online. Thus, although it was clear that she saw value in their engagement with digital tools, she also felt it necessary to operate guidelines and restrictions around their usage.

Figure 4.24: Chichi browsed YouTube videos and her mother's smartphone during my conversation with her mother

We started our Digital Tour with Chichi showing me around her house. There was an entertainment area in the first floor, that consisted of a 60-inch smart TV with a sound system. On the second floor, there was another smart TV, located in a small living area, with a desktop computer equipped with a printer at the side of the TV. We went into her father's office where there was also a desktop and a printer on a big and long study desk.

No	Family Members (Living in the house)	Devices / Digital Devices Ownership	Internet Access and Use
1	Father, age 43	Smartphone Laptop Desktop	Active internet user, went online everday
2	Mother, age 43	Smartphone Galaxy Tab iPad Laptop Desktop	Active internet user, went online everday
3	Chichi, age 16	No ownership of a digital device	Active internet user, went online everday
4	Younger brother, age 10	No ownership of a digital device	Moderate internet user, went online everday
5	Younger sister, age 7	No ownership of a digital device	Moderate internet user, went online everday

Table 4.9: Digital Device Ownership, Internet Access and Use among Chichi's Family Members

Based on Table 4.11, Chichi reported to me the digital devices ownership and internet access and use among her family members. The first time Chichi went online was in her home at the age of 7, where she played online games with her elder sister. Chichi used to own a smartphone, the first digital device that she received as a gift from her father because she got flying colours in her Lower Secondary School Certificate. However, her mother became very angry one day because she kept clinging to her smartphone and not doing any household chores or finishing any of her school work. She also always stayed up until late until 8.00 am in the morning during the weekend and this resulted in both her parents deciding to confiscate her smartphone. Her parents were also worried about her well-being and health and they made a connection between her diminishing sleeping times with her attachments to the smartphone. It was seen that, due to the usage of the smartphone in Chichi's life before, her parents thought that it contributed to her

procrastination as she was unable to finish her school work. Indeed, they labelled her attitudes as 'addicted' to the internet and this was 'admitted' by Chichi as she mentioned the same things too. This gave me the initial impression that there seemed to be conflict about the way Chichi's parents perceived the status of digital technologies in their home and about how digital devices should be used strictly for study purposes and for communication regarding school work and activities only.

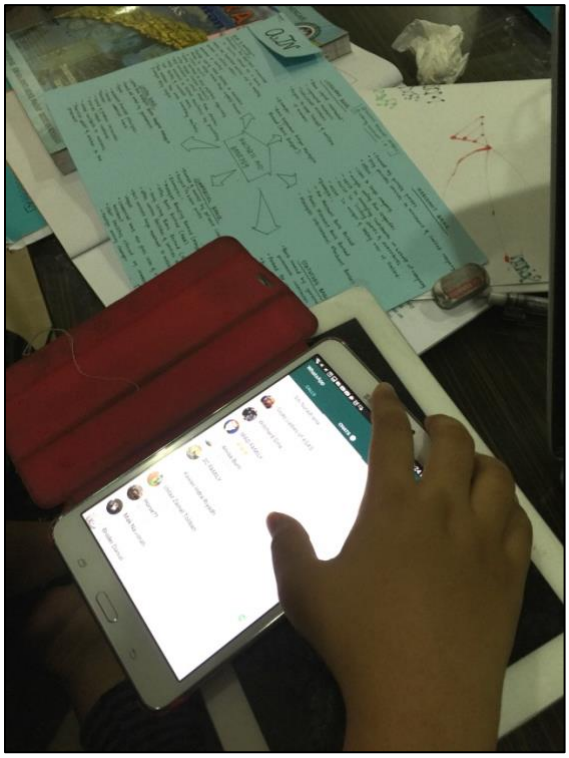

Figure 4.25: Chichi used her mother's Galaxy Tab to communicate with her friends regarding school work

As Chichi relied heavily on her smartphone to communicate with her friends, she persuaded her mother to give her access to it again. Her mother then gave her permission to use her mother's Samsung Galaxy Tab for WhatsApp, but only to communicate and discuss school work. So, every day she borrowed her

mother's Galaxy Tab to communicate with her friends to ask about school work. However, her mother still gave her access to use the laptop, desktop and iPad, for school work or for entertainment, only if she had already finished her school work. Normally, she went online in her bedroom, living room, a friend's home if they had a study group, or at her relative's home which was nearby to her house. The digital tools were therefore sometimes positioned clearly as homework helps, and at other times as social network devices.

4.3.3.2 Digital Tools to Aid Critical Thinking

Chichi's daily routine was to watch animation videos on her mother's iPad. She loved animation videos because she liked the colours and admired how the scriptwriters and animation makers developed such beautiful animation clips. She was also more interested in watching short story animation clips rather than long duration clips due to the limitation of time as she used the iPad on sharing basis with her other siblings. As Chichi became older, she carefully selected the content and she preferred to watch short stories that won awards as, she said, they always contained good moral values and messages underlying the storyline.

Her favourite animations were related to the issues of cyber bullies, suicide and selfishness (i.e. Figure 4.26). Every time she watched this kind of short story, she reflected on herself, with some of the content even sticking in her mind for several days, by saying one of the stories was about how beautiful our lives were and why we should never give up living. Chichi loved short stories that delivered beautiful messages and she claimed that some of them are very good for teenagers.

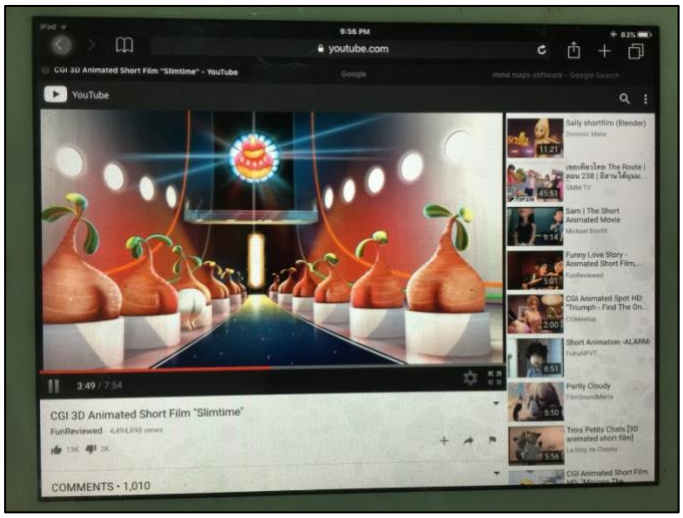

Figure 4.26: Chichi's favourite animation short film, 'Slimtime'

However, she said that not all the animation videos were suitable for children. This is interesting considering that she felt that she should be censored from watching some of this material. It seemed that Chichi did the reflection based on her previous online experience when she accidently browsed a YouTube video that contained content that was unsuitable for her age as she just randomly clicked any videos. Therefore, it could be seen from Chichi's description that she felt uncomfortable once she watched it and became more careful after that as sometimes she watched videos together with her younger siblings.

During our conversation and her demonstration, where she showed me her favourite animated short story video clips, Kak Melur interrupted us and said that sometimes Chichi spent too much time watching all those videos. However, Chichi argued back by saying why not as long it was a good story and had good moral

values and messages. It was better, she said, rather than watching K-Dramas[1], love story series. She also told me that she was interested in animation, and would like to pick animation maker as one of her career choices as she saw good opportunities as Malaysia's animation industry was getting better, with some local animators even making it to Hollywood (Bernama, 2016; Skwigly, 2014).

As her mother was not very happy about her (as Kak Melur saw it), 'obsession with animation'; Chichi told me that this was why she carefully chose which story she wanted to watch; at the same time, she read the synopsis first. This was to identify whether the content was good for her as some of it contained sexually explicit content or used abusive words. She was also afraid that her mother would scold her as her mother checked her online activities and her siblings' online activities via their online history. This also applied to her WhatsApp conversation, as her mother checked and read what she talked about with her friends. And sometimes, her mother kept asking specifically about her friends if her mother found that her friends used any unsuitable words that should not be used by children like her.

What is interesting here is how the children in this family were more concerned about the mother's opinion, and that they feared her censorship instead of being bothered about making a moral or ethical judgement for themselves although Chichi said the stories had a moral message. This explained why Chichi was very selective with her selection of YouTube videos as she had told me previously. At the same time, it was clear that Chichi herself restricted herself too

[1] K-dramas refer to Korean drama series produced by the South Korean entertainment industry usually based on romance and love story genres starring good-looking actors and actresses.

as she believed that her mother did the right thing by always checking her online activities and agreed that her mother's restrictive guidance was the best way in developing her to be a good and responsible digital user. It can be seen from the observations and the interviews, that Chichi had got good critical literacy in evaluating the online contents. However, due to the restrictive mediation implemented by her mother, she was 'perceived' that her mother's decision is always right and was the best way to protect her even though at the same time she believed that she should be allowed to go online independently and safely.

4.3.3.3 Online Friends, Offline Strangers

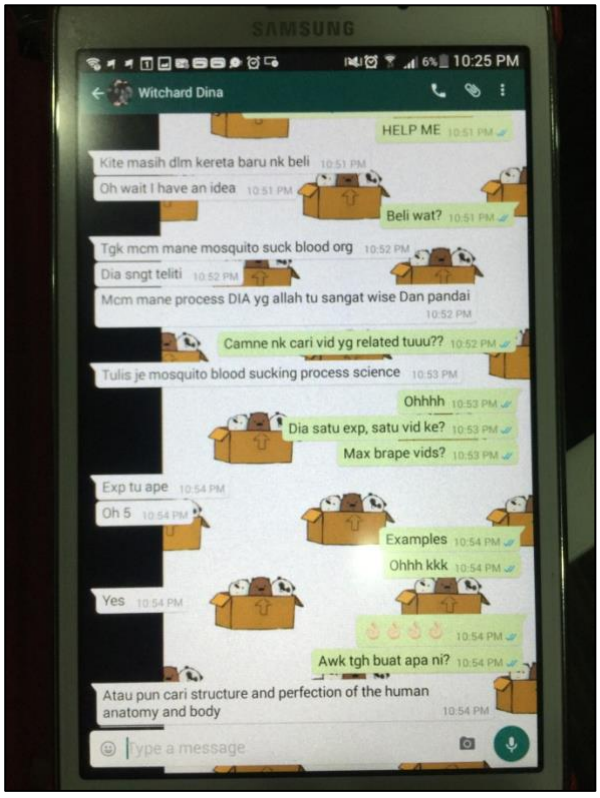

Figure 4.27: Chichi's WhatsApp conversation with her friend Dina, discussing her schoolwork

As Chichi had previously studied at an Islamic school for two years, the transition to this normal secondary school left some impact on her social interactions. In Islamic schools in Malaysia, it was a very strict environment where the seating between girls and boys was segregated. The boys sat on the front rows, while the girls sat behind them. After a few years studying in an Islamic school, it was a hard transition for Chichi to adjust herself to, and dive into friendship among her new friends at the new school. However, after months of studying in the new school, Chichi managed to mix well with the other girls as she was personally a very talkative person, but she still found it quite challenging to talk with boys in her classroom.

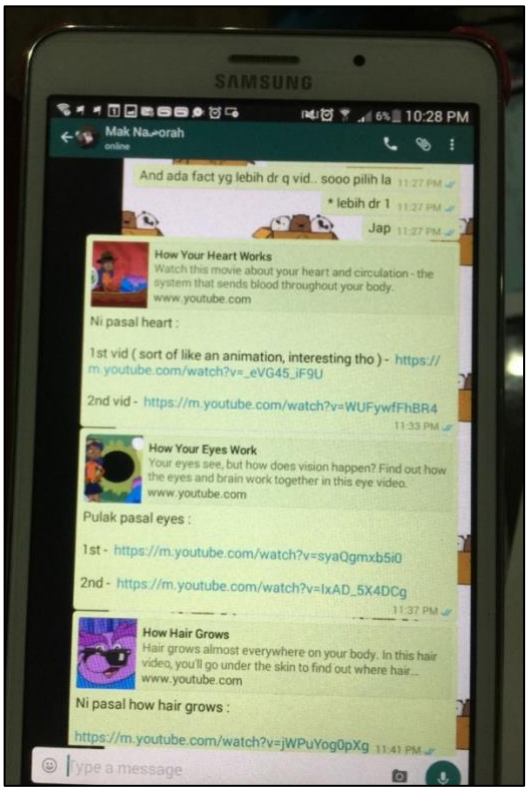

Figure 4.28: Chichi's friend Naorah shared a few YouTube videos that related to their school work

As can be seen in the Figure 4.28, Chichi had a WhatsApp group for her class, and she usually updated and discussed school work on this platform. In the figure above, it also can be seen that they were searching sharing YouTube regarding their Science's project as a few of her classmates were unable to find a suitable video for the complex process of the human body. Other than that, she usually posted any inquiry directly to the WhatsApp group if she had anything to ask. Then one day, during the weekend, nobody seemed available and active in that WhatsApp group. Then she scrolled one by one down her contacts list to see who was currently active and came across a boy who was her schoolmate when they were in primary school. She told me that even though they had known each other since primary school, they had never talked to each other, but she knew that the boy was very good in Mathematics. Afterwards, she personally messaged him and asked whether he was available to help her in doing her school work. He then made a calculation that she gave to him on a blank piece of paper, and photographed it and sent it back to her via Whatsapp. Since then, there have been a few times when they have exchanged messages regarding school work. She also helped him a few times with other subjects such as Biology and History.

Figure 4.29: Chichi went online using her mother's iPad to find information for her school work

Even though they helped each other in the virtual world, still they never talked face-to face-in the classroom, and remained strangers when they bumped into each other in the school. But in real-time messaging they were quite talkative and discussed many things, mostly school activities. She felt comfortable and preferred the situation to remain that way as she thought virtual friendship was a normal thing nowadays. Further, as long they obtained benefits for study purposes, it was not a big deal. Still, she felt awkward with him in the classroom. Thus, it seemed that digital tools used here, such as WhatsApp, helped Chichi to fill the communication gap and successfully helped her to solve her school work even though she was struggling to communicate with boys. By using digital tools in a positive way, it was seen here that Chichi managed to solve her communication issues and developed her own communication strategies out-with school hours. By using the

digital tools i.e. smartphone and contacting with her male friend through WhatsApp, she was able to manage the complex relationships between males and females in strict Muslim situations; the boundaries of the gender divide seemed to be relaxed in online spaces, whilst being maintained in face to face situations.

4.3.3.4 Digital Tools: Embracing Extrinsic Rewards and Cultivating Intrinsic Motivation

As digital device usage in her house was allocated on a shared basis, this motivated Chichi in building and sustaining her commitment to finish her school work. In order to use the iPad, computer, laptop or tablet for entertainment purposes, her mother set a condition that everyone was only allowed to use all those gadgets if they had finished their school work or household chores.

These conditions of usage also came with a punishment. If you scored poorly in your exams, or failed to finish school work, the parents confiscated all digital devices. These conditions boosted Chichi's extrinsic[2] and intrinsic[3] motivation as she felt that she could not live without watching YouTube every day. This made her keep track of planning and organising her activities for the after-school session. The ability to watch her favourite movies, music videos, animation or sometimes play online games kept her happy as her mother rarely allowed her to go outside due to security concerns.

[2] Extrinsic reward refers to 'a construct that pertains whenever an activity is done in order to attain some separable outcome'(Lindebaum, 2009, p.60).

[3] Intrinsic motivation refers 'as the doing of an activity for its inherent satisfactions rather than for some separable consequence' (Lindebaum, 2009, p.56).

It seemed here that there were differences regarding the 'confiscation' solution implemented by Chichi's parents in this family digital practices compared to with the previous Family 2 (Hazaq's family). Even though the way 'confiscation' mode was implemented in different ways in these two families were based on an active mediation style (Hazaq's mother) and restrictive mediation style (Chichi's mother), it was interesting in comparison to the other family because it was clear that digital tools enabled the children to become more disciplined and be able to manage their online activities, school work and to study in an independent way.

By going online, she also found it as an extrinsic reward because sometimes she needed to contact her schoolmates in her previous school, and her elder sister who had recently moved out from the house and was staying in a hostel at her university accommodation. She hoped that her parents would allow her to own a smartphone in the future, because it would be a 'mission accomplished' as she felt that everyone nowadays possessed one. Therefore, to gain back her parents' trust, she needed to behave well and show them that she had managed to live without clinging to online technologies all the time. In other words, she reported that she had to show she had overcome her smartphone attachment. This was difficult as in order to achieve her goal, she had to paradoxically behave as if she did not wish to achieve it.

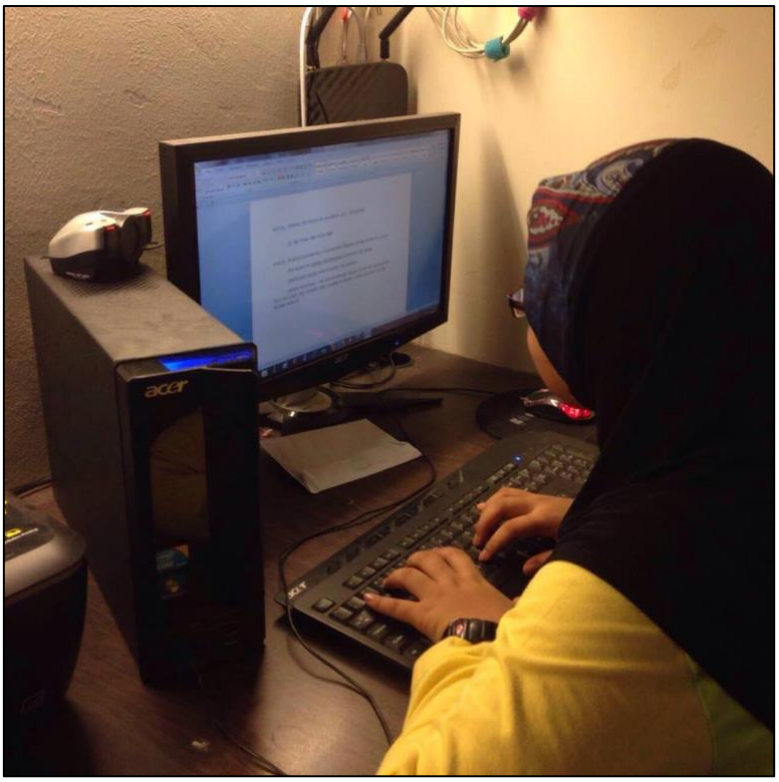

Figure 4.30: Chichi using a desktop computer to finish her school work

It has been shown here that the parents seemed to have a conflicted relationship with digital tools as Chichi's mother reported to me that she felt worried regarding Chichi's time management once Chichi went online. As mentioned in Section 4.2.3.1, the mother became concerned about the well-being/ health condition of her daughter as she stayed up until 8 am in the morning which created the mother's perceptions and concerns towards her daughter's online activities and the pattern of her smartphone's usage. However, it could also be seen that the mother was able to use a better strategy when she managed her children's online digital practice in her own way, as she carefully regimented the children's access to the digital tools because she believed that was the best way.

While there was the affluence in this family to provide expensive goods, Chichi's mother still thought that the digital tools had not necessarily been used fully to enrich the children's learning and lives. On the one hand, the uses of the new technologies were often operating below the radar of the mother's vigilance. On the other hand, even though the mother felt that digital tools made Chichi procrastinate, she also believed digital tools could also help Chichi improve her academic performance; further the mother used digital tools as rewards if Chichi managed to complete her school tasks, thus offering something she considered 'unhealthy' as a reward for good behaviour. It seemed to me there were many unresolved, conflicting beliefs about the nature and value of digital tools in this family, which was very different to Family 1.

4.3.3.5 Digital Tools as Language Learning Tools

Chichi reported that her previous school did not focus on English language as the school focused more on Islamic subjects and Arabic language due to its status as an Islamic school. This, then, had contributed to her lack of confidence when she transferred into her new school. As her current school was located in an urban area, with the majority of students able to converse fluently in English, she felt isolated during her first few days. She joined a WhatsApp group that consisted of her former primary schoolmates but found that they used English as their main medium whenever they talked to each other. She struggled in adjusting herself to her new circle, but her friends repeatedly encouraged her by saying that it is not too late to improve her English skills.

As her classmates were very active in the English Society, she registered as a new member and joined them. In their WhatsApp group, they used English as the main medium and often shared song lyrics which she found very helpful in-order to learn English and learn new vocabulary in interesting ways.

By using the internet to find information in-order to complete her school work, the majority of the content was in English. Therefore, she used Google Translate to find definitions. By joining the English Society, they had a meeting every week, and the latest activity that was launched was a Debate Competition. She was still in the process of preparing for the debates, and at the same time she referred to her search for information on how to improve her English and polish her debating skills as she described herself as a novice English debater. Even though she was a school debater in the Malay language at her previous school, she found it was very challenging to debate in English.

She also kept herself updated by reading an online Malaysian English newspaper as she said it was a good platform to learn English because it was written in a formal English writing style unlike the style used in song lyrics. As for her interest in watching animation videos, this also helped her improve her English learning, as no Malay language subtitles were provided. However, she usually used the ‘closed captions’ (CC) function in YouTube in-order to understand the dialogue as sometimes she failed to grasp the pronunciation. It seemed that Chichi managed to choose the right digital tools in improving her English weaknesses and she critically managed to select which tools to use across different platforms. This was shown through her different use of strategies to polish her English language skills such as watching YouTube English medium short movies to learn English and

creatively ‘switched on’ the ‘CC’ functions in YouTube to ‘catch up’ with the dialogue. Other than that, she was seen to be actively involved in online collaboration with her friends through WhatsApp conversations where she communicated with her friends using the English language.

4.3.3.6 Fake Social Network Profiles: Protecting Shield Strategies

Due to her mother’s restrictions, Chichi and her elder sister created a fake social network profile using her sister’s smartphone. Chichi made her fake profile due to her mother’s restrictions about her Facebook usage (refer to Figure 4.31). Chichi reported that she realised that it was very risky, however for her it was a good way to explore the social networking world.

Figure 4.31: Chichi’s fake Instagram account shared with her elder sister

They also shared the same fake Instagram profile. They set an image of Cristiano Ronaldo instead of using their real faces, and created a boy's name for it and acted as a 19-year old. Based on her online experiences, she felt uncomfortable when contacted by strangers that talked about sex, but felt safe to go online using a fake boy's online identity. She admitted that this behaviour was wrong, but sometimes she or her sister used it to follow their favourite artist or stalk the famous handsome Instagrammers which their mother argued made Instagram an unbeneficial social networking media website. Again, it was seen here that Chichi's decision while going online was based on her mother's judgemental attitude towards her online activities.

She explained to me the reason behind her decision to make this fake profile and she told me that she knew that she was doing a wrong thing. Nevertheless, she indicated to me the reasons why she did it in that way. It seemed that her decision was a product of the situation that she was in, and that she was doing something based on her belief. It was also seen that she was slightly conflicted as she felt she was wrong to do that because she knew her mother would tell her that it was a bad thing to do, but another part of her said that it was the right thing to do, because by doing that she was still safe. She reported that this was the main reason why she invented a fake identity, because for her it was like a kind of avatar - it was not her as her 'real life' identity; rather, it was something that she created online to protect herself so that if anybody spoke to her he would have spoken to her avatar profile account and not something connected to her 'actual' identity. And she believed that she had made the right decision to separate herself from engaging even though at the same time she was conflicted concerning her action. Thus, Chichi put herself in

a very complex situation as she said that she just wanted to interact online and that she had gained great benefits from social media. She also reported that she wanted to explore possibilities, and this experimental decision helped her learn in a positive way and for her, it worked to help her gain online opportunities.

She also explained to me that she knew that her friends had also created 'fake profiles'. Therefore, it seemed that fake profiles were quite common, thus this provided her a certain sense of safety even though at the same time, she still felt that it was slightly dangerous and risky to have a 'false identity'. From this it could be stated that what she has been doing was what some people might term as using a false identity, while others could saw that she had just created an avatar. It seemed to me that she invented the best strategy as she believed by doing this she could separate herself and keep herself safe. As she felt it was a normal thing, supported by the fact that lots of her female friends had done the same thing too, she also felt safer because nobody cared and rarely disturbed a boy. She also said she never misused it in a wrong way and never did any inappropriate things online as she felt it was okay because her elder sister knew about it. She also never contacted someone and claimed or cheated on them about her false identity as they kept a low profile, and just used it for fun. At the same time, she also claimed it was their online strategy as a shield to protect themselves due to many reports about online predators involved in online grooming.

Chichi told me that her mother did not know about this, as she and her sister always deleted the history on the browser and never saved the username or email, although they left the other browsing history undeleted. Meanwhile, for her current Facebook real-profile, she did set up privacy settings and approved friend requests

only from real and acquainted friends, family and extended family members. It is interesting how the strictest mother with the most rules in place in order to protect her children's moral welfare, it was these children who had seemed to me, been most transgressive in their behaviour.

4.3.3.7 Comments

I was glad that I had the opportunity to conduct my observations, interviews and a questionnaire discussion with this family. Through my analysis I discovered many interesting findings regarding this family's digital practices. The way Chichi's parents positioned digital devices within their children's lives indicated that even though this house was luxurious, and contained all the benefits of an affluent lifestyle with the relevant infrastructure above the standard living style in Malaysia, the children experienced the most restricted access to digital tools. This conflict could be reasoned as due to what was seen as the unhealthy smartphone attachment by Chichi; she stayed up until late and always slept until around 8 am during the weekend after being online non-stop for the whole nights Thus, it was clear here that the mother was very concerned about Chichi's well-being. At the same time, the mother still used digital devices as a reward if her children followed house rules and regulations. This situation was similar to what was encountered with Family 2 (Hazaq).

Regarding digital access, I was surprised that Chichi used her mother's smartphone and Galaxy tablet to communicate with her friends and the 1-hour limitation period in using the iPad that had been shared with her younger brother and sister. However, it was seen that through this implementation of the limited

hours of digital device usage and internet access, Chichi still successfully managed to fully utilise the digital devices for entertainment, communication and study purposes, and she was still able to gain online opportunities. At the same time, the mother was also comfortable with this shared basis of her own smartphone with Chichi which showed that she had also put trust in Chichi not to breach her own (the mother's) privacy.

Another interesting finding regarding this family was the creation of an avatar (fake) Instagram profile by Chichi and her sister. I had to be very careful when I analysed this data as I needed to distance myself and did my best to avoid being judgemental and remain neutral in-order to understand this complicated situation through an in-depth evaluation of Chichi's conflicts. This situation also indicated the position of elder siblings in managing their younger siblings' digital practices, as Chichi's mother had given the elder sister the responsibility to guide her younger siblings when they went online.

Lastly, it appeared that the condition of the house affected the usage of technological devices in this house. Despite the full facilities at this house, with two entertainment hubs, two living rooms, high-speed internet connection, mini gym, mini playground, reading room and small swimming pool, very strict rules existed that underlined this family's digital practices. I wondered why this rich family were very restrictive in their digital practices. The mother answered me when she stated that she and her husband wanted their children to enjoy outdoor activities too (e.g. swimming, playing and exercising) and not become too attached to their digital devices.

As the mother was a housewife, she had full authority in managing her children's activities. Compared to Family 1 (Hanna), her mother Kak Siti also was a housewife, but even though this family had limited infrastructure, she provided full access for her children to go online. In this family, the massive size of the house appeared to have contributed to such restrictive regulations, as they had everything in their house. In addition, it seems that even though this house had 8 bedrooms and its own reading room, the mother still preferred that her children did their school work at the dining table as it was easier for her to monitor them. Thus, I saw that the mother was worried that if the children used the digital devices in their bedrooms, she would have found it difficult to monitor their activities, as she stated to me. This was in stark contrast to Family 1 (Hanna), which, due to the small size of their house, the children in this family preferred to be in the living room as that was the coolest and most comfortable area in their house compared to being in their bedrooms. This was also in line with Family 2 (Hazaq). His mother, Kak Lofa, also preferred her children to be in the living room when they went online except during her working hours as she was not at home. These findings showed that the infrastructure of internet access and the availability of multiple digital devices in the home influenced the way children managed their online activities. However, it varied within each family, depending on their family values. It was certainly not the case, as may be suspected by some, that a smaller income dictated less access to digital devices.

4.3.4 Family Profiles: Family 4 (Bella)

4.3.4.1 Introduction to the Family and Neighbourhood

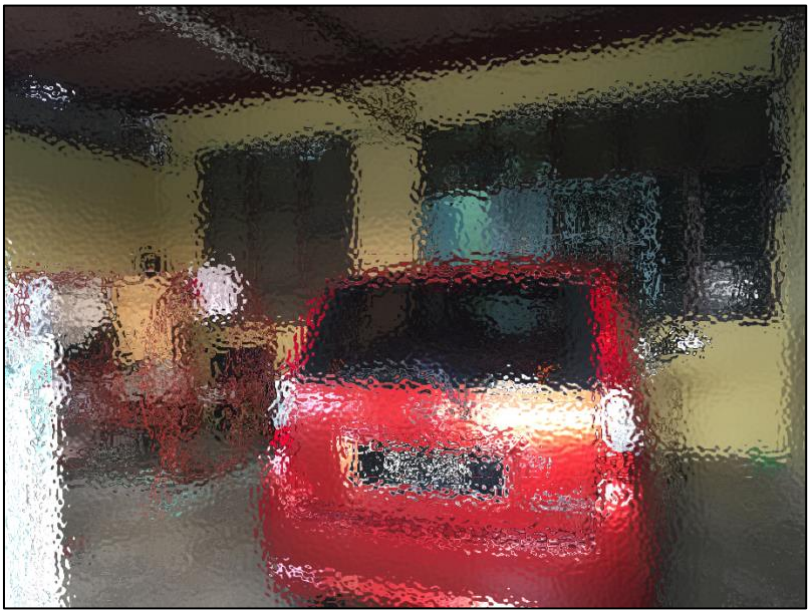

Figure 4.32: Bella's house entrance

Family 4 consisted of a two-parent family with six children. The participant, Bella (16 years old) was the youngest member of the family and had three older sisters: an Islamic Teacher (30 years old), a nurse (28 years old), and an IT executive (25 years, and has a Bachelor Degree in Computer Science). The other two older brothers worked as a businessman (22 years old) and as a security officer (20 years old), respectively. The father (58 years old) was an army retiree, had a Primary School Certificate (UPSR) and never used the internet. The mother (56 years old) was a housewife, and had a Primary School Certificate (UPSR) and never used the internet. For daily communication, both parents used mobile phones for communication. All three older sisters lived in different states while the two older brothers lived together in the house with the rest of the family.

Figure 4.33: Bella's house lane, situated in a low cost residential area

I was able to recruit this family as participants for my home visit as they volunteered themselves. Bella contacted me through WhatsApp using her brother's smartphone, and asked me whether there were any remaining spaces for her and her family to join as participants. Both Bella and her mother Kak Nana were talkative, so I immediately felt comfortable to mix with the family. After arranging the appointment, I reached their home safely and it was easy to find the house as one of Bella's brothers sent me the location using WhatsApp.

The family welcomed me and asked me to join them for lunch. I had a conversation about how hot the weather was, and a little bit about their family. When I arrived, three family members were there, the 22 year old brother, the mother and Bella. The brother then excused himself as he needed to run some errands. After I explained my research to them, they signed the consent form and we started with a Digital Tour. Bella also reported to me the digital device

ownership and internet access and use among her family members as can be seen below in Table 4.12.

No	Family Members (Living in the house)	Devices / Digital Devices Ownership	internet Access and Use
1	Father, age 58	Mobile phone	Never use the internet
2	Mother, age 56	Mobile phone	Never use the internet
3	Oldest brother, age 22	Mobile phone	Low digital user, went online few time per month
4	Elder brother, age 20	Smartphone	Active internet user, went online everday (mobile data)
5	Bella, age 16	Smartphone	Moderate internet user, went online few times per week
		Laptop	No access to internet

Table 4.10: Digital Devices, Ownership and Internet Access and Use in Bella's House

The house was a low-cost single storied terrace house. The house was not equipped with internet connection. The oldest brother was the only one using a smartphone with internet connection, so he was the one that accessed the internet if the family needed to use it, for example, for online banking or paying bills. When I arrived, Bella was watching a Malay drama on television with her brother and she borrowed her brother's smartphone to WhatsApp her friend to ask her about school work during commercial breaks. She had also contacted me on WhatsApp to arrange the time and day for my house visit.

Figure 4.34: Bella used her brother's smartphone in between watching TV

For now, Bella was using a mobile phone. In addition to having a mobile phone, Bella also had a laptop, also given by her older sister. The laptop did not have internet connection and normally she used it to do her school projects and watch Korean Dramas. Bella first went online when she was 12 years old at a cyber cafe, playing online games with her friends. Her first digital devices that she owned was a smartphone and an old Macbook laptop, at the age of 13 years. Nowadays, she normally went online around 5 hours per week during school days, and for non-school day about 2 hours per day. She went to a cyber cafe located around 800 metres from her house, accompanied by her eldest brother, Ronnie. Sometimes she went online at her friend's house, her relative's home or a different cyber cafe (1 Malaysia Internet Centre, provided by the Malaysian government), right in front of her school.

4.3.4.2 Surviving on Limited Internet Infrastructure

In Malaysia, cyber cafes can be found almost everywhere. They are places equipped with computers with high-speed internet connections that charge a fee on a time-based rate. Other services provided included printing and fax services. Normally the cyber cafe Bella attended charged around RM 1.50 (approximately 25 pence) per hour for computer usage with a high-speed internet connection. People would usually go there to access the internet or to play online games or to print. For youngsters, especially for those without access to high-speed internet, they would go there to play online games.

For Bella, she went there to find information regarding her school work and for entertainment, such as watching Korean dramas or reading the latest gossip about Korean artists. She collected information for her school work and used the collected materials to do her school projects. Further, she retrieved all the data using her laptop at home afterwards. She also liked to download the latest Korean dramas and songs. In this way, Bella made the most of the Internet. She would remain up to date by attending the cyber café regularly, but could then access content at home by downloading it and transferring to her laptop. In this way, her use was very strategic and very economically.

Figure 4.35: Bella' favourite cyber cafe entrance

After gaining permission from her mother, I followed Bella to her favourite cyber cafe. She normally spent around 1-2 hours there, accompanied by her brother. She preferred it that way, as the limited time made her stay focused, and helped her to organise her time in-order to find information for her school work. For the first 30 minutes, she watched the latest episode of her favorite Korean drama before she commenced searching using an online search engine for study purposes. If the time was not sufficient, she downloaded the latest episode, and saved it onto a pen drive so that she subsequently watched the drama later at her home. Thus, Bella could use digital technologies in a very strategic manner as it was shown here that by this action she saved money in a very clever way.

Figure 4.36: The cyber café located on the second floor

Bella's favourite cyber cafe did not have any signboard, only a banner at the entrance. Children below 18 years old were not allowed to enter with school uniforms as the owner of the cyber café was afraid that school children skipped the school and they (the owner) would be fined in such cases. It was located on the second floor. The cyber cafe was quite hot without proper lighting and fresh air, with around 30 computers inside.

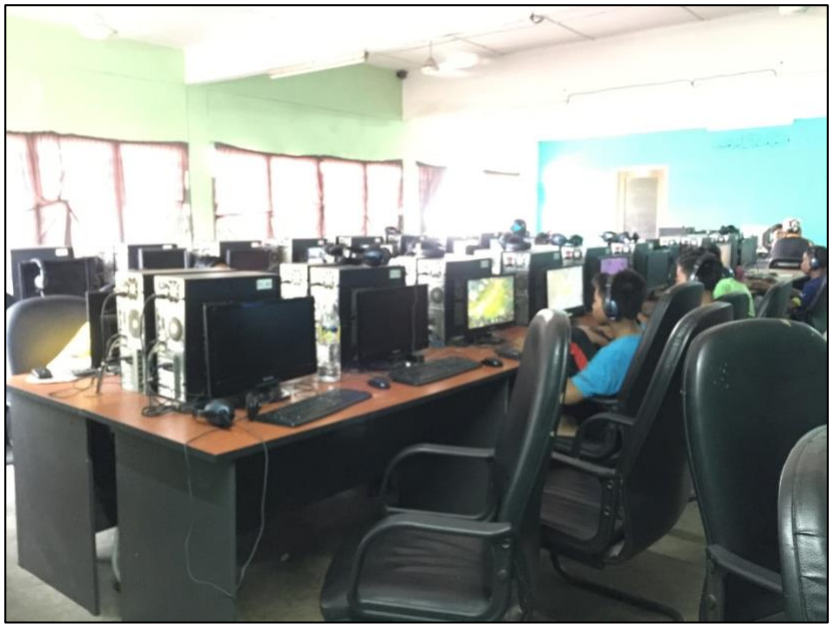

Figure 4.37: The interior of the cyber café

Before taking any photos, I spoke to the worker there and asked for their permission. I also asked permission from other children to take their photos while they were playing online games. It was quite noisy as they kept shouting to each other whilst playing games. Bella told me that her brother that accompanied her normally joined in playing online games too. As their residential area was a small area, the majority of the cyber cafe's regular customers had known each other as they were neighbours. When we arrived there, there were two girls who are Bella's school mates. Both were also watching online movies.

I sat beside her and observed her online activities. She spent the first 30 minutes watching an episode of a Korean drama, *Descendants of the Sun*, and read the latest gossip about Korean artists. She told me that another episode of her drama had been released, so she downloaded the episode onto her pen drive, with the aim to watch it at home using a laptop.

Figure 4.38: Bella browsing YouTube videos

After that, she continued exploring Facebook, which she told that she was in low profile mode, meaning that she did not write any status for months, but still logged-in to chat with her friends and to keep updated on her sister's newborn child because her sister uploaded new photos of her baby every day. In between, she also watched one episode of the Big Bang Theory, an American TV sitcom.

At the same time, Bella also surfed the internet, using the Google search engine to find information regarding her school project. She needed to prepare a presentation slide on 'Mutation'. After taking notes about mutation, and saving pictures and videos about mutation, it was time to go home as she had already been there for two hours. Her mother was very strict about the amount of time that she was allowed to spend at the cyber cafe due to the drop in her school academic performance.

Once we arrived home from the cyber café, Bella switched on her Macbook Pro (that was given by her sister) and started to watch the latest episode of

'*Descendants of the Sun*' that she had saved to her pen drive from the computer in the cyber cafe. She told me that once she finished with her school project, she would also save it to her pen drive. However, if she needed extra information for her school works despite having visited the cyber café or if there was any emergency, she typically went to her grandmother's house that was within walking distance to borrow her uncle's computer which had a high-speed internet connection. When I asked why she did not go straight away to her grandmother's house instead of going to cyber café, she replied that her grandmother was very strict, and the online usage was very limited and restricted as she was not allowed to watch YouTube videos or Korean Dramas. As her uncle was an active online gamer he was always at his computer, except the time he worked. So, she always needed to check with her grandmother whether her uncle was at home or not.

During my second visit, I did get a chance to join her for her visit to her grandmother's house as she needed to work on her school project, a presentation on the topic of Mutation. After I gained consent from her grandmother, I started to be at her side while she worked on her school project. She informed me that her uncle was away for 1 week as he was outstation to another state due to his job tasks. So, her uncle had already given her permission to use his computer. Bella also mentioned that her uncle also played an important role in guiding her in using online technologies, as sometimes there was no one at home aside from Bella and her mother, and once, when she was facing difficulties doing her school projects regarding the settings of Microsoft Word and the laptop's technical issues, she went to her grandmother's house and asked her uncle to help her. In addition, I asked her why she did not bring her laptop to her grandmother's house so that she could use

Wi-Fi there, she replied she did not do this because her laptop network port was damaged and the Wi-Fi's card was broken. I shared with her an alternative way, that she could buy a network adapter to be connected to the usb port; however, Bella told me that she could not afford it due to insufficient funds. She also mentioned that it was more comfortable going to cyber café instead of her grandmother's house. The reason for this was that she could be more focused at the café, and thus enjoyed doing her online activities there because her grandmother always asked her to do the heavy house-chores which sometimes affected her ability to focus on her work. She only went to her grandmother's house to use the internet if she really needed to do so.

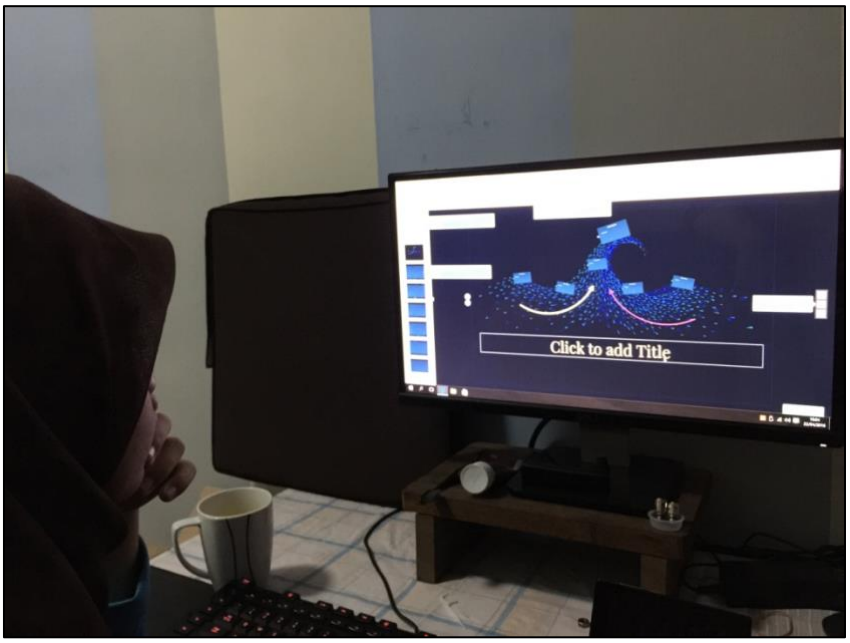

Figure 4.39: Bella at her grandmother's house using her uncle's computer

It was clear that Bella fully utilised her time spent in the cyber café as the longer she was there, the more money would be involved. It seemed that Bella also

organised her time schedule about which the online activities she conducted there even before she arrived at the cyber safe as I was aware that she had brought a note pad with a list of things to do regarding her school work. She was also good at multi-tasking her online activities as she was doing a lot of things in between searching for information for studying purposes such as downloading movies, watching Korean dramas and reading Korean Pop gossip. At the same time, I also observed other adults that contributed and helped the children to manage their online activities (i.e. Bella's uncle helped her solve problems regarding her school work in Microsoft Word files).

4.3.4.3 Digital Tools: Awareness of E-Safety

Bella used to have her own smartphone before, given by one of her sisters. However, Bella felt that she was distracted with it and stopped using it as she felt she had become 'addicted' to the internet, as she told me. It badly impacted her daily routines and studies as she stayed up until 3 am in the morning even during school days, and she was unable to stop herself browsing through Facebook. She reported and admitted that she always woke up late and unable to focus on her studies as she kept procrastinating and not finishing her school work.

Figure 4.40: 1 Malaysia Internet Centre in front of Bella's school

Regarding E-Safety, she developed an awareness of it from 13 years of age. She went to 1 Malaysia internet Centre in front of her school, and the staff there asked her whether it was the first time she had visited. The reason for this was that first-time visitors received a 15-minute briefing about E-Safety. This initiative was urged by the Malaysian government to raise awareness of E-Safety to the younger generation. As teenagers preferred to go to cyber cafes to go online, the Malaysian government seized this opportunity to provide and deliver information about Information Technology and Communication (ICT). Aside from giving a briefing about E-Safety, the centre also offered free courses to the public, including the following courses: Introduction to Microsoft Office, Design a Website, Online Marketing and many more. According to Bella, 1 Malaysia Internet Centre also provided a more conducive and safer environment which also comes with cheaper fees, only 1 RM per hour (approximately 19 pence), compared to the current fees that applied in her favourite cyber cafe, the one located nearby to her house.

However, she only went there with her study group if they needed to do a school project in a group.

She also always referred to the centre. For example, there was a time when her laptop was infected and the centre staff taught her how to install Antivirus software onto her laptop. This was due to her carelessly saving materials she downloaded from the internet without scanning her pen drive. It seemed to me that there were a number of organisations which try to educate the Malaysian community to use technology in an appropriate way compared to my childhood period.

Her older sister, Sharlene, an IT officer, always alerted and reminded her regarding how to keep safe while online. Due to 'inappropriate' messages that she received in Facebook Messenger from a stranger who talked about sex, once she had blocked the users and changed the settings to a private profile. Bella learnt such technical skills from the internet by searching relevant YouTube tutorials as her friend told her that she can change her privacy settings. Other than that, the reason she became inactive on Facebook was because she previously had an argument with her classmate because of wrong information about their classmate that a friend had shared on her Facebook status. She then hid that friend's timeline, and since then, she had properly reorganised her friends as she believed that internet users should hold onto their own morality when choosing which information to believe and should not simply update emotional status. She also realised that everything she did online was recorded forever, and that was why one should not behave 'inappropriately' when online as she believed that sometimes one's emotional Facebook status could hurt other people.

It seemed that Bella considered the emotional status that had been updated in her friend's Facebook as inappropriate as she reported that her friend used 'cursing' words. She also reported that she hated when someone simply shared a viral story where the truthfulness of the news was unsure, as she stated that she realised that many viral stories were fake and manipulative for marketing strategies or for provocation because every click to the link provided the sharer an income for advertisement; sometimes such links also contained viruses.

4.3.4.4 Digital Tools Can Aid Cultural and Social Understanding

Talking about her obsession with Korean dramas, it all started when she was introduced to them by one of her friends. Her friend suggested one old drama, *My Girl*, for her to watch. As a Malaysian, it was normal to watch English, Chinese and Bollywood movies and dramas. Bella loved Korean drama because they always contained interesting story lines and plots compared to the English, Chinese and Bollywood movies that she watched on TV. All the movies came with Malay subtitles. So, at first, she struggled to watch Korean dramas as all the subtitles were in English. However, she found that, indirectly, she developed her English and Korean language. This is because she sometimes even opened the dictionary to find the meaning of the words.

Figure 4.41: One of the scenes from Bella's favourite reality show, Running Man

She also understood and memorised many Korean basic words. She also loved to watch Korean Drama that had historical settings. She loved their traditional dress, and thus had also indirectly learnt about their culture. Other than that, she also loved to watch Running Man, because for each background setting in every episode the show would be set in a different tourist attraction in-order to promote Korea's attraction for foreigners as shown above in Figure 4.41. It also meant that she was also exposed to Korean culture and their activities in daily life.

By reading and keeping up-to-date with Korean gossip, because all the gossip was provided in English, at the same time she said that her English improved as she consistently read English materials. Sometimes, she read the recap of her favourite Korean Dramas. It normally came with a long paragraph, and sometimes she needed to re-read it again and again to grasp and attain the information and to understand the content.

By watching Korean dramas and reading online Korean material, Bella had learnt a lot of things. The internet was a good space for children like her to learn

about other cultures even though she had never visited Korea. She even went online chatting and had 3 Korean strangers on her Facebook friend's list. She found them, and they had known each other because they were common commentators on a Korean Dramas forum. Since then, she requested Korean people (commentators that she known from Korean Dramas forums) to be friends with them on Facebook, and sometimes she used Facebook Messenger to try to converse with them using the Korean language. Several times, they also kept updating each other with their daily lives, normally about the places in Korea and Malaysia that they visited. She took a picture and sent it to her Korean friends. Sometimes, she used her brother's smartphone WhatsApp to contact her Korean friends. Once, her Korean friend called her using WhatsApp's video call feature and they were talking for about ten minutes. Her Korean friend even complimented her Korean pronunciation and she also tried to converse using simple Malay words. She also tried to make Kimchi[4] from scratch, learning from YouTube, and it became her signature because her family loved it, and they always asked her to prepare it. She planned to visit Korea one day, and her Korean friend gave her a link about a Malaysian-Korean Student Exchange programme, which she intended to apply for one day. As her preparation, she needed to improve her academic performance because only top scorer students would be allowed to apply for it as the programme had a very high requirement.

Bella gained online opportunities through her love of Korean Dramas as she explored beyond boundaries within Malaysia and Korea. Her positive attitudes in

[4] Kimchi is a 'reddish fermented cabbage (and sometimes radish) dish—made with a mix of garlic, salt, vinegar, chile peppers, and other spices—is served at every meal, either alone or mixed with rice or noodles' (Raymond, 2013).

learning Korean cultures and her own initiatives to be friends with Korean citizens online seemed to have helped her to go in-depth in developing her cultural and social understanding skills.

4.3.4.5 Comments

It appeared from my observations that Bella had found many ways to overcome her difficulties to go online due to limited infrastructure. A number of fascinating facts were observed about the amount of time people spent using their technologies and about how long they were in these special places. I compared her situation to the previous family (Family 1), where Hanna used to spend her time online at the computer club. It was also observed that for children with access to limited internet infrastructure, they used the internet effectively as they were prepared and organised their online activities as very straightforward and important activities. It seemed that Bella also demonstrated an awareness regarding E-Safety and the initiatives provided by the government staff at 1 Malaysia Internet Centre. In turn, this helped her understand and develop her own E-Safety skills. It was also seen that Bella used multiple digital tools to understand Korean dramas. This was fascinating as she said that her English was very weak, but she managed to overcome her difficulties. Further, due to her consistency in reading the dramas recaps and following Korean entertainment online news published, this helped her as it improved her English. I found that Bella managed to select different tools for different tasks and used it strategically when she went online.

4.3.5 Family Profiles: Family 5 (Fairuz)

4.3.5.1 Introduction to the Family and Neighbourhood

Family 5 consisted of a two-parent family. Both parents were retirees. The participant, Fairuz, was the third child in the family. He had another 3 siblings, an IT Specialist working in a bank (33 years old), a sister working as a nurse in a private hospital (27 years old) and a (12 years old) younger sister. The older sisters lived separately in different states, although they visited every few months.

Figure 4.42: Fairuz's house

The father, a 58 years old retired policeman, had a Lower Secondary Certificate (PMR) and never used the internet. The mother, 56 years old, had a Malaysian Certificate of Education (SPM). She had a smartphone and used it every day to communicate with others using WhatsApp and logged-in to the internet to keep up-to-date with the latest news about family and friends. Her hometown was in Sabah, which was very far away. As she only went back there yearly, WhatsApp and Facebook were the best options to keep in touch with her family.

Figure 4.43: Fairuz's house entrance

I was able to recruit this family as participants to my study as they volunteered themselves when the teacher looked for participants using the Teacher-Parent WhatsApp group. The mother, Kak Anita, thought that this would be a good opportunity for her and her family to keep up-to-date on her son's online activities. She described her son as an introvert and very shy, and that he always preferred to stay in his bedroom and rarely talked to other family members.

4.3.5.2 Getting to Know the Family

I made an initial contact with the mother Kak Anita through WhatsApp and talked a few times on the phone. As the mother was approachable and very supportive towards my research, I felt comfortable. However, I was worried about communicating with Fairuz because when we first met at school I could see that he was a shy person. I asked his permission to get his phone number and started to build a good relationship with him.

As told by his teacher and his mother, he became talkative when he was interested in the subject of conversation, which was technology. At school, he was considered a top scoring student with a high knowledge about technology. When I talked with him at home, he said he was influenced by his oldest sister who was studying Computer Science. His sister was an IT expert and knew about a wide range of technology related topics. When he was younger, he stayed with his sister and observed what she was doing on her computer.

He was amazed when one time his sister cooked a traditional dish by following a step-by-step video on YouTube. Then he asked his sister to teach him how to use the internet. Fairuz first used the internet at the age of 6. Together with his sister, they searched for a tutorial on how to make playdoh using Google. Finally, they found a YouTube video and tried to make it. He also told me that his sister met her husband through social networking sites. Currently, he described himself as an IT expert because he felt for now that he had more knowledge about technology than his sister. During the observations, he had become the one that his sister especially referred to when it came to technical issues. This was because his sister was now busy with work, family and her newborn baby.

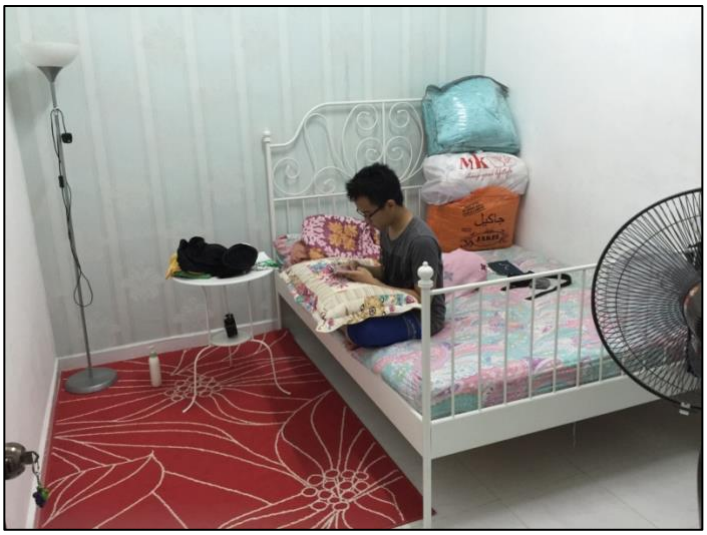

Figure 4.44: Fairuz using his smartphone in his bedroom

After 30 minutes of chatting, I felt his excitement and he became more talkative whenever talking about technology. As I found that he was comfortable with me, I asked him to give me a 'Digital Tour'. He guided me around the house and showed the location of the internet modem, explaining to me that they have high-speed broadband at their home and he was the one who set the network name and new password. However, he was quite frustrated because the internet connection was only available until 12 am (midnight) as his mother switched off the modem to ensure that he and his sister sleep. The first devices that he owned were a secondhand smartphone and a secondhand laptop from his sister. As he scored flying colours in his PMR examination, his parents bought him a new smartphone as a reward.

No	Family Members (Living in the house)	Devices / Digital Devices Ownership	Internet Access and Use
1	Father, age 58	Mobile phone	Never use the internet
2	Mother, age 56	Mobile phone	Never use the internet
3	Fairuz, age 16	Smartphone	Active internet user, went online every day
		Two Laptops	
4	Sister, age 12	Smartphone	Active internet user, went online every day

Table 4.11: Digital Devices Ownership and Internet Access and Use in Fairuz's House

Before he started with the Digital Tour, he reported to me about the digital devices ownership and internet access and use among his family members as can be seen in Table 4.13. He also showed me his laptops, one located in his bedroom and another one on his study desk located outside the room, beside the kitchen. The reason why the study desk had been placed there was because his mother wanted to monitor him and his sister doing their school work. He told me that the laptop inside his bedroom had higher specifications compared to one on his study desk. This was because he used the higher specification laptop for entertainment purposes, while the other one (low-specification) was for studying purposes. In addition, in-order to help him to avoid distractions while doing his school work, he used 'WebWhatsApp' for communication with his friends and kept his smartphone inside the drawer of the study desk.

4.3.5.3 Digital Tools for Entertainment Purposes

When I asked him about his online activities, he told me that he mostly went online for entertainment. As he disliked outdoor activities, he preferred to stay at home to watch the latest movies and listen to music. Normally he watched movies online or downloaded the latest movie using Torrent, and saved them onto his pen drive so that he later watched them on the smart TV as it was more satisfying because of the size of the screen and the good home theater sound system.

For music, normally he searched for the latest song on YouTube. In-order to save it as a .mp3 format, which he then transferred to his smartphone, he converted the format directly using "convert2mp3.net/". He demonstrated the converting process for his favourite song, Potret, by Akim & The Majistret, a Malaysian boy band group.

He also sometimes downloaded and converted files for his friends, especially those without a high-speed internet connection at home to download their favourite movies and songs. They gave him a pen drive, onto which he saved the movie files and returned the pen drive to them. He also had his own Dropbox, and shared with them by sending them a link. He reported to me that he knew it was illegal but he said everyone nowadays did the same thing and he also mentioned that he could not afford to buy original DVDs or watching movies at the cinema. Normally, he uploaded one latest movie per week due to limited storage which was 5 GB. Some of his friends even paid him or paid for his lunch because he had helped them by downloading the requested movie. Aside from the issues of legality, it was observed here that his downloading activities linked well to what I observed in Family 1 (Hanna) and Family 4 (Bella), as it seemed that children had a clear

awareness about their family's financial situation and that this was played out and reflected through the way they utilized new technologies.

4.3.5.4 Bringing Home Digital Practices to School

Figure 4.45: Fairuz's study desk beside the kitchen and dining area

He also told me that he started becoming famous among his friends because he had successfully hacked the school Wi-Fi password. He only shared it among his trusted friends. Teachers knew about this, but they did nothing about this. However, during the ICT class, his teacher talked about this and reminded them that whoever did this should not do it, and that they would be better off if they applied these skills in a good way. He found the steps to hacking the password online, and tried several passwords before he successfully hacked it.

Once, his ICT teacher (Mr. Dino) complimented him on his programming skills. Because he loved programming, he learnt the Python programming language

by himself using it at home. He went online to relevant forum and discussion groups and tried to write a simple program that he showed to his IT teacher. His IT teachers encouraged him to become a programmer. As he showed good programming skills, he felt proud and special. He also always tried to do school work or projects given by teachers in a different way. For example, when his History teachers asked them to make presentation slides on Malacca History (Malacca is one of the Malaysian states) using Power Point, he searched for other presentation editors, and found Prezi. He taught himself to use it through YouTube video tutorials and his presentation received recognition from the teacher. He even taught his friends how to use Prezi. Other than that, he used the online animation maker software Animaker 2-minutes free version once to create an animation as a school project for his English class.

Fairuz exchanged digital practices when he went online at school and home. It seemed that Fairuz managed to practice his own technical skills that he learnt at home and he could bring that knowledge to school. Fairuz also enjoyed collaborating online through his active participation in forum and discussion groups in-order to develop his own digital functional skills.

4.3.5.5 Digital Tools Can Aid Collaboration

Every day, after school, Fairuz finished his school work first. This was due to his mother's restriction that he was only allowed to use the internet for entertainment after he had finished all his school work. At his desktop, he then switched on his laptop, logged in to "web.whatsapp.com" and Facebook Messenger and put it on standby mode, in case he needed to communicate with his friends regarding school

work He found that the WhatsApp web version and Facebook Messenger were good collaboration platforms as it was easier for him to contact his friends to write using the computer keyboard. Sometimes, he called them using the WhatsApp call function or even used the Facebook Video call function. He liked WhatsApp because they shared notes, and there were a few times when his friends explained to him how to use mathematical calculations by calculating on plain paper which they then snapshotted to him as a picture. He liked the mobility of the smartphone, saying that he was able to access any files anywhere, and sometimes he had even secretly photographed his teacher's mathematical calculations on the class whiteboard if he was too lazy to write. He then shared it in the WhatsApp Group. On the occasions when Fairuz was absent, his friends also photographed the classroom notes and shared them in their WhatsApp group.

By doing his school work with the use of WhatsApp to support his learning process, Fairuz felt more motivated because it was easy to collaborate especially if they had been set a group project. Each member continuously updated the WhatsApp group, and it was easier to organise and distribute tasks. Thus, the WhatsApp App made collaboration regarding school work easier and made Fairuz feel that he was not alone while finishing his school work. They also created 'Winner of The Day', for the one who finished the school work the fastest. This positive competition helped and motivated him to focus for academic purposes.

Figure 4.46: Fairuz went online while doing his school work

His WhatsApp group not only shared things about school work, sometimes they even shared their personal problems. There was one time where one of his friend's parents divorced during the school holidays. His friend Amran ran out from home, and told them that he was at his friend's house. At the end of the day, he and a few of his classmates managed to advise him virtually and successfully tracked him down using WhatsApp's location that he shared. Following this, as a group they went there to persuade him to go back home.

It was observed here that through instant messaging (WhatsApp), Fairuz gained online opportunities through his online collaboration. It seemed that Fairuz found it easier to manage his school notes when he secretly photographed what his teachers wrote on the board. This showed that Fairuz applied his own strategies in his online activities as it helped him for his studying purposes.

4.3.5.6 Digital Tools Can Aid in Creating Identity and Social Connection

Fairuz told me that he loved fashion, neat clothes and always went online to keep himself updated regarding new trends. He liked to browse Instagram to see how his favourite fashion idol dressed. As he described himself as a tiny boy and short, he liked to watch videos on Tips and Tricks on how to look higher than his actual height. Once, he bought a 3-layer height increased elevator shoes insole in-order to make him look 2.5 inches taller according to the recommendations of famous Instagrammers. Talking about his online identity, he preferred to portray himself as a 'macho' man for his Instagram profile. He actively uploaded photos and videos, but typically took a selfie a few times before finally being satisfied with the results. Following tips and advice that he got online, he groomed himself, and tried to change a few things about his appearance. For now, friends called him Bill Gates Boy, and he preferred it that way even though he might appear as an IT geek to them or as a nerdy person.

For Fairuz, the online world was an escape route when he was in a bad mood or felt bored and he preferred to use his smartphone in his own bedroom. He sometimes preferred to talk to strangers rather than talking to friends as he preferred to be known anonymously as he was worried that his friends and family would have laughed at him if they knew that he was more masculine online compared to his (to them) 'nerd' appearances elsewhere. However, his few good friends followed him on his Instagram profile as he told me that some of them also did the same in portraying their appearance and lifestyles differently online in contrast to real life.

He identified himself as one of the Korean actors who was famous for their 'cute' and 'metrosexual' look. He also told me that by gaining confidence through

his online identity, this had helped him gain confidence in his real life especially when girls complimented him as being a cute guy rather than being labelled as a 'nerd IT geek'. He closed our conversation with a big smile, satisfied with all the information that he provided me. However, he reminded me not to tell his mother about his private Facebook and Instagram accounts.

It seemed that Fairuz enjoyed when he went online to keep his social networking profile updated, and at the same time it was really interesting in terms of how he was developing a sense of online identity around his abilities to use the internet. This showed that through his digital practices, he managed to create his own persona online identity.

4.3.5.7 Comments

Through my visits to this family, it seemed that those children who had not received enough support from their parents regarding online activities, received guidance from their older siblings during their early days learning how to use online technologies. As observed in this family, there were similarities between them and Family 4 (Bella): both her parents were not internet users, and her older siblings also helped her to manage her online activities.

It was great to see how Fairuz managed his online activities independently as his elder sister (an IT officer) always had helped him to use online digital devices before she moved out. At the same time, he subsequently took responsibility and helped his younger sister regarding her online activities. Even though his parents were very restrictive regarding his internet usage as they closed the internet modem at midnight, his parents were very supportive and encouraged him to go online for

studying purposes and communication. This can also be seen by the fact that they bought him a smartphone without any limitation of its usage. The important facts about this family, as the parents were not very familiar with internet and digital tools, was that they did not check their children's (Fairuz and his younger sister) online activities, as the mother reported to me. It seemed that the parents believed their children were able to use it independently as they believed the knowledge and skills that had been transferred by the elder sisters and the ICT subject taught in school were sufficient to develop their children's digital literacy skills.

It was observed, indeed as Fairuz realised himself, that there was nobody at home who could have helped him if he had any issues and problem regarding his online activities, so he took the initiative by going online to search for information in handling the technical problems. He also played an important role, for example in establishing important rules, in helping his sister as he believed that he should do this now he had become an important person at his house. This was also in line with my findings concerning Family 1, Hanna, when she was set tasks and responsibilities to handle important roles in her family. It seemed to me that the children who were given important tasks for handling online issues were more motivated and knew how to select different online tools in solving their internet or digital device problems and issues that appeared in their family.

Other than that, the creation of his (Fairuz) own online identity showed that children were able to curate how they appeared online and that they believed it is important to establish an online persona. Through a good impression created by Fairuz, he also seemed to enjoy the attention and compliments that he received online by his Instagram followers. These compliments about him as a 'cute' boy

like Korean male artists showed that he was influenced by his surroundings as in Malaysia, Korean drama and music were very popular and this appeared to indicate that Fairuz was aware of his online popularity.

In addition, the choice that he made purchasing a product to make him look taller also showed that aside from seeking advice from family and friends on improving their own appearance, Fairuz independently searched for information online and made decisions through his own evaluations. On the financial part, it seemed that like others of my participants, he had power to make buying decisions based on his own evaluations and preferences, and it seemed here that Fairuz went online shopping for himself. One particular fascinating fact was that he managed his own financial portfolio too.

It can also be said that children with access to better internet infrastructure, a high-speed internet connection, and ownership of digital devices like Hazaq (Family 3) and Fairuz gained the most from online opportunities, compared to children with limited access to high-speed internet like Hanna (Family 1) and Bella (Family 4). On the other hand, for Chichi (Family 3), even though her house had good internet infrastructure and the fact that she also gained online opportunities, these were still limited due to her mother's restrictions on her access to the internet and digital devices.

So far, I have presented the findings from my home visits. However, I will not offer an overall summary of the home visits at this point as I present it later at the end of this chapter in Section 4.4, Section 4.5 and Section 4.6, after the presentation of the findings from the school visits. Furthermore, later in Chapter 5, I discuss about the themes raised from the home visits based on Hague and Payton's

Digital Literacy Framework (Hague and Payton; 2010). In the following section, I present the findings from the computer observations which consist of five observations at school.

4.4 Qualitative Data : School Visits (Computer Lab Observations)

This section presents the findings from the observations in school, and as I noted in the Methodology Chapter, in particular I watched the same students who participated before in the home visits. In this section, I describe my observations by introducing each lesson and then focus on their digital practices while they were doing school tasks and projects within the period. For every lesson I attended, I obtained the consent of the volunteer participating students. In-order to make it clear, I also clarified to the whole class and teachers that I only observed participating students and did not focus on any other students.

4.4.1 Introduction to the Computer Lab and Preparation for the Observations

The school offered three classes for ICT subjects, for Form Four and Form Five, taught by three ICT teachers. The school had two computer labs attached to each other, with a small teachers' room in the middle and located on one floor of the building in front of the school field. The participants involved in my research came from three different classes. To achieve my objectives, I only attended the sessions that included hands-on skills and activities as listed in their syllabus where the students were required to do their school projects and school work working as a team member for group work. After discussing my research with the three ICT teachers that taught Form 4, Mr. Dino, Mr. Tuah and Mrs. Hasni, they agreed to allow me to join their classroom session at the computer lab for the following lessons: Computer Security, Installation of Computer Components and Windows and Share Data using Online Data Storage.

As shown in the photo below (Figure 4.47), each lab consisted of 20 desktop computers equipped with a LAN and Wi-Fi internet connection. Each lab also included one computer completed with remote access software in front so that the teacher could monitor the students' online activities. However, as not all the computers were in good condition the students were required to sit in pairs for one particular computer and they needed to share it for the entire lesson.

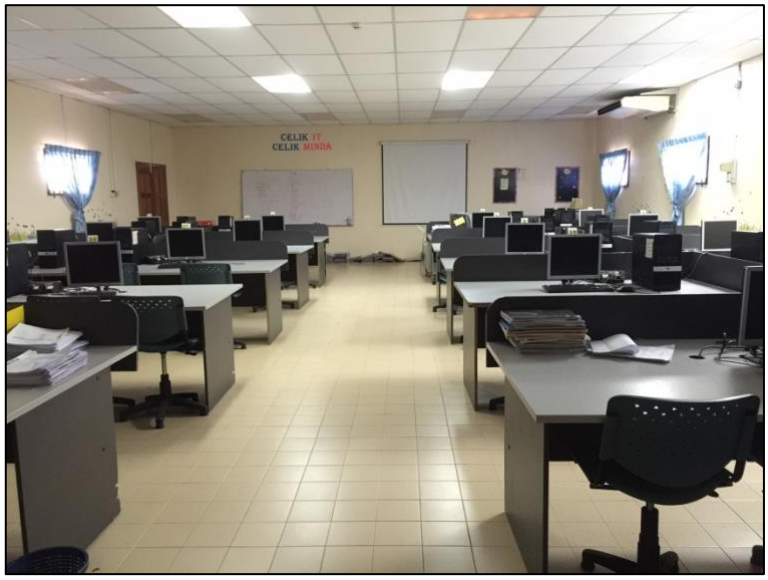

Figure 4.47: The computer lab

However, if students needed to perform individual tasks they were allowed to bring their own laptop to school and were allowed to connect to Wi-Fi using a temporary Wi-Fi password setup by their ICT teachers. Wi-Fi was also available in the computer labs, although it only had 3 out of 5 bars network coverage, meaning that the internet connection at this school was not a high-speed connection. The computer labs were also used by other subjects in addition to ICT, but the teachers of non-IT subjects needed to book the computers in advance. Every student was permitted to enter and use the computers after the end of their school session for

their own usage until 6.30 pm in the evening. Each ICT lesson was conducted in 2 sessions, for 90 minutes. As I was not allowed to record or take any photos during the teaching and learning sessions, all observational data were written as field notes. During the whole session for each observation, I sat beside each participant to observe their digital practices during the lessons.

4.4.2 First Classroom Observation (Participant: Hanna)

4.4.2.1 Introduction to the Session

From here, I observed Hanna for the lesson that focused on the Computer Security subtopic. For this session, each student was required to produce a slide presentation on one of the following subtopics under Computer Security: Phishing, Virus, Trojan Horse, Salami Attack, Hacking, Security measures - Biometrics (Fingerprint, Iris Scan) and Authentication. Hanna was assigned to focus on the Antivirus topic. As this was an individual task, her lab partner Nina brought her own laptop. Therefore, Hanna had the privilege of using the computer all by herself. After receiving the task, she switched on the computer and inserted the pen drive and scanned it for viruses.

4.4.2.2 Locating and Selecting Information

Hanna started the task by opening her notebook that had notes about the topic Antivirus in it that she wrote from the previous class session. At the same time, she also searched using the Google search engine to find more information. She created a presentation slide using Microsoft PowerPoint. After choosing the theme for the

slides, she typed notes and information about the topic Antivirus. For example, Hanna searched for the Top 10 Antivirus Software listed for 2016.

She found a few websites, and before choosing the right information she checked the reliability of the website. She then chose the Top 10 Best Rated Antivirus 2016 article from "www.technoven.com". When I asked her why she selected that article, she told me that it was because it provided a complete explanation that included both the 'pros' and 'cons' of each type of antivirus software. She copied and pasted it onto her Notepad, and formatted it into plain text. She then highlighted the important points. At the same time, she rephrased it into her own words. She then copied and pasted her prepared texts into the presentation slides, and included credits for the website.

She also provided a hyperlink to "download.cnet.com", as she told me it was the main source to download free software, and a hyperlink to "www.11street.my" for a version of the software to purchase. She knew about the software from her teacher. In addition, Hanna also included information in her presentation on how to choose antivirus software and what type of aspects that needed to be considered before choosing the right one for our own computer. At the end of presentation slides, she also inserted information about the differences between free and paid versions of antivirus software.

It seemed that Hanna could go online and used the search engine to search for information to finish the task set by her teacher. It also seemed that Hanna had an ability to find and select information, and critically evaluated the online information.

4.4.2.3 Boosting Student-Centred Creativity

Hanna then downloaded and saved photos from the internet, inserted them into the relevant slides of her presentation, and resized the images accordingly. After she had finished with the content, she moved to Microsoft PowerPoint's features to edit the Transitions and Animations. To make it more interesting, she then transferred a background song from her pen drive that she had prepared the day before. Using the Audacity software (Figure 4.48), an editing sound software, she removed the vocals from the track before saving the file. However, at this point, she was having problems as the computer displayed an error message regarding the file saving process. She called her teacher and her teacher helped her to solve the problem.

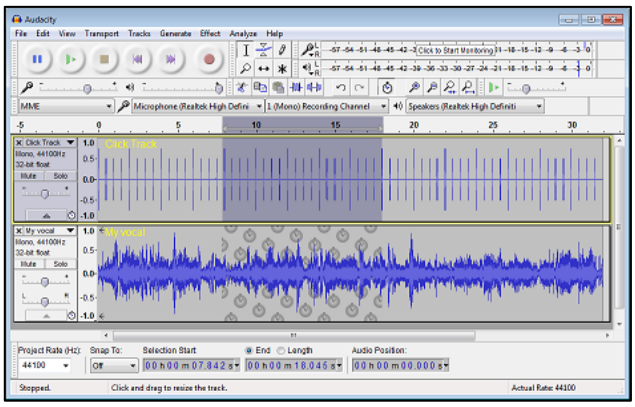

Figure 4.48: Hanna used Audacity software for audio editing

Hanna then inserted the music on to the presentation slides. She told me that she preferred background music without vocals. After she finished with everything, she checked her work once again, and asked her friend, Nina to look at it. Her friend then gave her some ideas on how to improve her slides, and she took the suggestions and applied it to her presentation. After 50 minutes of working on the task, Hanna

felt satisfied and uploaded it to the VLE Frog platform into their subject tasks and informed her teacher. For the remaining 10 minutes, after having saved her work on to the pen drive and closing the computer properly, she moved from her computer to Nina's laptop and observed her doing her task. She also helped Nina in solving issues with Transition features and formatting the Title text. The class finished after 90 minutes, and the teacher informed them that would be a presentation session in the next class.

It was observed here that Hanna knew which digital tools she should use in-order to do her task. It also seemed that during the teaching and learning process at school, students relied on their teacher to help them to solve their problem as observed here when Hanna sought help from her teacher.

4.4.2.4 Comments

During the 90 minutes observation, I found that Hanna was very confident in completing her individual project and that she was also able to help her friend rectify some issues while doing the tasks. She finished earlier compared to the other student, as some of them were still unfinished at the end of the session. She also demonstrated a high level of digital literacy skills when it came to find and selecting information and critically evaluating and choosing the right information for her individual project. In addition, this was also observed by her preparation at home in selecting the audio track the day before. Hanna also showed awareness of E-safety as she scanned her pen drive before starting any work. She also showed high functional skills in handling her tasks, and did not forget to insert credits from which websites that she obtained information and did her best to avoid plagiarism by

rephrasing the text that she copied from the internet. In comparison on the level of the difficulties was the task set over the challenges that offered to Hanna in her digital home practices, it can be seen that Hanna was confidently finishing the tasks faster as for her it quite an easy tasks. During this lesson, it seems that Hanna was able to find and select the right online contents in a short time as she was aware that it will be evaluated by her teacher. Therefore, she was challenging herself to complete the tasks within the time frame, as it can be seen that she was highly focused compared to the 'relax' mode when she was at home.

4.4.3 Second Classroom Observation (Participant: Hazaq)

4.4.3.1 Introduction to the Session

From here, I observed Hazaq in the computer lab during the Assembling the Computer Components lesson. The session was originally scheduled for 90 minutes. However, as this session involved the assembly of computer parts and carrying out a new installation of Windows 10, the teacher arranged with the English teacher and they agreed to free up another lesson period in-order to make a two-hour session available for the computer lesson.

For this two-hour session, students were assigned into five groups and for each group one student was chosen as a facilitator. The chosen facilitators were students that had been identified by the teacher as having performed well in the Computer Society's activities as they did the same things before for their weekly meetings. Hazaq was among the chosen facilitators. A week before, the teacher had demonstrated how to assemble the computer components. However, in that case it

was a teacher-centred session, and this time the students needed to complete the task in their respective groups.

The teacher told them that this was a small competition and the group that finished first with a working newly assembled computer, performed well and displayed good team player behaviour would be chosen as the winner and taken on the Robotic Competition field trip to a university in the North of Malaysia. I could see that all students were very motivated in doing this task.

4.4.3.2 Honing Digital Skills

Figure 4.49: A YouTube tutorial video used by Hazaq's group as a guideline

Each group was provided with a user manual containing step-by-step guidelines on how to assemble the computer parts and components which included the following: Power Supply, Motherboard, Processor, RAM, HDD Hard Disk Drive (Storage), Graphics Card, Sound card, Network card, Keyboard, Mouse, Monitor and CPU

casing. For Hazaq's group, they also opened a YouTube video for reference. In-order to do this project, as team members they collaborated well and communicated with each other. On a few occasions, they became stuck in the process; however, in such instances they referred to both the YouTube videos and the user manual.

As Hazaq possessed good skills in assembling computer parts gained from previous experience, some members of another group even asked his help to look at their progress. He shared the YouTube videos (see Figure 4.49) to the other group. In addition, for some steps in the task, they needed to search for more information based on each component's model and brand as there were slight differences compared to the manual provided to them.

They also repeatedly reminded each other to electrostatically discharge their hands first before touching any parts to avoid hardware damage. It was a good student-centred activity, and I observed that they were sharing ideas and working hard to come to a solution whenever they were having issues. They also referred to their teacher when unable to solve a problem.

It seemed that the teacher did a good job in assigning the facilitator to each group by choosing the student that had good functional skills, as Hazaq was chosen to monitor his friends. His ability in assisting his teacher in guiding his groupmates showed that Hazaq was very confident in his leadership in handling the task and the responsibility that was given to him boosted his motivation to do better in finishing the project. It was also observed here that peer mediation was an important element that had been implemented in this computer lab's online activities, and the students collaborated well under Hazaq's leadership.

It seems that Hazaq relied on online information as he searched for an online tutorial to help his groupmates to recall and recap on what his teacher had demonstrated in the last lesson regarding computer assembly. I also observed in this lesson, the students were more independent even though their teacher was there in the same space, as they still tried to search for alternative ways to assist themselves in doing their digital practices. However, the teacher's roles were still important, for example when Hazaq was unable to solve the problem he sought help from his teacher. In comparison within Hazaq's digital practices at schools and homes, it seems there were many parallels between how the boys worked at home. As they did at school.

4.4.3.3 Smartphones in Class

Due to difficulties in referring to the monitor located on a different desk quite far from the assembly area, Hazaq asked permission from his teacher to use the Wi-Fi connection on his smartphone. The reason for this was that he needed to refer to the YouTube videos while doing the task. The teacher gave permission and the Wi-Fi password. Three students in Hazaq's group then took out their smartphones and placed them in front of them. Thus, it became easier for them to watch the video to follow the steps of the tutorial.

However, the Wi-Fi connection was quite slow on that particular day, resulting in the video repeatedly sticking and reloading all the time. Hazaq then switched off the Wi-Fi function on his smartphone and started using his own mobile internet connection. He also shared the connection through internet tethering (Wi-

Fi hotspot) function with his other friends. With the resultant quicker internet connection, their activities became subsequently smoother.

In the second part of the task, when they finished with the assembly, they connected the CPU to the monitor, keyboard and mouse and then tried to switch on the computer. The display appeared, and the assembled computer entered BIOS mode. They were now ready for the next step, to install a clean installation of Windows 10 Pro. Hazaq went to the teacher and asked for the installation CD. The teacher came and checked everything and confirmed that everything was good; he seemed satisfied and happy with their progress.

Figure 4.50: Hazaq shared this YouTube tutorial video with his class WhatsApp group

As the manual provided was for the installation of Windows 7 instead of Windows 10, Hazaq warned each member of his group that although it would require the same process, there might be some slight differences. As such, Hazaq suggested that they search for relevant YouTube video tutorials. Each member then

browsed through YouTube and found several tutorials. When they chose which tutorials that should be referred to by the group, Hazaq told me that he usually picked the tutorials from established YouTubers, and by looking at a video's ratings, views counted and the number of likes and dislikes. He also decided which videos to choose by reading feedback from viewers as some of the tutorials were not very helpful.

Once he found the right tutorial, he then shared the URL link of the YouTube tutorial via the class WhatsApp's group for the other classmates' reference (refer to Figure 4.50). Initially, the teacher stood beside them, monitoring them to make sure that everything was on the right track. Once Hazaq's group finished with the BIOS Setup settings, the teacher left them and moved on to the other groups. As the installation process took some time, leaving some free time in between, I observed Hazaq as he checked his emails, Instagram and Facebook accounts and visited the school website to read updates on their incoming School Sports Day events.

I remembered that Hazaq told me that students were not allowed to bring mobile phones to school. However, whether this was enforced depended on the teacher in question as some teachers were okay with that. Hazaq told me that it was not possible to not bring mobile phones to school as it was needed for daily life, as students needed to update their parents on their activities. Hazaq told me that teachers would confiscate mobile phones if taken out during the classroom session. However, teachers were okay with students' using mobile phones in the computer lab, for example to integrate hands-on activities, as long they were used for learning purposes, as discussed above.

It was observed here that smartphones did play an important role in school activities due to their mobility, as an alternative to the slow internet connection and as they provided an access to gain online opportunities. As the arrangement of the monitor position resulted in difficulties to Hazaq and his friends to watch the tutorial, the smartphone was chosen as a replacement to mitigate the inconvenient position of the monitor. At the same time, it seemed that Hazaq also performed an online collaboration as he shared the YouTube URL link with his classmates through their WhatsApp group. It seemed that the slow internet connection in this computer lab affected student activities as the tutorials kept loading and took time to reconnect to the Wi-Fi. However, Hazaq managed to organise his own online activities during this lesson.

I observed that Hazaq was multitasking, and knew his limits in using his smartphone. Once the installation process entered the Windows Setup stage, he then stopped browsing his smartphone and focused on the task. In between, Hazaq also photographed pictures and recorded two videos. He explained to me that he wanted to save them for future reference as this was the first time that he had carried out a clean installation of Windows 10. Before this he had only installed the Windows 7 version.

After 40 minutes, Windows 10 Pro was successfully installed onto the computer. Hazaq then instructed his friend to install the drivers for the computers. These drivers were needed to make sure all the devices were working appropriately. After installing and updating the drivers was completed, they tested the functionality of the computers. However, the network card was not working as they were unable to connect to the internet using a LAN cable. Hazaq and his friends

quickly then went to the other computer, and searched for the latest drivers for the model by using the Google search engine and downloaded and saved the file onto a pen drive. Due to the class running out of time, I noticed that Hazaq forgot to scan the pen drive with Antivirus software. They then transferred the drivers to the new computer and started the installation once again. Finally, they finished and successfully connected to the internet using the LAN cable.

It was observed here that the lack of infrastructure and damaged network card also affected student activities as it took time to transfer to the other computer for the downloading process.

4.4.3.4 Comments

At the end of the two-hour session, only three out of the five groups had fully finished the task, although the teacher informed the two unsuccessful groups that they were allowed to continue the task after the end of the school session. However, Hazaq's team did not win the small competition as they finished second. Still, Hazaq and his team members were very happy with the outcome. I asked him if there were any differences between learning by himself and being taught by the teacher, and he told me that he learnt new knowledge in the classroom, especially on theory as when he learnt by himself he only knew about hands-on skills. In other words, in the classroom he gained knowledge on theory as well and this clarified some issues that he had wondered about before.

Throughout the two-hour session, I observed that Hazaq showed a high level of functional skills. He was confident in handling and performing the tasks, and he managed to make links between home digital practices and school digital practices.

Based on his previous experience helping friends in his neighbourhood, he managed to transfer these skills to his classmates. Even though his group experienced problems and issues in some of the steps of the task, they managed to find solutions and solved the problems. Hazaq also gained new knowledge about Windows 10, and told me that he was now more confident to carry out a clean installation of Windows 10 in the future, if someone needed his help.

Reflecting on how Hazaq managed his home-school digital practices, it can be seen that there was a relationship in transferring the knowledge and skills across home and school settings. Hazaq also shown a high level of reflection on his own digital practices at home whenever he learnt about new skills, and it can be seen that the online activities that were occurred during this lesson were able to give 'extra injection' in increasing Hazaq's confident level while using and handling the new digital tools outside the school hours. It also can be seen that the pre-existing digital skills that Hazaq learnt at home and brought into school were helping Hazaq gain the opportunities at school and vice versa.

4.4.4 Third Classroom Observation (Participant: Bella)

4.4.4.1 Introduction to the Session

From here, I observed Bella in the computer lab where she was required to carry out a continuous hands-on activity lesson focusing on the assembly and installation of a new computer. In the last session, they had already assembled the computer components and installed Windows 10 Pro. For this session, each group consisted of two members. Each group was required to download software and install open

source[6] software. Open source software is free for download software that offers an alternative option to the current usually more famous paid version of the software.

For this lesson, they needed to search using Internet Explorer search engine and download open source software for word processing, antivirus, image editing, audio editing, searching (e.g. a search engine) and a pdf reader. The listed software included: OpenOffice, Avast Antivirus, GIMP, Audacity, Google Chrome and PDFCreator.

4.4.4.2 Digital Tools: Peer-to-Peer Collaborative

As a group, Bella and her partner, Syue, started to search the listed software using Microsoft Edge, a web browser App included in Windows 10. For the first software, word processing, they found a few websites by entering the keyword 'OpenOffice'. They then visited "openoffice.apache.org". When I asked Bella why she chose that website, she told me that it was the official website for OpenOffice and when they tried to open other third-party websites, there were always popup advertisements, and that this sometimes exposed the computer to spyware and malware infection. They downloaded it and started to install the software. While waiting for the installation to be completed, they continued searching for another software on the list which was Avast Antivirus to save time.

I observed here that Bella showed an ability to implement E-safety skills during this lesson as she carefully analysed the information that she found online and carried out and ability to find and select the information and evaluated it. It

[6] Open source software refers to a software that 'is free and openly available to everyone'. The developer of such open source software 'publish the code and allow others to use and modify it' (Bitesize, 2017, p.1).

seemed that Bella was aware that the popup advertisement exposed computers with online risks and she managed to take steps in order to avoid spyware and malware from attacking the computer system.

They then visited "www.avast.com", and tried to download Avast Antivirus. However, when attempting to download the free version, they were directed to a third-party website, "download.cnet.com/". Once the installation of OpenOffice was completed, they proceeded to install Avast Antivirus. However, in the middle of the installation, an error popup displayed showing the error message about software incompatibility. They asked for the teacher's help and the teacher checked what they had been doing by asking them the source of their download. Upon showing the downloaded source to the teacher, he noticed that they had mistakenly downloaded the version for Windows 7 and instructed them to download the correct version for Windows 10.

While waiting for the download process to finish, they explored OpenOffice as it was new to them. They were excited about it when they found it was similar to Microsoft Office and easy and feasible to use too. They talked to each other, saying that they wanted a copy of the software installer to install on their home computers so that in future they would not have to use a 'cracked' version of Microsoft Office as it sometimes displayed an error message asking them to activate the software using a new license. They then explored OpenOffice Impress, an application similar to Microsoft PowerPoint and were fascinated with it. It was observed here that Bella took a chance to explore and analyse the new software that was introduced to her, OpenOffice. It seemed that through her exploration by clicking each of the features and tools in OpenOffice, this provided her input on

how to develop her own functional skills in learning how to operate new software. I also observed that, by herself, she managed to evaluate and compare OpenOffice with Microsoft Word as she exchanged feedback on this open source software with her friend.

They then focused on Avast Antivirus, installed it and then tested the scanning feature. Bella told Syue that her sister had used it before but despite this was still unable to detect spyware and malware. The teacher heard their conversation and told them this was normal for a free version of antivirus software, as he explained in the previous lesson that the best antivirus software was always the paid version because it also came with internet security features which can detect spyware and malware. As internet users nowadays went online all the time, the best way was to get full internet protection. The teacher also reminded them to always avoid suspicious websites, not to click on any popups and to close them when they appeared, and to download AdBlock, a popular advertisement blocker, to block all annoying advertisements whenever they visited any website. Bella and Syue were curious about the price of the paid version, and searched for it just to know how much it would cost them to buy. They found a cheaper price on "www.lelong.com.my" and said that it was quite affordable for a 1-year protection period. The Antivirus software that they found at the cheaper price was TrendMicro Maximum Security 2017, which came with full internet security.

They then searched for Google Chrome and PDFCreator, software for web browsing and reading pdf files, respectively. They also direct downloaded the software from the official websites. They then continued with the installation process. Once finished, they explored PDFCreator. They then downloaded one

article in pdf format and opened it using PDFCreator. From this they provided feedback that it had the same features as Adobe Acrobat, but that it lacked some of the features as it was a free version. However, they commented that it was enough to carry out basic tasks. Bella told her friend that she would suggest this software to her sister as she always used the trial version of Adobe Reader because the paid version cost almost one thousand Ringgit Malaysia.

From here, they continued the set task by searching for Audacity and GNU Image Manipulation Program (GIMP). Audacity had previously been installed on the computers in their lab, but neither Bella nor Syue had used it. Therefore, they tried to recall their friends who had used the software before. They remembered their names, Hanna and Norman. Bella shouted to them and asked if it was difficult to use. Hanna replied that she had learnt how to use it from her brother, while Norman told them that he used YouTube but that there were lots of basic tutorials for beginners and that it was quite easy to use as it was not a complicated audio editing software. Once they had installed Audacity, Bella downloaded one song from YouTube using the converter website to change the format to .mp3. They were interested to explore the software and give it a go; however, they found it was quite complicated. As such, they both decided that it would take a long time to explore it just now. Therefore, they closed the application and focused on the last software that they needed to install, GIMP, an open source software for image editing.

The classmate behind them noticed that they had opened YouTube, and jokingly told the teacher that they were watching a Korean drama online through YouTube as she knew Bella was a fan of Korean dramas. The teacher came to check on them, but Bella explained that she opened YouTube to download a song in-order

to play it using Audacity. The teacher said it was okay, and Bella and her friend persuaded the teacher to teach them how to use it. The teacher told them that they would get the opportunity to use it in future as it was part of the syllabus regarding audio editing. They were happy when they heard that and clapped their hands together with a few of their classmates.

It could be observed that while she managed her online activities in finishing the tasks, Bella used her own creativity by searching for her favourite Korean song to be featured in her school project. This showed that she enjoyed this lesson at the same time as she performed online activities based on her interests. Even though there were available songs already saved in the computer's music folder, she preferred to use her own creativity in order to express her interest through her school work.

Meanwhile, Norman told them that he was willing to teach them at the weekend but that they would need to come to his house to learn it and to bring their own laptop. Hanna also offered to teach them. Bella told Syue that she wanted to try to learn it because she wanted to make an anniversary video clip for her parents that included her mother's favourite classic Malay songs.

It was observed here that the new knowledge provided by their teacher regarding open source software meant that Bella reflected on her own digital practices at home about the usage of the paid version of the software. I heard her conversation with her friends regarding how this new information about the free software available online were a better choice for them to save money and they did not have to worry anymore about having a cracked version of the software. I also observed that Bella was multi-tasking in the way she handled her online activities,

as she browsed an audio for this project; she also secretly checked out some new Korean songs online. It seems that the group work and the task focused activities where students had to find solutions to problems, was a pedagogy ideally suited to how these youngsters were already behaving at home. They moved fluidly across platforms, drew on local knowledge and expertise amongst their peer group, but also sought help online and from the expert teacher. This seems to me very resourceful hacking culture that is being developed in class.

4.4.4.3 Digital Practices: Children as Peer Mediators

Once GIMP had finished downloading, they installed it successfully. While waiting around 10 minutes for the session to end, they explored GIMP. They downloaded one famous Malaysian artist's photo, Zul Ariffin, and they tried to play around in GIMP. As Syue had used Adobe Photoshop before, she explained to Bella that GIMP was simpler and seemingly easier to use and less complicated than Photoshop which required months for her just to learn the basic editing tasks.

Without even looking at any tutorials of GIMP, Syue explored the software (refer to Figure 4.51) and verbally explained the basic features to Bella and guided her in how to use the software. It seemed that for these children with pre-existing knowledge and skills prior to being introduced to new software, they had their own initiative and were eager to explore more without any instructions. As was observed here, as Syue was familiar with Adobe Photoshop (another software used for image editing), she was able to explore and tried several features and tools once she and Bella finished the installation of GIMP. It was also observed that peer interaction

appeared as Syue provided some tips and guidance to Bella on how to use this new software, GIMP.

Figure 4.51: Bella and Syue were exploring GIMP, an open source software

When Bella asked Syue if her version of Adobe Photoshop on her laptop at home was a paid version, Syue laughed and said that she used the 'cracked' version that her brother downloaded using Torrents. Syue also explained that as she was not a professional designer, the GIMP software looked interesting. Further, she planned to use it on her own laptop as Adobe Photoshop had already stop working for 2 months now. Syue also said that Adobe Photoshop was a 'heavy' software that made her computer operate slowly and sometimes it crashed. When the teacher announced that the session had ended, they quickly inserted their pen drives,

scanned them using Avast Antivirus and then saved all the installers onto their pen drives.

4.4.4.4 Comments

Throughout this session, I found that Bella was confident in doing her task, and that in between tasks she also exchanged her knowledge with Syue. Bella also showed the ability to do her tasks independently without teacher supervision and knew how to search for the right software and download it from a reliable website. She collaborated well with her partner Syue, and they helped each other.

I saw how home digital practices were transferred into school digital practices. Peer mediation was also displayed in their hands-on skills activities as Syue had to teach Bella how to use GIMP based on her experiences working with Adobe Photoshop. As digital users, they showed a high level of functional skills in finishing their tasks. Bella was not afraid to explore new software and repeatedly searched for new information on how to use them.

Bella was also aware of E-Safety as she scanned her pen drive before saving files onto it. This awareness was also shown in how she managed handling advertisement popup displays when she searched for information.

4.4.5 Fourth Classroom Observation (Participant: Fairuz)

4.4.5.1 Introduction to the Session

From here, I observed Fairuz in the computer lab for the Shared Data subtopic lesson. Each group was set a hands-on skills activity task. For this session, they were required to set up a shared folder on Windows 10 over the network and online

data storage using Google Drive or Dropbox, save a file in the shared folder and then access the file in the shared folder from other workstations and through email.

4.4.5.2 Digital Tools in Developing Computational Thinking

Using the guidelines in the manual provided by their teacher, Fairuz and his partner, Azlan attempted to setup a shared folder on Windows 10. At first, they studied the tutorial for 5 minutes. However, as the tutorial was for Windows 7, they then opened Google Chrome and searched for latest tutorials for Windows 10. Fairuz then discussed the task with Azlan as they had identified that there were only slight differences between the installation of Windows 7 and Windows 10. It was observed here that children always went online to search for alternative resources. In this example, there were differences between the printed tutorial that was for Windows 7 and the software they were required to install as part of the project' therefore, they decided to search for a YouTube online tutorial. It seemed that any info that they found online would be analysed first, with the various video tutorials compared in-order to choose the best and most relevant tutorial video related to their task. When I asked which one they preferred, a printed tutorial or a tutorial video, it seemed that Fairuz and Azlan preferred to watch a video that showed the steps they needed to finish their tasks instead of reading and following the printed material. This was in line with other observational finding (i.e. Section 4.3.3.2 and 4.3.3.3) where Hazaq searched for an online tutorial on how to assemble a computer and how to format Windows 10 for a new installation. They then proceeded with the first step, using File Explorer located on the taskbar to navigate the files that they wished to share. In the Picture folder, containing 3 photos, they right-clicked

on the mouse, chose Properties and clicked the Sharing tab before proceeding with the permission settings to share the Picture folder.

They then tried to share the files using Windows Homegroups (refer to Figure 4.52). To do that, they setup a HomeGroup, by opening the Control Panel and searching for the HomeGroup icon, before proceeding by clicking the button to Create a homegroup named PC17. Via the settings they then chose which type of folder that they preferred to share and selected the Documents folder this time, and changed the default password.

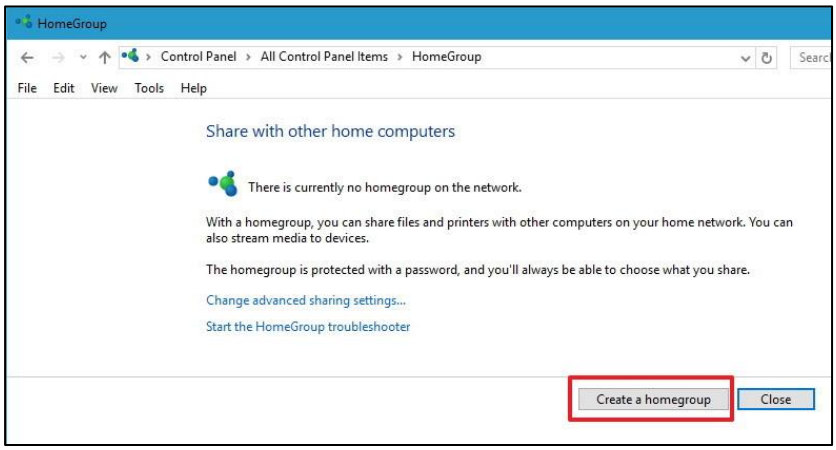

Figure 4.52: Homegroup setup (Source: Windows Central website)

The next step that they carried out involved clicking the File Explorer icon on the taskbar. They then navigated through the Documents folder and right-clicked the mouse to select the Share with Homegroup (view and edit) option. Once they had finished sharing a folder task over the network, they went to their teacher's computer and showed him the results. In-order to access the shared folder from his teacher's workstation, Fairuz and Azlan needed to demonstrate it by themselves as this was evaluated by the teacher. I followed them to their teacher's computer.

Fairuz then explored his teacher's computer to search for the Control Panel feature, before clicking on the HomeGroup icon and proceeding to join a homegroup. There were a few listed HomeGroups, but he selected their previous setup, HomeGroup PC17. He then accessed the Documents folder and showed it to the teacher. The teacher then ticked the evaluation form and gave them marks for the first tasks, and complimented them on a good and quick job. Both Fairuz and Azlan then returned to their workstation, PC17, and discussed the second task which required the sharing of a folder using Online Data Storage.

4.4.5.3 Connecting Digital Practices between Home and School

As Azlan had previous experience using Dropbox at home, he suggested to Fairuz that they should try to setup online data storage using GoogleDrive, and if there was an extra time, they could proceed with Dropbox. They then continued to search using the Google Chrome web browser for Google Drive. However, they realised that they had forgotten about the manual that the teacher had given them. They then followed the steps in the manual, and logged in to "Gmail.com". Azlan used his own personal Gmail account.

However, Fairuz reported to me that the printed material was not complete because it was an older version of GoogleDrive. However, Fairuz and Azlan were still able to install it. He also mentioned that in whatever situation related to the digital tools, regardless of whether you faced any online difficulties, it was always important to carefully read any display windows that contained instructions or information and that you had to be aware of what it was all about before one clicked the 'OK', 'Cancel', 'Yes', 'No' and 'Next' buttons. The reason for this, based on

his experiences, was that he always skipped to read the instructions carefully before and it always resulted in giving him lot of 'headache' afterwards. He provided an example: he just clicked 'Yes' for the notifications from Facebook, and after that he was totally 'annoyed' as he repeatedly received notification emails every day. It seemed that Fairuz managed to reflect on his own digital practices at home and that he implemented and integrated his own online strategies to counter problems that occurred during his online usage at school. They then clicked on the Google Apps icon in Gmail and selected Google Drive (refer to Figure 4.53). This resulted in displaying the Google Drive interface in Gmail, revealing a file titled 'Getting started in .pdf' format'. They clicked on it, and studied the document.

Then Fairuz logged-in to his Gmail account, and opened the shared file through his email. They successfully did the second task, and called the teacher to show it to him. The teacher came to them, did a checklist, and handed out the marks. At the same time, the teacher explained to them that as they had extra time, they could download and install the Google Drive software to the computer, and if there was extra time, to continue exploring the features listed in Google Drive in Gmail.

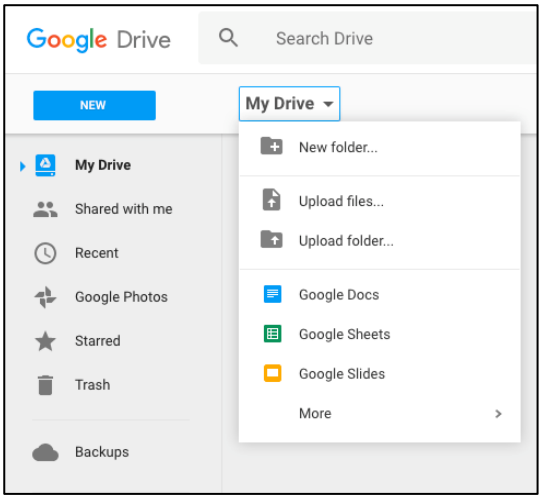

Figure 4.53: Google Drive Apps in Gmail

The teacher then took over the mouse, and clicked on the My Drive's drop list button, and demonstrated how to edit the sharing file using GoogleDoc. Both Fairuz and Azlan were fascinated and told the teacher that they would give it a try as they had never used this feature before.

Azlan informed the teacher that he had used Dropbox although only for sharing purposes but that there was no function to edit the document in real-time. The teacher then explained that the following features, Google Doc, Google Sheets and Google Slides were great for online editing purposes, as many people that have a shared link could view and edit it in real-time and other people could see the track changes. Further, the teacher explained that it was also good if some computers did not have Microsoft Office. This was because, by using those features, users are able create a new document online which they can access anytime and did not have to save it onto a pen drive or external hard disk. It seems that, even though Fairuz and Azlan showed a high level of digital literacy, they showed a positive attitude in learning, as they were willing to learn new things from the teacher. It was also observed that the teacher was able to give new tasks on the spot to fill his students' free time and that he was also able to guide them and gave advice on something that was outside the syllabus. This indicated the positive attitude of the teacher as he encouraged students to gain the most from online opportunities beyond the school curriculum.

Meanwhile, the classmates beside their computer asked for Fairuz's help as they had encountered difficulties to setup a sharing folder. Fairuz went to their computer and attempted to figure out the issue. He then restarted the computer and asked them to start it all over again. He sat beside them, and reminded them to

create a HomeGroup first to access their work from another workstation and asked them to follow the step-by-step instructions in the manual. He then monitored their steps in as they created a HomeGroup. At one point, he explained that they had overlooked one of the steps in the process. After 10-minutes, they managed to create a HomeGroup and shared a folder. He then gave a 'high five' to both of them. It seemed here that Fairuz was also able to help his friends and be a problem solver. Further, it was also observed that Fairuz successfully identified the issues and managed to perform the actions needed to settle the issues. It seemed that this kind of guidance skills was developed from his important roles at home, as he was given responsibilities at home to monitor his younger sister's online activities, guided her to use digital devices. He also became a technical problem solver if any digital devices at home encountered problems or issues.

Fairuz then returned to his computer and observed what Azlan was doing. Azlan then explained that he had already downloaded the Google Drive installer to the computer and demonstrated once again to Fairuz how he had downloaded it. Once the downloading process finished, they installed it, and this time they tried to share a file using Google Drive desktop. They successfully managed this, and Fairuz asked Azlan to explain whether there were any differences between Dropbox and Google Drive. Azlan then explained that both software was virtually the same but for him personally, Dropbox was the most easily used as it was simpler compared to Google Drive although he loved the features on Google Drive online which allowed users to create and edit a document. This was positive as the users did not then have to download the document edit it, thus saving more time and being hassle free. Azlan also added that Google Drive offered more free data storage

compared to Dropbox. Fairuz told him that he wanted to try Dropbox at home. They then continued exploring the function of editing in Google Drive in Gmail. It seemed here that, as an active internet user, Fairuz expanded his digital practices across home and school as he was bringing out the knowledge and skills that he learnt and practiced at home to school and vice versa.

4.4.5.4 School Digital Practices: Teacher as Mediator

As they shared a computer, Fairuz told Azlan to proceed with editing whilst he attempted to view it online, using his own smartphone. He then took out his smartphone secretly, but was unable to use it using Gmail. He then went to PlayStore in his smartphone and downloaded the Google Drive App. Once the installation process was complete, he proceeded to setup the Google Drive Apps on his smartphone.

Meanwhile, Azlan had already finished editing the document, and he sat beside Fairuz and focused on what he was doing. Lost in their own world, Fairuz unintentionally put the phone on the desk and both failed to realise this when the teacher came over. I signaled to the teacher that they were using the smartphone as I realised that smartphone use in the school was not allowed without the teacher's permission. The teacher then went to them, observed their actions from behind and asked if they were browsing Instagram. Both of them were shocked and said sorry, and showed the teacher what they had been doing. The teacher took the smartphone and guided them by saying that in-order to edit the document online, they also needed to download Google Docs Apps. He then sat beside them and installed the

Apps for Fairuz. At the same time, he instructed Azlan to edit the document on the computer and instructed Fairuz to edit it using his smartphone.

Having noticed what was occurring, a few students came to Fairuz's computer desk to see what was happening. Six students gathered around the teacher to see what they were doing. Two of them took out their smartphone and tried to install Google Drive and Google Docs on their smartphone. However, the teacher warned them to use their smartphones only for these learning purposes and that they needed to use their own internet mobile data. The teacher also reminded them to stay besides him so that he could monitor what they were doing. Once they had all finished, and tried to edit a few documents, the teacher instructed them to put their smartphones back inside their pockets. Fairuz and Azlan then continued to explore the features on Google Drive in Gmail as they had already finished the tasks. The teacher then continued to evaluate the tasks for each group until the end of the session.

It was observed here that whatever new things about online technologies were learnt at school, Fairuz always reflected on his own digital practices and did critically think about the ways in which they could be applied in his daily life. As observed here, Fairuz tried to implement new knowledge that he learnt on the desktop for potentially usage using his own smartphone as he said it was a good thing that he was able to use the new application on the smartphone due to its mobility. It also seemed that the teacher always encouraged his students to gain the most out of the online opportunities. Further, the teacher adjusted the school's rules and regulations for things that he felt contributed benefits to his own students regarding their online usage. It was also observed that, as a trained teacher with a

background in ICT, the teacher showed active mediation strategies when he always stood beside his students' sides, and that he was aware about his surroundings and what happened in his lesson. He also managed to handle any issues and problems that occurred.

4.4.5.5 Comments

Throughout the two-hour session, I observed that Fairuz was willing to learn new online technologies knowledge as he was very eager and asked a lot of questions to his teacher compared to the other students. I found it was very interesting the moment he took out his smartphone and tried to implement his new knowledge by using it on his smartphone. When I asked him why he did that, he told me it would be useful in the future as he liked to share it with his mother as she always borrowed his laptop to edit small changes in the meeting minutes for her neighbourhood Craft Society. This showed his ability to think the 'extra mile', as the smartphone was more mobile compared to a laptop and people carried it everywhere. Fairuz also did not panic when the manual was for Windows 7. Instead, he quickly searched for the relevant tutorial for Windows 10 and by carried out his own analysis of the differences. Therefore, he managed to complete the tasks. This showed an independent attitude by not always relying on the teacher as Fairuz said that sometimes it took ages when waiting for the teacher and that it was only a small thing that could be solved by searching for a solution online. Knowledge sharing between Azlan and Fairuz also sparked my interests as it showed a link between home digital practices and school digital practices and the importance of peer mediation in influencing children's online activities.

Fairuz also employed a high level of functional skills. He was confident in handling and performing the tasks, and he managed to make links between home digital practices and school digital practices. Based on his experiences when he helped friends in his neighbourhood, he managed to transfer his skills to his classmates. Even though his group experienced problems and issues in some steps of the task, they managed to find the solutions in-order to solve the task. Fairuz also gained new knowledge regarding Windows 10, and told me that he was more confident now to carry out a clean installation of Windows 10 in the future, if someone needed his help.

Regarding the smartphone usage in the classroom, I discuss it later at the end of this chapter (Section 4.5).

4.4.6 Fifth Classroom Observation (Participant: Chichi)

4.4.6.1 Introduction to Session

I observed Chichi in the computer lab for the lesson that focused on researching Cyber Law and its importance for the Computer Ethics and Legal Issues topics. From here, each student needed to carry out individual research on the assigned subtopic, and were asked to write a 350-word essay. As it was an individual task, students could bring their own laptop to the computer lab. As for session, Chichi already discussed with her computer partner Suzanne a day before, and Suzanne agreed to bring her laptop for this session. Upon receiving a temporary Wi-Fi password from the teacher, the students started the task. Meanwhile, for Chichi, she proceeded with using the computer in the lab. The teacher also reminded the

students that there was going to be an online quiz for 10-minutes at the end of the session as he had informed them in the session the previous week.

4.4.6.2 Children as Problem Solver: Developing Functional Skills

Chichi inserted her pen drive and scanned it using Antivirus software. She tried to open the web browser, Google Chrome, but it turned out that there was no internet LAN connection. She restarted her computer but it still failed to connect to the internet. She asked Suzanne to help her and Suzanne told her it might have a problem with the internet connection, but when Chichi checked the other computers they were all connected. She then called her teacher and asked for his help. The teacher came over and tried to connect to the internet several times. Once he figured out that it was still unable to connect, he checked the network card by opening the CPU casing case. Although he reinserted the hardware it still failed to connect. He then instructed Chichi to enter the teacher's room and search for a Wireless Adapter in the hardware rack.

Chichi returned to the computer, and the teacher instructed her on how to insert the Wireless Adapter into the usb port. Having done this, she then proceeded with the installation. He also told her to call him if she was still unable to connect to the internet via Wi-Fi. The teacher asked Chichi whether she knew how to install the Wireless Adapter and whether he needed to provide a short explanation about it. However, Chichi told him not to worry about it as she would give it a try and would let him know if there were any issues. Once she plugged in the Wireless Adapter, she also inserted the CD Installer and clicked on Setup files. Once the Wireless Adapter had successfully installed, she then entered the Wi-Fi password.

It seemed that Chichi could solve the technical issues by herself. With the verbal instructions delivered by her teacher, she applied 'trial and error' strategies and repeated the steps to complete the installation of the Wireless Adapter all by herself.

Her attitude towards management of her own digital practices at school showed that she possessed a good level of digital literacy skills. She also informed me that she had once observed the installation process conducted by her teacher in the previous class. It was also observed here that before she asked for help from her teacher, she tried to settle the issue by herself when she checked the network connection by clicking a LAN icon before she restarted the computer. This indicated that her independent attitude to try to solve the problem first without any help from anyone.

Having fallen behind the others for around 15-minutes whilst solving the internet connection issue, Chichi then quickly searched for the information on the given subtopic via Google Chrome. At the same time, she referred to the class notes and checked the References List at the end of the notes as she searched for a few articles relevant to the task. After spending around 20-minutes doing this, she then carefully read the text and highlighted the important points and copy-and-pasted it onto Notepad and formatted it as 'plain text'.

4.4.6.3 Digital Tools in Enhancing Cultural and Social Understanding

As part of the information taken from the article on the internet was in the Malay language, Chichi opened Google Translate. While rephrasing the sentences using her own words in Malay, she also translated it using Google Translate. She laughed at the translation result by saying it was totally messed up, but she still copied it as

she told me there were some words in the Malay language that she did not know the corresponding word in English. Suzanne checked on her as she heard Chichi was laughing, and Chichi showed her the translated sentences and how weird it sounded and both laughed very loud. Suzanne told her that she normally used the CitCat website introduced to her by her sister to do online translation from Malay to English. She recommended Chichi use the CitCat website because it was developed by a group of Malaysians so the translation was more reliable. She added that Google Translator normally accidently mixed Indonesian with Malay words. Suzanne also explained that even though it was the Malay language, the way Indonesians used it was totally different from Malaysian usage, and that occasionally, different words represented different meanings between Malaysia and Indonesia.

It was observed here that Chichi strategically managed to choose the most suitable digital tools for different tasks. As Chichi used Google Translate before, she evaluated every piece of information that she found online, as she managed to analyse and differentiate the differences of the translation result as she read it critically to obtain meaningful content out of it. Her understanding of different styles of Malay language showed that she was able to identify mistakes in the translation result and managed to rephrase the sentences based on her own understanding on the online text shown. She told me she knew that it was an Indonesian word as sometimes she watched Indonesian movies and listened to their music and always found Indonesian articles when she searched for information online. It was clear that all the time the children were drawing on a wide range of knowledge sources to solve problems.

Figure 4.54: Citcat website

As shown in the Figure 4.54 above, Chichi then used the CitCat translator features and provided positive feedback. She thanked Suzanne for the new information, and stated that she was satisfied with the translation results. From the translation results, she made a few amendments as it was a direct translation and she explained to me that sometimes the translation was not accurate, thus it required users to check the translation. Then she opened Microsoft Word, and created a new document.

Before proceeding with the writing process, she saved the file on to her pen drive as a back-up to continue working when she was at home as one hour was insufficient to finish the essay. She then focused on her notes in Notepad, and wrote down some important points in her notebook. She drafted a simple mind map to construct the body of the essay. Once satisfied with her work, she then referred to her computer and jotted down the articles references. She also copied and pasted the links to the articles in her Notepad and saved it onto her pen drive.

Then she proceeded with Microsoft Word, and setup the format for the Font, Paragraph, Document, Header and Footer, and Page Numbers. As such, she

followed the instructions on the sheet provided by her teacher. She then started to write, and inserted the relevant pictures into her essay. She also formatted the picture, and once satisfied with it, she continued writing the essay. At some point, she took more time to format the table as she became quite excited when choosing the colour and table style. I asked her whether she had learnt by herself or through her teacher and she told me that she had learnt how to do this in the Computer Literacy class when she was in Form 1. It seemed that she practiced her existing skills regarding the usage of Microsoft Word. Even though the version of the Microsoft Word that she used before was different to this new version, she still managed to explore by herself by clicking each Tab within the Microsoft Word menu bar and tried to search for the particular icon.

As time was running out fast, she decided to leave the formatting and continue writing. Sometimes, she used the Google Translator as she translated words that she wanted to express in her essay. There were three times when she moved around the computer lab, to check on her friends' progress and to discuss the essay with them. One time, her friend asked Chichi to help her format the documents.

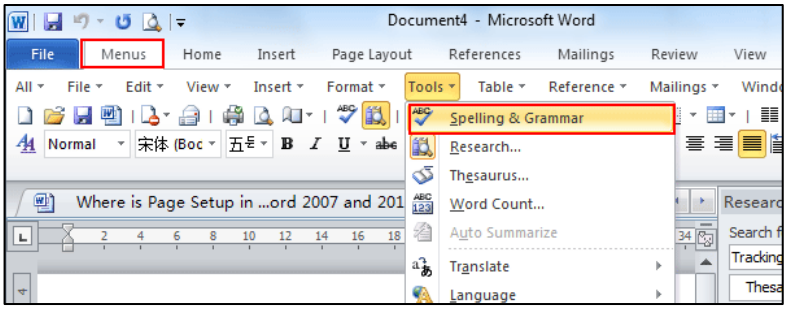

Figure 4.55: Chichi used Microsoft Office for her writing task

After 40 minutes, the teacher instructed everyone to save their work. They then logged in to VLE Frog and started answering the online quiz. Before stopping her writing, Chichi checked the grammar using the Spelling and Grammar feature on Microsoft Word (refer to the Figure 4.55) and once satisfied, Chichi quickly saved her work onto her pen drive. At same time, she sent an email containing her work to her email address in order to back-up her work. Chichi told me it was easier to save in email as she sometimes forgot where she put her pen drive, and because it was her mother's pen drive, so if she forgot to transfer the file to computer she would be unable to continue her work as her mother usually used it and took it with her when she went out.

Chichi then logged-in to her VLE Frog account (refer to Figure 4.56), went into the relevant subject section and quietly started the quiz. A few times, Chichi asked Suzanne whether she had answered the questions but this was followed by a 'Syhhhh' from the teacher who asked them to keep quiet. Chichi jokingly asked her teacher whether they could refer to the internet through their smartphones as she was stuck with the questions. In response, the teacher 'cynically' told her that she could try but that time was very limited.

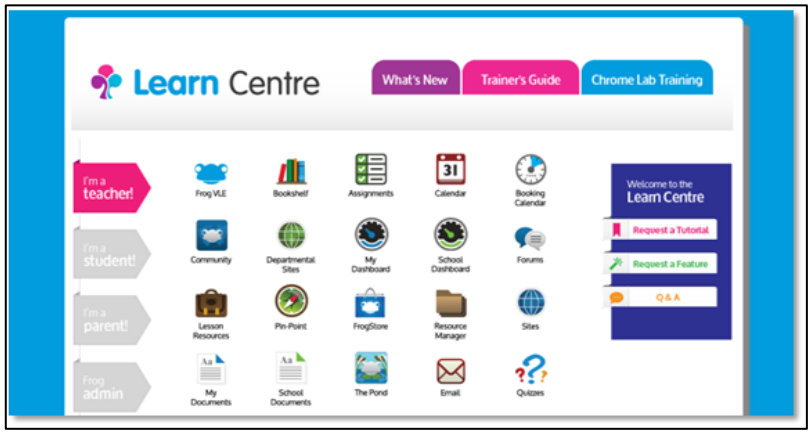

Figure 4.56: Chichi answered the online quiz on Frog VLE

Once finished with the online quiz, everyone automatically received their result, but Chichi was unhappy with her result as she blamed herself for forgetting the quiz as she had not prepared anything. Before shutting down the computer, Chichi double checked the saved files on her pen drive, and quickly scanned it before she ejected the hardware.

4.4.6.4 Nurturing Critical Thinking and Evaluation Skills in Minimising Online Risks

When Chichi was about to exit the classroom, she remembered that she had not logged-out of her VLE Frog account. She returned to her computer and switched it back on, worried that another student in the next session would use her VLE Frog account. If this happened, the other student would be able to see her marks for today's online quiz, and they would also be asked to sit the same quiz. The teacher came to her desk to check on her, and while shaking his head, warned Chichi to always remember about those things as it was very risky to forget important things like that. He also asked whether Chichi also forgot to log out from her Facebook account whenever she used it, and Chichi answered of course she did not as it was very dangerous to forget such things as her brother sometimes logged-in and 'jokingly' made a fake status on her profile: it happened once, and she was ashamed about it, although she admitted that it was her fault. Responding to her reply, the teacher then asked her to reflect on her online activities by taking E-privacy issues seriously.

The teacher provided a number of hypothetical examples: in the future, she might be using a computer in a cyber cafe or in another place, and if strangers gained access to her account because she had failed to log out, they could access her personal details. The teacher also said that students' personal details were located in the Accounts section of the student database portal, which contained important information about the students' full names, home addresses, and home and parents' phone numbers. The teacher then asked Chichi to think about the consequences if a teacher forgot to log out of their account whilst using a computer other than their personal laptop, noting that some strangers might use the details in a wrong way. Concluding, the teacher pointed out that it was a silly mistake to overlook such an important thing, and reminded Chichi to not make the same mistake again.

Once the log-out process was completed, she also checked her Gmail account, and was shocked to realise that she had accidently pressed the 'Save the Password' button before as her username and password in ******* format was displayed on the screen. Shaking his head, the teacher warned her about this too, stating that it was a 'silly' mistake for an ICT student to forget such things. Chichi apologised to her teacher, and repeated that she would be more alert in the future and promised not to make the same mistakes again. She then tried to recall whether she had accidently done it before, and told the teacher that she would change her password soon.

It was observed here that the teacher was able to guide his students regarding their own digital practices. This was done by the way he created an awareness of E-Safety and by giving them a 'gentle' reminder for every risky situation that may

expose his students to online risks. It seemed that the teacher played an important role and demonstrated E-Safety skills when he repeatedly asked them a few tricky questions. For example, in order to boost Chichi's critical thinking, he asked her to reflect on her own risky actions and followed this when he encouraged her to evaluate her risky actions and think about the consequence that may have happened if she failed to improperly protect herself online. The teacher also not only focused on Chichi's school digital practices but also managed to urge Chichi to reflect on her own online activities at home and across the platforms and online application as he related her mistake when she accidently saved her password in Gmail to whether she also forgot to log out her own Facebook account.

4.4.6.5 Comments

Throughout my one-hour observation, I found that the students relied on peer help in finishing their tasks. This was evidenced by the fact that when carrying out their activities, they always called to their friends for help when they experienced some issues. For example, when Chichi went to her friends' computers to help them format the Microsoft Word documents. I also noticed that during online activities and the working process, students would check on each other's progress, and volunteer to help their friend whenever possible. For example, when Suzanne suggested that Chichi use the CitCat website instead of Google Translator. The knowledge exchanged between peers during this observation showed that friends were the frontline helpdesk for each other if they encountered issues. It was also clear that the teacher was the last option, as he was only called upon for help after the students were assured that their friends did not know how to resolve the issue.

However, the teacher still played an important role in monitoring and guiding student digital practices at school, as the teacher was there to solve the issues and to advise on their digital practices. Based on mistakes made by Chichi when she forgot to log out from her VLE Frog account and accidently saved the password to her Facebook profile, the teacher not only sat beside her to check on it, but also provided advice regarding her mistakes and illustrative examples of the bad implications if such mistakes were to happen to Chichi in the future. By referring to whether Chichi had forgotten to log out from her Facebook account, the teacher successfully assisted Chichi to reflect on her online activities and to always take care regarding these issues, particularly by relating it to the dangers and concerns of identity theft and her safety. The teacher also managed to remind Chichi about E-Safety in general, and his strict attitude on this issue helped the student to always critically think and evaluate their online behaviour, especially where this may have exposed them to online risks. By using the Facebook account as an example, it seemed that the teacher was also alert to students' online activities outside the school and he successfully managed to relate and make the link between home-school digital practices for Chichi to think about.

Participants	Digital Literacy Skills shown (Tools)	Mediation / Mode of Learning	Home-School Links	Problems encountered
Hanna	Ability to Find and Select Information (Search Engine: Google) *Section 4.2.1.6	Teacher (Standard 5 / Primary School): Demonstrated how to use the search engine, Google.	Went online at home to search information for her school work.	Learnt how to use the computer and went online using Google's search engine for the first time at the computer lab.
Hanna	Practical and Functional (Video Editing: MovieMaker) *Section 4.2.1.9 & 4.2.1.10	Teacher (Form 2 / Secondary School): Taught how to use Movie Maker to make a video.	Learnt how to use Movie Maker at the computer lab.	Updated the latest version of MovieMaker in her laptop and watched a YouTube tutorial video on how to edit video using the latest version.
Hanna	Collaboration (Movie Maker: Features/Tools) *Section 4.2.1.10	Friends: Fostered peer learning and construction of new knowledge: -convert a video format -adding a subtitle	Participated in a Short Stories Competition at school. Group project	Faced difficulties while editing the video using Movie Maker at home.
Hanna	Effective Communication (Instant Messaging: WhatsApp Group) *Section 4.2.1.11	Friends/Teacher: Discussed and shared Mathematical solutions by snapshotting a solution.	Used her smartphone out of school hours for studying purposes.	Unable to solve the mathematical problems by herself while she was doing her school work.

Table 4.13: Home-School Links Digital Practices (Hanna)

Participants	Digital Literacy Skills shown (Tools)	Mediation / Mode of Learning	Home-School Links	Problems encountered
Hanna	Practical and Functional Skills (Audacity) *Section 4.3.2.3	Friends: Taught her how to use it at home.	Participated in a Short Stories Competition at school. Group project. Used Audacity to edit audio for the video.	Prepared for audio for school work, a slide presentation for Antivirus topic. Needed to remove the voice from the audio track for the presentation's background sound.
Hazaq	Ability to Find and Select information (Online Tutorial: YouTube videos) *Section 4.2.2.4	Friend: Taught his school football team mate who was left-legged how to play some tricks and tips.	Went online at home to search information and observed the way world famous left legged players played football.	He was having difficulties learning football skills as he was a left legged football player that played for his school team.
Hazaq	Collaboration (Personal Learning Environment: Frog VLE) *Section 4.2.2.5	Teacher: Taught the students how to use FrogVLE. Uploaded notes, exercises and other materials. Set up online quizzes. Teacher /Classmates: Online forum discussion	Hazaq logged in to this Virtual Learning Environment system when he was at home for school notes and other resources.	He easily got bored by reading printed materials when he was revising. By using VLE, his studying materials were more organised.
Hazaq	Ability to Find and Select information (Search Engine: Google) (Digital Tools: YouTube) *Section 4.2.2.5	Mother: Taught him how to use Google search engine and browse YouTube videos for learning purposes.	Hazaq went online to search for study resources and watched YouTube videos to understand more on abstract concepts/historical events for Biology and History subjects that he learnt at school.	He faced difficulties in understanding abstract concepts in Biology and historical events that happened in History.

Table 4.14: Home-School Links Digital Practices (Hanna and Hazaq)

Participants	Digital Literacy Skills shown (Tools)	Mediation / Mode of Learning	Home-School Links	Problems encountered
Hazaq	Practical and Functional Skills (Assembling a Computer) Practical and Functional Skills (Installation of Windows) *Section 4.3.3.2	Self Learning: He learnt by himself at home how to build a computer. Friends: Assisted his groupmates in school tasks. Mother: Taught Hazaq how to do a clean installation of Windows.	Was a facilitator in assisting his groupmates on how to assemble a computer.	School tasks: Needed to build a computer from scratch and install Windows 10.
Chichi	Effective Communication & Collaboration (Instant Messaging: WhatsApp) *Section 4.2.3.3	Friends/Teacher: Discussed and shared Mathematical solutions by snapshotting a solution. Discussed school works and activities	Used her smartphone out of school hours for studying purposes.	Unable to solve mathematical problems by herself while she was doing her school work. Needed information regarding school work and activities.
Chichi	Cultural and Social Understanding (Google Translate) Effective Communication (Instant Messaging: WhatsApp Group) *Section 4.2.3.5	Self Learning: Used Google Translate, read English online newspapers, watched English movies and short stories to improve her English. Friends: Communicated to her friends using English as the medium language.	Prepared to participate in English Society Debate Competition.	Used to be a Malay debator, but was facing difficulties in debating using English as the medium language. Described herself as having a low level of English.

Table 4.15: Home-School Links Digital Practices (Hazaq and Chichi)

Participants	Digital Literacy Skills shown (Tools)	Mediation / Mode of Learning	Home-School Links	Problems encountered
Chichi	Practical and Functional Skills (Online Translator: Citcat website) *Section 4.3.6.3	Friends: Chichi's friend Suzanne introduced and guided Chichi on how to use CitCat (English-Malay Online Translator).	Suzanne had used the CitCat website at home to translate English words and sentences.	School tasks: Chichi need to write an essay about Computer Ethics and Legal Issues.
Chichi	E-Safety & Critical Thinking and Evaluation (Gmail) *Section 4.3.6.4	Teacher: Explained to Chichi regarding online risks and the consequences that may occur if she did not protect herself online.	The teacher guided Chichi to reflect on her own digital practices when she went online. The teacher asked her to evaluate her own actions by giving Facebook usage as an example.	Chichi accidentally saved her Gmail password on the shared computer and forgot to log out from VLE Frog website.
Bella	Practical and Functional Skills (Microsoft Word) *Section 4.2.4.2	Bella's Uncle: Taught her how to solve issues regarding document layout setup.	Used her laptop to finish school work.	She faced difficulties regarding document settings.
Bella	Practical and Functional Skills (Antivirus) *Section 4.2.4.3	1 Malaysia Internet Centre Staff: Taught Bella how to install antivirus software onto Bella's laptop.	Used antivirus to scan her pen drive everytime she inserted it into the cyber cafe's computer to save her study materials for school work.	Virus infected pen drive

Table 4.16: Home-School Links Digital Practices (Chichi and Bella)

Participants	Digital Literacy Skills shown (Tools)	Mediation / Mode of Learning	Home-School Links	Problems encountered
Bella	Critical Thinking and Evaluation (Open Source Softwares) *Section 4.3.4.2	Teacher: Taught and introduced her to free software that was available online as an alternative to commercial software.	Discussed and reflected with her groupmate Syue regarding their own digital practices at home. Planned to install open source software to a computer at home in order to avoid using an illegal copy of the software.	Learnt how to search, download and install open software onto a computer.
Bella	Practical and Functional Skills (Image Editor: GIMP) *Section 4.3.4.3	Friends: Bella's groupmate Syue, who always used Adobe Photoshop at home, explained and guided her on how to use basic features and tools in GIMP.	Collaborated together as a group to install open-source software on a new computer.	Learnt how to use image editor for the first time at the computer lab.
Fairuz	Ability to Find and Select information (Search Engine: Google) *Section 4.2.5.2	Elder Sister: Taught him how to use search engines.	Went online at home to search information for her school work.	Learnt how to use the computer and went online using Google's search engine for the first time at home.
Fairuz	Practical and Functional Skills (Python Programming) *Section 4.2.5.4	Self Learning / Teacher: He learnt by himself at home. The teacher then guided him in improving his programming skills.	Wrote a simple program at home, brought it to school and asked assistance from a teacher.	Helped him in learning programming subject at school.

Table 4.17: Home-School Links Digital Practices (Bella and Fairuz)

Participants	Digital Literacy Skills shown (Tools)	Mediation / Mode of Learning	Home-School Links	Problems encountered
Fairuz	Creativity (Online Presentation Tools: Prezi) (Online Tools: Animaker) *Section 4.2.5.4	Self Learning He learnt by himself at home. Friend: He taught his friend how to use it. Self Learning He learnt by himself at home.	Used Prezi to finish his school project. Used Animaker to finish his school project.	School Project: Malacca History School Project: English subject
Fairuz	Effective Communication & Collaboration (Instant Messaging: WebWhatsApp) *Section 4.2.5.5	Friends/Teacher: Discussed school work and activities.	Used *https://web.whatsapp.com/* out of school hours for studying purposes.	Easily got distracted if using the smartphone to collaborate with friends while studying as he always ended up surfing the internet.
Fairuz	Practical and Functional Skills (Google Drive and Google Docs) *Section 4.3.5.3 & 4.3.5.4	Friends: Fairuz's groupmate Azlan guided Fairuz on how to use Google Drive as he himself had used another cloud storage software (Dropbox) at home. Teacher: Taught Fairuz how to edit a document online using Google Docs for a smartphone.	Collaborated together as a group to install cloud storage on a new computer. Assisted and guided Fairuz on how to use Google Docs on the smartphone so Fairuz could use it out of school hours.	Learnt how to download, install and use cloud storage, Google Drive on the computer and document editor, Google Docs on the smartphone for the first time.

Table 4.18: Home-School Links Digital Practices (Fairuz)

Through my observations and interviews with all the volunteer participants, I summarised all the links between home and school digital practices. Based on Table 4.13 until Table 4.18, it was observed that the participants in my studies brought the digital skills that they learnt at home into school digital practices and vice versa. I found that peer mediation was employed as the highest mediation in my participants' digital practices, followed by teacher mediation, parent mediation and older siblings' mediation. Other than that, it seemed that other adults played important roles in developing children's digital skills in my study, such as uncle mediation and government staff (1 Malaysia Internet Centre staff) mediation, which was mentioned by Bella regarding her digital practices.

It was also observed that children were aware and linked existing knowledge and digital skills from home to school for every task related to technology usage. Also, they evaluated and carried out critical thinking regarding every new digital knowledge and skills that they learnt at school through reflection of their home digital practices. I also found a few additional interesting findings during my observations, that children in my study were very diligent and very motivated and created and developed their own personalised learning environment in learning new digital skills. They also displayed that apart from learning digital skills by themselves through online tutorials that they searched for online, they also sought help from others such as a parent, older siblings and teachers if they faced any difficulties in learning new skills. These positive attitudes also helped them to develop their own digital literacy skills which, as they reported to me, improved day by day.

The digital skills exchanged in between interactions with their parents and siblings at homes was also observed at school. It seemed that during working on the assigned tasks during the school lesson, they discussed their existing digital skills that they already possessed with their peers, and if they never used the software, they quickly learnt and asked guidance from their partner during the lesson. It was also observed that, during my observations in computer labs, the children not only focused on the syllabus, but also expanded and widened their knowledge in the new technology that they learnt when they related it to their own home digital practices. This always motivated them to subsequently try it on their own smartphones. It seemed that the children were very excited learning new skills and always thought forward on how to bring the new skills to use it outside school hours.

I consider the links between home digital practices and school digital practices in my discussion chapter.

4.6 Internet Infrastructure at School

Based on my observations and interviews with my participants and teachers, it was observed that the internet infrastructure at school was frustrating. As all the lessons that I observed required students to continuously use the Wi-Fi and wired internet connection, the low speed and unreliable connection resulted in issues and problems which, it was observed here, delayed their online activities. The teachers also reported that these issues happened because of the limited budget provided by the Malaysian government, therefore, the internet facilities that were implemented at their school was not able to fully support the teaching and learning process due to

the low-speed connection. It was also observed that, due to this frustration regarding the internet connection, the participants always opted to use their own smartphones internet connection in assisting them to search for online information to finish their given tasks.

Even though the use of smartphones during school hours was banned at the school, it seemed that it was the only option for them to continue their lesson or else the process of learning would have to be delayed. It was also observed in every lesson that I attended the participants frequently and surreptitiously used their smartphones from their pockets to use for study purposes as the internet connection was very slow. Due to this problem, it was observed that the teachers did understand the situation, and they monitored smartphone usage closely. On the other hand, even though the teachers allowed students to use their mobile data on their smartphones in their lesson, it was also observed that this flexibility resulted in a disadvantage to those students who did not have a smartphone and who did not have mobile data access.

Other than that, it seems that Fairuz too, like Hazaq, was using the smartphone during this lesson. It also can be seen that the difficulties, challenges and conflicts that had been facing by students in gaining the benefits in using the smartphone in learning process due to the school rules in mobile phones and that the school prevented the students from accessing useful material. If the teacher had enforced the rules, then in these lessons, the students would have learned less. Through my perspective, here is another example of the conflicting and confusing messages given to young people about digital technologies. They see them as useful tools but they also see how adults regard them as having sinister properties. The

young people are forced to use evasive tactics in order to fulfill tasks set and this seems very bizarre.

I also was observed that due to poor facilities, as a few computers in the computer lab were broken, the participants needed to share a computer with their friend. However, I believe, if resources are limited, maybe it is better to have fewer computers and a better internet connection as even though the participants needed to share the computer, it can be seen during the observations that they learned a great deal in working together and still seem to enjoy what they learnt in school, which I think it was beneficial. Alternatively, as mentioned in my previous section, the teachers also allowed the students to bring their own laptops for individual tasks. This helped to solve the issue regarding limited available computers.

4.7 Pen Drive as an Important Digital Device in Learning

Before starting my data collection, it never crossed my mind that the pen drive would play a key role in assisting children in their online learning at home and school. However, I found that every participant in my study owned a pen drive. They used it across home and school, and it seemed that it was very important, as equally important as other mobile devices such as smartphones and laptops. Whenever they went online at home and school, they saved the files that they searched and found online onto their pen drive, and transferred it onto school computers to use the files again for the school tasks and vice versa. This was very useful for the participants that had limited access to the internet such as Bella. For example, it was observed that Bella saved all the information that she found online at the cyber café into her pen drive and used it again at home for her schoolwork.

The pen drive was also observed here as an important device during my observation with Fairuz as he saved the latest movies onto the pen drive and gave it to his friends at school. The pen drive played a key role in the fluidity with which they were able to move across devices and make links between home, friends' homes, community spaces and school. It allowed them to transfer resources and to manage difficult financial situations effectively.

During the lesson that focused on cloud storage, Google Drive, the teacher suggested that the students should use cloud storage to store the files. However, few students provided feedback that it needed an internet connection to access the saved files and that as a result they still preferred using the pen drive to save their school work and projects as they said this could be accessed anytime without need to worry about internet connection.

Regarding the usage of the pen drive in class and at home, it seemed that my participants had an early awareness of E-Safety through the protection of the pen drive from viruses. All participants reported that they had bad experiences regarding the infected pen drive with a virus and demonstrated the scanning a of pen drive using antivirus whenever they inserted it into the lab's computers.

I also observed that the students brought their pen drives to school every day but placed them in their pencil boxes as they were 'compulsory stationery' that everyone must have. This digital device held an important position in assisting every student's learning process at home and school as they needed to 'transport' their school work and study materials that they learnt at school and needed to bring their school work and projects that they did at home and it seemed that the pen drive was an easy solution for this. As such, it was fully utilised by all my participants.

In the next section, I present my discussion chapter which draws on a discussion of the entire data findings and focuses on answering the three research questions.

CHAPTER 5
DISCUSSION

5.1 Introduction

In this chapter, I further discuss the research findings determined from the quantitative and qualitative data collected during this study. This discussion encompasses findings from the home visits, school visits, questionnaires, and interviews with students, parents, teachers and the focus group discussion. In previous chapters, I highlighted significant aspects of the data that I collected and paid attention to features that would help answer my research questions. In this discussion chapter, therefore, I have combined the findings from both the qualitative and quantitative data collections, and from this I draw tentative conclusions and answers to my research questions.

This study was designed to explore a small group of five children's digital practices and their management at school and at home. I set out with the aim of describing their current online digital practices in-order to help them make the most of their online opportunities. Therefore, this chapter also covers a discussion of the presented findings in light of the literature review (see Chapter 2) to answer my research questions. As mentioned in Section 3.6, this discussion chapter was based on a case study's findings in my research and not representing all Malaysian children.It may be that the same study, carried out with others, would generate different findings. It is clear that more qualitative research in this area would be useful.

As set out in Chapter 1, the research questions are as follows:

1. What do Malaysian children do online at home and in school?
2. What do Malaysian children see as the opportunities and risks offered by the internet?
3. What learning are Malaysian children involved in through their online activities?

5.2 Q1: What do Malaysian children do online at home and school?

To answer this question, I refer to existing studies as discussed in the literature review chapter regarding children's online digital literacy experiences. This part also addresses the findings based on an overall picture of my participants' digital practices at home and school, and it includes the descriptive data analysed from the questionnaires completed by my participants.

In addition to answering Question 1, this chapter also sets out the following. **Section 5.1**: I discuss the descriptive data from the questionnaire used in this study. Then, in **Section 5.2**, based on Hague and Payton's Digital Literacy Framework (Hague & Payton, 2010), I discuss the themes that were categorised based on my findings as set out in **Chapter 4**. There are 8 themes in this discussion which are: (1) Functional skills; (2) Creativity; (3) Collaboration; (4) Communication; (5) The ability to find and select information; (6) Critical thinking and evaluation; (7) Cultural and social understanding; and (8) E-Safety. In the next **Section 5.3**, I discuss the summary of children's' digital practices at home and school and the

connection of digital practices between home and school before moving to the next section, which will answer Question 2.

5.2.1 Internet Access and Use

In this research, based on 75 student participants that answered the questionnaire, approximately 80% said that they went online more than half an hour everyday during school day. For weekends or holidays, 25%, said that they went online continuously, 16% (7 hours or more), 21% (4 to 6 hours), 18% (0.5 hour to 3 hours, and the rest (3%) did not go online at all.

The findings show that the children who participated in this particular case study showed similarity with the participants of the research carried out by the Pew Research Centre which revealed that more than 90% of 1,060 young Americans went online every day (Lenhart, 2015). This finding also showed the high rates of access and use of internet among participants. Thus, despite the very different culture of my participants, there are clearly very strong aspects of cultural alignment in terms of aspects of their uses of digital technologies.

The majority of the participants (79%) reported that they owned a smartphone, followed by 48% who owned a laptop, 20% who owned a desktop computer, 28% who owned a mobile phone, 17% who owned an iPad or Tablet, 16% who owned a games console, 11% who owned a Smart Television, with only 3% of participants not owning any digital device. However, regarding the participants that did not own a digital device, they reported that they still had internet access by using or borrowing their family members' laptops and smartphones. Therefore, this finding is in line with findings by previous studies

elsewhere, including Mascheroni and Olafsson, The Pew Research Centre and Net Children Go Mobile that argued that there has been an increase in the number of active internet users amongst older children (aged 10-16) since 2010 due to a higher percentage of smartphone ownership (Lenhart, 2015; Livingstone et al., 2014; Mascheroni & Olafsson, 2015). As for my research, this showed that even though some of the participants did not own a digital device, they still retained the ability to go online. Other than that, 81% of my participants reported that they had broadband internet at home and 77% of my participants' that were using smartphones had an internet data plan subscription.

Related to the above discussion regarding internet access and use and the relationship with digital device ownership, the participants also reported that they went online at several places, with the bedroom (the private room) being the most preferable location (57%). In addition, 47% went online in the communal areas in their house, 13% in the school computer lab, 17% in a cyber café, 8% in a friend's home, 7% in a relative's home, 5% in the classroom and 4% in the school area. In contrast, compared to other research in European countries and United States, children went online most of the time while they were at home, with the majority preferring to go online in the bedroom due to increased privacy (Britto, 2007; Bulfin, 2009; Marsh et al., 2005; Mascheroni & Cuman, 2014; Vincent, 2015). This is a bit different in my research findings from home observations as the children went online in more public spaces in the home (living room) and also in the other places as mentioned above including cyber café.

Virtually all of them (99%) of children in my research that did not own any digital devices went online in the communal areas in their house, which was the

living room. This agreed with my findings that children who needed to borrow their family members' digital devices used it in the communal areas of their home. For the 57% of participants that stated they preferred to go online in their own bedroom, all of them owned a smartphone. This is in line with the findings by Mascheroni and Olafsson (2015), Park (2014) and Vincent (2015) as these researchers argued that by owning a smartphone, a child was also given their own space and responsibility for handling the devices independently as through this smartphone ownership, there was a layer of greater privacy, convenience and constant access to the internet.

Most participants used multiple devices to go online, with smartphones being the most common devices used (32%). Other popular devices used for online purposes were laptops (27%), smart televisions (24%), desktop computers (21%), games consoles and Tablets/iPads (15%). The most interesting finding regarding the devices that were used to go online was that the percentage of internet access through smart televisions was almost same as that found for laptops (24% each).

Previous studies by Haddon (2013) and Mascheroni and Olafsson (2015) showed that tablets and smartphones were more accessible for older children due to issues of mobility and size compared to other digital devices such as laptop and desktop computers (Haddon, 2013; Mascheroni & Olafsson, 2015). In contrast, one unanticipated finding in my study was that the smart television was ranked as the third most used digital device to access the internet while desktop computers and tablets were ranked below smart televisions. It is somewhat surprising that smart televisions have never previously been listed as one of the digital devices used to access the internet in any of the literature that I had reviewed before (see Chapter

2) (Haddon, 2013; Mascheroni & Olafsson, 2015; Merchant, 2015; Wohlwend, 2015, Malaysian Ministry of Education, 2013, 2014, 2015). This surprising result may be explained by the fact that the participants in my study indicated that they preferred to watch online streaming movies and YouTube videos on the smart television due to the widescreen size and the quality of the audio compared to the laptop. Another possible explanation for this can be related to the increased availability of online streaming service providers that have entered the Malaysian market since 2015; further, all television companies in Malaysia have introduced online streaming content for Malaysian audiences (Chan, 2016). Better internet infrastructure has been aggressively improved with internet service providers offering more competitive prices in Malaysia. This can also be seen as one of the factors underlying this finding as it is more affordable than ever (Chuah, Marimuthu, & Ramayah, 2015; Karlsson et al., 2017; Wok & Mohamed, 2017). As many digital devices were made in China which is close to Malaysia, the price of digital devices within the last few years has decreased, including the price of smart televisions. One initiative implemented by the Malaysian government, tax relief for buying digital devices, has promoted a digital lifestyle amongst Malaysian people (Lay-Yee, Kok-Siew & Yin-Fah, 2013). In the 2013 Malaysian Budget, there was a RM 200 (GBP 35) rebate on smartphones purchased by Malaysian youths aged 21 to 30 years old. The position of the digital devices in my participants' families also showed that many parents labelled digital devices such as smartphones and laptops as the highest awards given to their children for high academic performance. By relating these facts together, even though parents in my study did not all use the internet actively, they believed that their older children could

successfully assist and guide their younger siblings (Austin & Kistler, 2016). This also appeared to be one of the reasons why young children in Malaysia were actively using the internet.

Participants of my study also reported that their first online activity were playing online games (45%), browsing social networking websites (23%), searching online using a search engine website (19%) and watching YouTube (13%). In details, participants' most visited websites and most used Apps and Softwares, I analysed the answers into a Top 10. It can be seen that majority of the participants reported that their most visited websites and used Apps and Software were WhatsApp (33%), followed by 12% (YouTube), 11% (WeChat), (9%) Instagram, (7%) Facebook, (5%) Google, (4%) Online Newspapers, (3%) Online Games (Dota 2) and (1%) Online Games (MineCraft Pocket Edition). Meanwhile, for the rest of the participants (1%), their most visited website and most used Apps and Software were InfiniteUpdate (Entertainment Blog), Score Board (Sports website), Skype, Smule (Online karaoke), Spotify, StarProject.galaxy (Online games), Wobomarket (Classified Ads – China based website), Mudah.my (Classified Ads – Malaysia based website), NatGeographyKid, Piano, Snapchat, Photogrid, Wattpad, Musical-ly, Joox, Clash of Clan (Online games), Telegram, Anime Online, Chinese Dictionary, Tumblr and VSCO (photography apps).

The participants also reported that they went online for the first time as early as 4 years old (1%), 6 years old (3%), 7 years old (5%), 8 years old (3%), 9 years old (12%), 10 years old (29%), 11 years old (25%), 12 years old (16%), 13 years old (3%) and 15 years old (3%). In addition, the majority of my participants went online for the first time in their home (72%), followed by a cyber café (15%), school

(computer lab) 8%, and a relative's home at 5%. The majority of participants (57%) reported that they went online for the first time with their family members, siblings and relatives, and 20% reported they went online for the first time with their friends. Other than that, they went online for the first time with other people (8%), teachers (4%) and 11% of the participants were alone.

When the above findings from this study are compared with the findings reported by the Ministry of Education Malaysia in 2013, it can be seen that both findings are in agreement (58%) regarding the percentage of children who went online for the first time in the company of family members or other relatives (Ministry of Education Malaysia, 2013). In contrast, however, the percentage of children who went online accompanied by friends increased by 3% when compared to the findings from 2013, from 17% to 20%. From this statistic, it is revealed that the children who participated in my study were guided and received mediation not only from their parents, teachers, and older siblings, but were also mediated by other adults and relatives and by their friends. As I discuss later, it can be seen from my study that the children actively mediated each other while they were going online. This is in agreement with the ideology that the Peer Learning Environment is transforming itself into another new perspective that is referred to as "Peeragogy", a new theory that arose out of 'Peer Learning' and 'Pedagogy'.

Rheingold (2014) define 'Peeragogy' as being about "peers learning together, and teaching each other" (p.25). I discuss Peeragogy in more detail in Section 5.2.4. However, it is worth stating here that this 'Peeragogy' approach also has been adopted and integrated both within the classroom and outside of school hours as the children in my study were observed to be actively engaged with each

other while they went online. Further, the majority of participants carried out online activities together with friends compared to with their parents. Therefore, I believe the teachers in my study did a very good job in supporting and encouraging the students to actively collaborate together and I also believe that it would be beneficial if parents also provided encouragement and guidance for their children to be active online, (notwithstanding that at least one of my participants guided her parent).

7% of my participants reported that they owned a digital device as early as 10 years old and the majority (approximately 48%) owned a digital device by the age of 13 years old. In Malaysia, 13 years old is equal to the first year in secondary school, and parents in Malaysia believe that by this age their children were mature enough to handle digital devices independently, as reported by several parents in my study. 70% of my participants reported that the first digital device that they owned was a smartphone. This finding is also in line with the findings by Balea (2016), Lauricella et al. (2014) and Mascheroni and Olafsson (2015) which indicated that children nowadays owned smartphones and tablets at a younger age which provides them a with more opportunities to develop their digital practices as they are exposed to digital technologies from a young age.

The affordability (low cost) of subscribing to the internet in Malaysian households and mobile internet data packages in Malaysia also can be seen as having contributed to the high level of internet usage among my participants (Chuah, Marimuthu, & Ramayah, 2015; Karlsson et al., 2017; Wok & Mohamed, 2017). Currently, in Malaysia one can subscribe to a 4 GB internet data and unlimited calls package for your smartphone for only RM 35 (GBP 5). This is in

line with the study findings that I have presented above: 77% of my participants accessed the internet through their smartphone every day using internet mobile data.

The next section discusses what Malaysian children do online at home and school based on the eight themes of Hague and Payton's Digital Literacy Framework (Hague and Payton, 2010) that emerged from the findings (please refer to Chapter 4) in this study.

5.2.2 Functional Skills

In this study, this theme came up for example in discussions concerning the required technical skills in handling and operating various digital technologies. Participants in my study were found to have a high proficiency in functional skills when it came to solving technical problems that occurred while they were using digital technologies. As an example, Hazaq demonstrated a high degree of skill in assembling and building a computer from scratch. He knew how to install various hardware and learnt how to format a computer with Windows 7. Therefore, he managed to solve the problems in formatting a computer with Windows 10 at school as he already had existing knowledge regarding computer assembly and the installation process.

On the other hand, Chichi successfully installed a Wi-Fi adapter with only minimal advice from her teacher as she also had existing knowledge on installing Wi-Fi on a new device. In my study, it also can be seen that my participants were able solve their problems when it came to the technical parts either by searching for information online or referring to their parents, siblings, teachers and also through collaboration with their friends.

Aside from the normal circles of mediation as mentioned above, one of my participants, Bella, had learnt how to solve her problems regarding Microsoft Word settings from her uncle. It can be seen that the children were able to seek help whenever they faced difficulties in handling digital technologies. This is in line with the arguments of Vincent (2015) and Livingstone et al. (2015), that through the online world children not only learn how to use the internet, but they also gain online opportunities while using it. By using online technologies, through continuous internet usage, children can develop their own functional skills gradually. Also, it is interesting to see how the children in my study learned from and taught each other; they were also capable of exchanging their functional skills amongst themselves as they were using the technologies together. As I mentioned regarding 'Peeragogy' in the previous section, it is true that this 'Peeragogy' environment provided fun and positive energies that were 'implanted' in the children's' behaviours while they were using the technologies.

In addition, through acquiring high level of functional skills, such as how to install software, the participant children of this study were found to be confident and eager to do it by themselves, rather than waiting for the instructions or presence of the adult or other older figure (Ofcom, 2014). This shows a positive attitude gained from a longer exposure to the internet as one of my participants, Hanna reported that she was initially afraid to even touch the keyboard and mouse when she was first introduced to a computer at school as she did not have a computer at home. However, after a few years of being active in using online technologies and using several digital devices such as a computer and smartphone, she transformed herself into a very confident digital user who became the main centre to solving any

technical issues at her home. This finding confirms the association between self-confidence and children digital literacy skills development in earlier studies (Smahel & Wright, 2014; Levy et al., 2013). Even though she had never encountered some of the problems before, Hanna reported that she managed to go online to search for information to try to do it later, and that she would successfully solve the problem in the end by herself. This is inline with the other researchers that argued the ideas on how the literacy involves other skills in everyday practices, such as the ability to make decisions in selecting the right resources for the right task as can be seen in all of the participating children in my study (Cope & Kalantzis, 2000; Barton & Hamilton, 1998; Scribner & Cole, 1981)..

5.2.3 Creativity

Through online activities at home and school, my participants were found to be involved in creating new content. All my participants were using various software to create content for their own purposes and school projects. As an example, (refer to Section 4.2.1.9), through autonomous learning at home, Hanna and her group mates made a short film (at home) using the software Movie Maker. Interestingly, they learnt and polished their own skills by following step-by-step guides shown in YouTube tutorials displayed in a laptop that were placed side by side with another laptop that they were using for the editing purpose. They recorded a video by themselves, edited it and inserted background music to accompany the video. They also treated this online activity as a recreational activity outside school hours.

Another participant, Hazaq, was also found to use multimedia software, Lightworks, to produce a video for his school football team. Having pre-existing

skills in handling a video editor software, Adobe Photoshop, he used Lightworks as an alternative to Adobe Photoshop as he reported that he preferred using it due to its status as an open software, which means it is free. As he had never learnt to use Lightworks before, he managed to explore the software by himself and learnt from online tutorials, with the result that he successfully edited the videos and the accompanying audios.

Other than these two complex activities involving Lightworks and MovieMaker, the majority of participants were found to be creative as all of them were polishing their skills in using social networking media applications such as Instagram. Hazaq, Hanna and Fairuz were found to capture and edit photos and record and edit videos before posting them on Instagram. Through Instagram, Hazaq and Fairuz argued that they loved to edit content for posting on Instagram as they found it to be a way to express their creativity and also another form to represent themselves online. As they felt that their voices were heard online through Instagram, they were also motivated to create online content, and social network sites allowed them to explore and express themselves in their own ways. This is in line with Vincent (2015) who argued that we need to prepare and develop our children to become 'internet explorers'.

These creativity skills based on media productions were also enhanced by school activities. During my observation, Hanna also used Audacity (Audio Editor) to edit audio. As I discussed in Chapter 4, she used Audacity to edit the audio to be used as the music background for her PowerPoint slide presentation. Even though the classroom activity was based on Microsoft PowerPoint, she was very creative to use Audacity to remove the voices from the songs so that the music could be

used as background tracks. Interestingly, she did this from her own initiative as she saved the song a day before and brought it to school, saved on her pen drive. This shows how Hanna managed to think and select suitable tools to enhance her school project. It further shows that the children in my study were very motivated in making their own media content. It can also be seen that the teachers at the school selected in my study gave their students the freedom to produce their own media content. This flexibility shows that the teachers were able to boost the creativeness of their students through school activities. This showed that the participant children in my study were at the high level of climbing the "Ladder of Opportunities". Again, this is in line with other research arguing that the "wider the range of online activities pursued" by children resulted in them being found at the higher level of 'Ladder of Opportunities' (Livingstone & Helper, 2007; Hasebrink et. al, 2013). These findings in this section also suggest that the children in my study gained benefits by being more creative throughout the various online activities and also due to the greater autonomy of smartphone use, which corroborates the ideas of Mascheroni and Olafsson (2015).

5.2.4 Collaboration

All participants in my study were found to be involved in collaborating with other people in their environment. Numerous online activities carried out by my participants showed that they were actively collaborating at home and school. One such example was where Hanna collaborated with her group mates in finishing their short film project at home. Hazaq, too, collaborated with his friends regarding the installation of computer hardware and software. At school, in every lesson, they

were also found collaborating together in activities conducted in the computer labs, such as the installation of open source software, setting-up a Home group network, preparing a slide presentation, assembling a computer, installing Windows 10, and during writing an essay.

As I mentioned earlier, the 'Peeragogy' process was found in most activities at school, as my participants were found to learn from their friends, and at the same time, those who had already acquired particular skills needed to finish the tasks were observed helping their friends to complete their tasks. Interestingly, at the same time, aside from face-to-face collaboration, they were also found to collaborate through their WhatsApp group. These can be seen in classroom activities, where they shared information in their WhatsApp group.

Other than that, in the last classroom observation, Fairuz and his friend were found to collaborate in exploring GoogleDocs. Even though it was out-with the class syllabus and activities, the teacher still encouraged them to explore the application. Not only did they manage to explore it by themselves, they also reflected together in learning how to use GoogleDocs at home. Fairuz also collaborated with his friend concerning how to use GoogleDrive as his friend had experience using Dropbox at home. Chichi also collaborated with her friend, as her friend introduced her to a new website 'CitCat', an online translation site, to translate English words into Malay words. These examples of collaboration show that the children were bringing the knowledge and online skills that they learnt from home, and transferred it among themselves through this 'Peeragogy' process, and subsequently were bringing new skills and knowledge back to their home. This

‘transportation’ of new knowledge and skills were exchanged ‘beautifully’ and it occurred due to such collaboration.

These findings are in line with other research from other countries which suggests that children were found to collaborate with their peers regarding their online activities (Chaudron, 2015; Kumpulainen & Gillen, 2017; Mascheroni & Olafsson, 2015; Vincent, 2015). The results from this study also demonstrates that the children in my study did collaborate, the same as other children in other countries (Mascheroni & Olafsson, 2015). The collaboration activities that happened in between their online activities also supports the ideas of how internet usage can foster and encourage collaboration amongst children (Aragon, Poon, Monroy-Hernández, & Aragon, 2009; Coleman, 2012).

5.2.5 Communication

Smartphones were largely used by all the participants in my study except for Bella, who did not own a one. However, she managed to break this digital gap by borrowing her brother’s smartphone to communicate with her friends regarding school purposes. As for Chichi, even though she also did not own a smartphone, she still actively used her mother smartphone especially when she was doing her school work. The children in my study were found to exhibit a high level of communication skills as they actively engaged and interacted with each other, from talking about their personal life, outside school hours activities, to communication regarding their school work.

Using their class WhatsApp group, I managed to scroll through their conversations and found many interesting discussions on their school work and

projects. Not only were they sharing and exchanging information regarding their school work and projects, they were also found helping each other when their classmates became stuck while finishing their work. The present findings seem to be consistent with other research which found digital tools such as WhatsApp has the ability to enhance communication in a learning environment as it "indicated academic advantages such as the accessibility of learning materials, teacher availability, and the continuation of learning beyond class hours" (Bouhnik & Deshen, 2014, p. 1).

One unanticipated finding was how Chichi successfully surmounted the communication gap between her and her male friend through conversations on WhatsApp. As I discussed previously in Chapter 4, due to her experience derived from her former school which was very strict regarding interaction between boys and girls, Chichi was having a communication breakdown in talking to boys at school. However, through WhatsApp, Chichi managed to seek help for her school mathematic work and reached out for help to her classmate, someone that she did not have any interaction with at school; I referred to their relation as 'online friend, offline stranger'. This weird interaction suggests that by using digital tools as a platform of communication, children can communicate effectively with their peers and this, of course, did boost their confidence when dealing with difficulties and challenges in their daily life. This is highlighted by the following example from my study: Chichi managed to solve her mathematical problem with the assistance of her friend. This finding also suggests that digital tools such as a smartphone can facilitate successful communication (Anshari, Almunawar & Shahrill, 2017).

5.2.6 The ability to Find and Select Information

The participating children in my study showed a high level of skills in their ability to go online and search for information, evaluate online content and select the right information. All participants showed that they were able go online independently using the search engine and find the information that they needed regarding their tasks. The first participant, Hanna, already went online to search for information regarding the course that she was interested in studying further. Aside from asking for advice from friends, family and teachers regarding the course that she will choose after high school, she managed to go to the university website and found the information that she want. Other than that, due to her ability to find and select information, she also managed to help her family save unnecessary expenses as she would go 'extra miles' to read reviews of household products and pick the cheaper options that were available. This can also be seen from the way she helped her family to get a 'free offer' by adopting a kitten, rather than buying a new kitten. This revealed how Hanna was being resourceful, and by possessing such skills, she not only gained benefits for herself, but also managed to help and assist her family too. Another participant, Bella, managed to do it in an economic way too, by multiple searching online for Korean dramas and songs, and downloading them simultaneously in order to save money as the time she was allowed to use the internet was limited. As for Hazaq, he also possessed a high level in this skill as he managed to go online and find information for something that he applied in his daily life. I was impressed by the way he learnt swimming just by watching online YouTube tutorials, and also how he developed his soccer skills. Meanwhile, for Fairuz, he also being a 'mastermind' as an 'entertainment hub' as he was providing

movies and songs for his friends. By trying to save money by avoiding going to cinema, he downloaded the latest movies online and shared it with his friends.

These online activities show how children in my study were able to go online for information, and evaluate and select the best information to be used later. They were heavily reliant on using online search engines whenever they were stuck in doing their school work and projects, and these can be observed from the online activities at home and school. These findings agree with the findings of another study, in which children that are exhibited good skills and abilities to find and select information online are able to "fully benefit from what the Internet has to offer" (van Deursen, Courtois & van Dijk, 2014, p.281).

According to Hague and Payton (2010), however, children should also be able to use another skill together with their ability to find and select information, which is the ability to use their critical thinking and evaluation. This is discussed in the next section.

5.2.7 Critical Thinking and Evaluation

Through online activities at school, Hazaq, for example, had difficulties installing Windows 10 as the manual provided by the teacher was for Windows 7. He then quickly went online and searched for YouTube tutorials focused on Windows 10 installation and used it for the tasks. As there were many YouTube videos, he reported to me that he analysed and picked a particular video based on reviews, ratings and the established producer. This showed another level of skills as it involved critical thinking and evaluation. In addition, Bella also demonstrated her critical thinking and evaluation skills in school. Bella, during her class online

activities on the installation of open source software, decided to visit and download the requested software only from the official website. This was because she reported to me that she was avoiding popup advertisements from third-party websites that could contain spyware and malware. This showed that she was employing a high level of critical thinking and evaluation skills and was able to protect herself from online risks. Another participant, Chichi, who was very fond of short animation films, also demonstrated a good level of critical thinking and evaluation. Based on what she reported regarding her online experiences before, she had previously experienced a few incidents in the online world, where she accidently clicked and watched explicit content videos or films; after that, and through her mother's guidance and her own increasing awareness, she managed to filter those short animation films that she found online by applying critical thinking and evaluating the synopsis first in order to identify whether the content was good for her and suitable for her age.

Hague and Payton (2011, p.5) argued that "students should also be encouraged to reflect on and evaluate their work throughout the process of producing it, rather than saving the evaluation for the finished piece". In my findings, one of the best examples that is in line with this suggestion was the situation in one of my classroom activities where the teacher was able to remind and explain to Chichi how to minimise online risks due to the incident where Chichi forgot to log out, and also accidently saved her password on a computer in the school computer lab. The teacher urged Chichi to reflect on her carelessness and asked her to critically evaluate her actions and think deeply about the consequences that may have happened if she did it again. The teacher actions are in agreement

with the suggestion by Byron (2008) in which she suggests that we need to prepare and develop digital skills in children so that they will be 'aware' of their behaviour in the online world, and also be able to critically evaluate online content in order for them "to embrace all the benefits that the digital world has to offer" (Byron, 2008, p. 11).

5.2.8 Cultural and Social Understanding

Participating children in my study seemed to enjoy and gain online opportunities when they were exposed to other cultures from foreign media materials. As an example, Bella reported that she improved her English proficiency through her interest as a K-Pop fan. Even though it seems really weird how Korean dramas and songs can enhance Bella's English language skills as they are using the Korean language. However, Bella reported that, in order for her to understand Korean dramas, she needed to read the English subtitles. She also always read the recaps of the dramas in English and read Korean gossip websites. Through English as a 'centre language' for the viewers to understand the contents, through English usage in 'delivering' content as a translation language, this also helps Bella's understanding of the cultural and social context embedded in the medias. As Bella stated, she not only improved her English, but also learnt about new cultures and managed to understand cultures other than the Malaysian culture. She also learnt, through Korean reality series, of the different cultures in different states in Korea, as well as places of interest, Korean historical events and their favourite and traditional dishes. In addition to these positive benefits that she gained from watching online Korean dramas, other children in my study were found to be a little

bit uncomfortable with the content of the YouTube short films that she found online. Chichi reported that this was the reason why she always read the synopsis first in order to avoid something that is not suitable for herself.

As children in my study were based in Malaysia, they sometimes faced difficulties and struggles in adjusting themselves with the online content that came from different cultures and contained social differences. Compared to television programs, there were parties that filtered the contents aired on the television, but for online media, everything is available and ready to access. Therefore, the parents need to play an important role in managing their children's online activities at home. However, the children in my study were found to be engaged with their parents as well their teachers at school who provided advice regarding online materials. Even though religion is positioned as the highest level on a moral compass in children's digital practices in Malaysia, participating children in my study were found to use digital technologies in similar ways with children in other countries and also gained online opportunities (Hendriyani et al., 2014; Lenhart, 2015; Livingstone & Helsper, 2010; Ofcom, 2014).

5.2.9 E-Safety

Byron (2008) argued that we should nurture the children with E-Safety skills. By providing children with necessary E-Safety skills while going online, we can protect children from online risks to enjoy online opportunities.

Children in my study showed the ability to perform appropriate, safe and responsible acts, use and manners while online, thus they demonstrated prevention steps in order to protect themselves from online risks (Bryant, 2013; Ribble, 2009a,

2009b, 2011; Sharples et al., 2009). When Bella carried out online activities in the classroom, she carefully selected which website she should visit as she wanted to avoid adware. Other than that, children in my studies were found to be very alert by scanning their usb pen drives before use to prevent and delete any infected virus on it. This shows a good level of E-Safety skills as according to Frechette (2005), a good internet user should be able to protect their digital devices from infection by viruses, spyware, unsolicited marketing and advertising (Frechette, 2005).

Staksrud and Livingstone (2009) argued that through developing their E-Safety skills, children will take charge by becoming resourceful participants instead of being powerless victims in the online world. The findings in my study suggest that children are able to protect themselves because they learnt and possessed strategies to minimise risks by demonstrating their critical thinking and evaluation skills regarding their online activities. Therefore, children in my study managed to create a positive online experience and enjoy the maximum opportunities. They also demonstrated a good level of E-Safety as defined by Ribble (2009b) and Soldatova and Zotova (2013) as the children in my study also showed a high level of confidence and capacity to use coping strategies when experiencing online risks.

The continuous campaign and awareness raised by the Malaysian government regarding E-Safety skills also can be seen as one of the main factors that contributed to the high level of E-Safety skills demonstrated by participating children in my study as one of them, ChiChi, reported that she started to become aware about E-Safety skills when the issue was introduced by a government staff member working at the 1 Malaysia Internet Centre that she visited. Other than the aggressive campaign by the Malaysian government through the CyberSAFE Tour

to public schools in Malaysia, teachers and parents also were found to help and guide students in my study in creating an awareness of E-Safety skills at school and home and this is in line findings by Maschceroni and Olaffson (2014) which showed that children in other countries also tended to seek help from their parents or teachers to solve their problems related to E-Safety. One of the teachers, as mentioned in earlier section, assisted Bella by asking her to reflect on her own level of E-Safety skills as she had forgotten to log out and accidently saved the password onto a shared computer. In addition, the teachers closely monitored their students' online activities and from what I observed, they consistently alerted and reminded students of the risks, and implemented moral values and gave awareness of E-Safety whenever the opportunity arose in the classroom. Further, one of the online activities delivered during the lessons was how to search, download and install antivirus software. The teacher also managed to relate this activity with safety issues and advised them on how to use the internet appropriately.

In addition, peer and older sibling mediation was also of importance in nurturing E-Safety skills. Chichi learnt how to setup privacy settings in Facebook from her elder sister; such mediations by older siblings occurred in other homes too. These parents (Bella's mother and Fairuz's mother) reported that their elder children had helped in guiding and monitoring their young children as they believed that they were more capable as both of their daughters had previously graduated in Computer Science for their first degree. Interestingly, another participant, Hazaq, had also been actively involved in mediating his young sister regarding her digital practices. On one occasion, he installed YouTube for Kids for his younger sister's usage. This is consistent with the findings from the Malaysian Ministry of

Education in 2015 where children claimed that they were helping their siblings regarding E-Safety. This is also in line with Curry, Reeves and Mcintyre (2016); Gee, Takeuchi, Siyahhan and Ellerbe (2017) and Pathak-Shelat and DeShano (2013) who argued that sibling mediation is important in constructing family digital practices at home.

Meanwhile, Bella learnt how to setup the privacy settings in Facebook from friends. These results again agreed with the findings of other studies that argued for the importance of peer culture in children's' online experiences as children were supporting each other's online activities. I also support the ideas of 'Peeragogy' by Rheingold (2014) in nurturing E-Safety skills as participants in my study did a lot of reflection on their online activities and related it to their negative online experiences and also their friends' experience too. Thus, they helped and taught each other on how to develop E-Safety skills through sharing their negative online experiences.

The most striking findings to emerge from this study is that one of my participants, Chichi, had adapted coping strategies by creating a new identity for her Instagram account. She believed that she was protecting herself from online sexual harassment as she had experienced it before. Therefore, she decided to choose a boy as her avatar in her Instagram profile. Even though she was slightly conflicted in doing so, she believed she made the right decision by using this 'protective shield' and she claimed that she had gained online possibilities and that this adaptation helped her to interact online and be more comfortable when on social network media.

5.2.10 Digital Practices across Home-School settings

As my study was designed to adopt a case-study approach by using mixed methods to enable me to undertake a deeper examination and gain an in-depth understanding fully capturing the richness of my participants online digital experiences at home and school, I was able to answer the first research question of this study regarding what Malaysian children do online at home and school. As I discuss earlier in the previous section, children in my study showed a high level of Digital Literacy skills. They had been involved in every aspect of the framework of Digital Literacy by Hague and Payton (2010) which appeared from the themes that I present.

In this section, I discuss the key findings of my research in answering Question 1 based on the overall picture of what Malaysian children do at home and school.

5.2.11 Smartphones as Learning Aids in Classroom

At school, the participants in my study were found to use smartphones in the classroom during the teaching and learning process. The previous research findings regarding the position of smartphones in its usage within lessons in the classroom showed mixed findings. Many researchers have argued that smartphone usage in the classroom should be avoided and indeed banned because it might only contribute to interference factors in classroom such as 'distraction', 'dependency', 'reduce hands-on skills' and 'reduce quality of contents and interaction' (Aagaard, 2016; Kosnik & Dharamshi, 2016; Misra, Cheng, Genevie, & Yuan, 2016; Wood et al., 2012). My study, in contrast, showed that the position of smartphones in the classroom was often key to success and valued by both students and teachers as the

students were very engaged in using smartphones to enhance their online learning activities. This finding provides evidence of the potential of smartphones as learning tools and this view is supported by (Achterkamp, Hermens, & Vollenbroek-Hutten, 2016; Buchholz, Perry, Weiss, & Cooley, 2016; Carlson & Schrader, 2012).

The traditional ways of communication in the classroom were also replaced by the new modern way implemented within the usage of WhatsApp for communication among classmates. This finding was unexpected as smartphones or indeed any mobile devices were banned during lessons in the schools I attended. However, the teachers reported to me that it was one of the most effective digital devices that helped children to boost their interests and motivations. Even though the usage of smartphones was projected in a negative way as reported in the previous studies, the tolerance shown by all teachers that participated in my study indicated that smartphones were already embedded in the new ways of learning in the classroom (Amichai-Hamburger & Etgar, 2016; Misra et al., 2016; Selwyn, Nemorin, Bulfin, & Johnson, 2017). Not only were students able to save and exchange information during the lesson process through their class WhatsApp group, they were also able to bring this new knowledge that they learnt at school to their homes for the purpose of revision.

As an example, my participants used smartphones to watch YouTubes video tutorials on how to assemble a computer. As this was their class task, this helped them during their lesson activities. The mobility of smartphones also showed how beautifully it was integrated as an essential tool for learning. This important finding showed that the usage of smartphones and laptops (for some activities) transformed

the way children went online at school and these results are consistent with those of other studies and suggests that smartphone usage in class improves the learning experience (Anshari et al., 2017; Achterkamp et al., 2016; Buchholz et al., 2016). Therefore, these findings further support the idea that smartphones usage can be used as "learning aids due to many reasons such as they provide convenience, portability, comprehensive learning experiences, multi sources and multitasks, and environmentally friendly" (Anshari et al., 2017, p. 11).

While most online activities at school focused on seeking for information for their schoolwork and school projects, the children in my study also evidenced student-centred creativity: there was a few instances in my study that showed that the students in the classroom consistently went online during the lesson to find extra information regarding their school work. In other words, they did not just use the information or documents, or materials provided by the teachers, they also went online to search for more material. This showed that the children were doing different online activities at school as they also went online to communicate with their friends using WhatsApp using their smartphones and actively engaged with other online activities such as Participation by joining the forum for a few subjects through Frog VLE (a Virtual Learning Environment). In addition, some of the students went beyond their lesson by searching and using other software not used or introduced by their teachers.

When comparing my findings regarding the children's online activities in school with previous research that took place in Malaysia, it can be seen that this research is able to indicate a few interesting findings during the teaching and learning process (Abidin, 2017; Cheok, Wong, Ayub, & Mahmud, 2017;

Kamalludeen, Hassan, & Nasaruddin, 2017; Saruji, Hassan, & Drus, 2017). A lot of research in Malaysia focused on how teachers integrated online technologies during the teaching process. In contrast, my findings established concrete ideas on how students integrated online technologies at school and the participants in my study were found to be very actively engaged with technology. These findings may help us to understand that the usage of smartphones in classrooms can enhance students' academic performance and offer varied opportunities in their learning process (Anshari et al., 2017; Achterkamp et al., 2016; Buchholz et al. 2016). The findings from my study also seem to be consistent with existing research which indicated the importance of the usage of digital tools in the classroom as an anchor to develop student digital literacy whilst at the same time enhancing their soft skills such as polishing problem-solving skills and improving their computational thinking (Leighton & Crompton, 2017; Mouza, Yang, Pan, Ozden, & Pollock, 2017; Shute, Sun, & Asbell-Clarke, 2017; Yadav, Gretter, Good, & McLean, 2017). Also, the findings from my research are consistent with most recent studies which suggest that it is now time to give students a more empowering role in shaping their own education (Abidin, 2017; Burnett et al., 2014; Cheok, Wong, Ayub, & Mahmud, 2017; Kamalludeen, Hassan, & Nasaruddin, 2017; Saruji, Hassan, & Drus, 2017).

5.2.12 Pen drive as Digital Transporter Tools in Mobile Learning

As discussed earlier regarding the importance of smartphone usage in supporting learning in the classroom, another interesting finding that I had presented earlier in Chapter 4, was that pen drive usage was very popular amongst my participants.

While people nowadays are talking about ‘cloud storage’ such as Dropbox and GoogleDrive, all of my participants showed that they were dependent on this storage device, that was placed in their pencil box, and were brought around inside their school bag. The pen drive was viewed as very high functioning as my participants also saw it as a means of transportation for the ‘funds of knowledge’ that were brought from home, and were brought back to home from school. I also perceived this digital tool as a very important tool in supporting the learning experience and environment at school. The mobility of it showed that it is easy for students to bring it everywhere due to its small size and also it was a great choice to back-up school projects and work because of its cheap price, compared to smartphones.

From this observation, it can be seen then that the internet infrastructure at the school that I was visited was not at the best level, therefore, pen drive usage can be seen as one of the best alternatives for students to store and move learning materials. For example, one participant in my study, Hanna, used the audio for a school project that she saved in her pen drive a day before the lesson. This finding showed how children in my study were able to select the right digital tools in managing the digital practices at home and school. However, researchers have not treated pen drives in much detail when it comes to its usage in school due to very limited extant research regarding pen drive usage compared to the usage of smartphones in the classroom. Further, the pen drive also did not receive as much attention as other mobile devices such as smartphones and laptops, even though in my study it was proven that it was an essential digital tool in supporting the student’s personalised learning environment. In accordance with the present

findings, previous studies have also demonstrated the usage of pen drives in classrooms as a learning tool and also its role in providing a platform for an alternative textbook in student classroom management, which is the e-book and also for other materials (Corbeil, Butler, & Valdes-Corbeil, 2008; Gaved et al., 2010; Iszaidy, Ahmad, Kahar, Rahman, & Yaakob, 2013; Jacob & Issac, 2014).

5.2.13 Home Digital Practices across Low-Income and High-Income Families

Children in my study were categorised based on their family income. From the findings, it can be seen that children from different family backgrounds used online technologies in different ways. Chichi, who was from high and privileged family, had limited access to online usage even though her house was complete with all the technology devices and had a high-speed internet connection. As presented in Chapter 4, Chichi's family owned various digital devices such as smartphones, smart television, iPad, Samsung Galaxy Tab, computers, and laptop. However, due to her mother restrictive mediation, Chichi did not own any digital devices and she was only allowed to use the iPad for one hour per day for entertainment purposes. She also needed to borrow her mother's smartphone and tablets for communication purposes, and only to discuss her school work.

There are several possible explanations for this finding. Chichi's parents had confiscated her smartphone due to her dependency on it, as they labelled her as spending too much time online and had therefore become 'addicted'. However, for me, the term 'addictive' is too much and it is more suitable to label her longer use of the internet as 'dependency'. I also believe, as the house was equipped with a small playground and mini gym, that her mother preferred physical activities rather

than spending too much times online. From her mother's perspective, the internet had more negative impacts than positive impacts. This restriction was also applied to all her children. The only chance for her to access the internet was when she needed to finish her school work and projects. From the observations, then, it can be seen that Chichi was highly engaged and very actively collaborated with her friends. At the same time, she also went only to search for information regarding her school tasks. Other than for school purposes, Chichi's access to the internet was very limited. Due to this condition, Chichi had less chance to gain the most online opportunities compared to her friends from other families. In my opinion, this is such a waste as I could see the potential in Chichi, as she was a determined and motivated individual who showed great interest in online technologies.

This can be contrasted with a low-income family, Hanna's family. Even though the online technology infrastructure was limited in her house, her parents gave their best in providing the facilities. Her mother also believed that the internet and digital devices supported her children's' personal learning experiences as it had been proven that her children's academic performance had improved. Through internet and digital device usage, the freedom and encouragement that the mother gave to Hanna also allowed her to maximise the online opportunities, and at the same she learnt and developed her own digital literacy skills. Her digital practices across all various platform resulted in her to gain the most online benefits throughout all her online activities. Hanna had also been playing the role of technical solver in her family, even being involved in making buying decisions. Through the wider usage of several digital tools and various online activities, it can be seen that Hanna showed a high degree of digital literacy skills. By referring to

her background and history in handling computers at a later age compared to her friends, for example, zero knowledge with computers as her family did not have a computer at home during that time, it can be seen that Hanna managed to acquire digital skills gradually and impressively.

It may be that Hanna benefitted from her mother's parental style of mediation, which was active mediation as her mother actively co-used the internet and digital devices with her children. Hanna's mother also reported that she sometimes learnt new digital skills from Hanna too, such as editing an image on Instagram and some technical troubleshooting in computers. These findings regarding the home digital practices that took place in Hanna's house with limited internet access due to their underprivileged environment, produced results which corroborated the findings of a great deal of the previous work by Jones (2014, p. 6) about the 'shared practice' between a daughter and her father in "a family facing economic and social challenge working together to negotiate their experiences, pooling resources and learning from each other". These findings showed that children from a low-income family still managed to overcome their difficulties and therefore still had opportunities to develop and gain the benefits from online world, the same as Bella who also had very limited access to the internet and did not own a smartphone. Still, she was able to enjoy online activities by going to a cyber café, which I discuss in the next section.

In contrast, Lemphane and Prinsloo (2014) argued that children from a high-income family gained the most online opportunities compared to a low-income family. Previous research set in South African showed that children in underprivileged families used the mobile phone without permission as they "played

covertly, in silence and away from the gaze of their parents" (Lemphane & Prinsloo, 2014, p. 31) because their parents were labelling the digital play activities as a waste of time, and serving to reduce the lifetime of the mobile phone battery. The different kind of digital engagement in Lemphane and Prinsloo's study reveals how the mentality and the type of parental mediation towards technology usage can shape their children's perspectives of digital technologies. The Mahlale children also did not see or treasure the digital technologies based on their reaction towards quickly changing subjects in conversation regarding the 'potential trading accesses' to the digital devices to 'such resources for profits'. Meanwhile, the Bolton family children from a privileged background, gained the online benefits due to their easy access to digital devices and the internet; therefore, this allowed them to become involved in various online activities.

Thus, these findings confirmed the association between the parental style of mediation in home digital practices and the influence and contribution in shaping the children's' digital literacy skills. This further supports the idea of how parents have been directly influencing children's digital literacy development (Bulfin & Koutsogiannis, 2012; Bulfin & North, 2007; Given et al., 2014; Kent & Facerw, 2004).

5.2.14 'Borrowing' Culture within Children Digital Practices

Another key finding in this study is a 'borrowing' culture that happened among my participants' digital practices. Based on my home visits, it was interesting to note that in all the houses that I visited for the purpose of this study, the digital devices were not treated as 'private' and 'exclusive' materials as the children managed to

borrow digital devices such as smartphones and laptops from their parents and siblings. The findings also highlighted this 'borrowing' culture amongst children with siblings who did not own a digital device, where they were given a limited time of usage and were 'sharing' devices continuously and attentively waiting for their turn. As the digital devices were declared as '*public digital accessories*' as mentioned by one of my participants, Chichi, the patterns of the location for the usage showed that the majority of the children with a low percentage of ownership of digital devices used it predominantly in the communal area (the living room). The children stated that there was no online privacy as their family members would be around, and this resulted in them being more aware regarding their internet access and use as their parents and older siblings would consistently check their online activities. This interesting finding is in agreement with the findings by Matthews, Liao, Turner, Berkovich, Reeder and Consolvo (2016) which showed the current trends of digital device sharing practices among household members.

However, the participant Bella, lacking internet access at home, still gained the benefits and was able to access and use the internet by visiting public places such as a cyber café. Not only that, she also fully utilised the available platform by economically downloading data such as dramas, songs and study materials within a limited timeframe and limited budget too. Compared to the 'borrowing culture' that occurred in homes equipped with internet access as mentioned above, Bella's practices at the cyber café, namely continuously downloading materials and files from the internet, is also a kind of borrowing; this time a borrowing of internet access, with the minimum 'capital' but she did receive the maximum 'profits return of investment' in her own way of 'ethical hacking' the internet in order to save

money. This digital practice strategy is again in line with my other findings in Section 5.2.13, and with other studies across the world that demonstrate how underprivileged children survived in bridging digital divides in managing their online activities in order to gain the most from online opportunities (Cilesiz, 2012; Martin & Rice, 2012; Steyn & Van Greunen, 2015; Wihlborg & Hansson, 2011).

5.3 Q2: What do Malaysian children see as the opportunities and risks offered by the Internet?

In order to answer this question, I refer to existing studies as discussed in the literature review chapter regarding the opportunities and risks offered by the internet. This part also addresses the findings based on an overall picture of my participants' digital practices at home and school. Further, this part includes the descriptive data analysed from the questionnaires completed by my participants.

5.3.1 Enjoying Online Opportunities

In this study, another important finding was that all participants were found to be involved in positive online activities and had gained most online opportunities. The most preferred online activities (by ranking) as reported by the participants were: Contact/communication-based online activities (e.g. instant messaging, email, chatting and video call), followed by Content-based online activities (e.g. schoolwork, playing games, watching video clips, reading news and downloading movies and music) and Conduct/peer participant activities (e.g. blogging, capture, editing and posting photos, or participating on file-sharing sites). These results are consistent with the work by Sonck et al. (2011) who suggested that children are

actively engaged with digital practices that expand their ability to gain many online opportunities. One activity online leads to others, so they become increasingly immersed.

In addition, the main purpose of my participants' online practices (by ranking) were: (1) Communication; (2) Information; (3) Entertainment; (4) Creativity; (5) Participation; and (6) Expression (Manches et al., 2015; Mascheroni & Olafsson, 2015). These findings further the idea that children nowadays also gain the above online opportunities in the same ways as revealed by Livingston and Helpser in their research back in 2010 (Livingston & Helpser, 2010). These results also agreed with the findings of other studies where children in my study were found doing more activities related to communication, information and entertainment but evidenced less experience in online participation, creativity and expression (Manches et al., 2015; Mascheroni and Olafsson, 2015). By referring to previous studies conducted in Malaysia, it can be seen then that there are similarities between my findings and those described by Omar et al. back in 2014 (Omar et al., 2014). However, the findings of this current study do not support the previous research in Malaysia by Baboo et al. (2013) as those researchers argued that Malaysian children preferred to go online for entertainment rather than for educational purposes. It is possible that the definition of 'education' was interpreted more narrowly by Baboo et al (2013), while I was able to unearth richer data through a more ethnographic practice in the children's homes. The children that participated in the research conducted by the Malaysian government back in 2013 also reported that most of their online activities were exploring social networking

sites like Facebook, which represented 68% of the participants (Ministry of Education Malaysia, 2013).

As presented in the literature reviewed in Chapter 2, the findings in this research were also in line with findings from other developing countries, as seeking Information for schoolwork ranked number two in the most popular online activities among children in China, Korea, Singapore, Taiwan, Indonesia and Japan (Gayatri, 2014; Lin et al., 2010).

This study also revealed the favourite websites and applications used by my participants: WhatsApp showed at the highest ranking (36%), YouTube (16%), WeChat (11%), Instagram (9%), Twitter (9%), Facebook (7%), Google (7%), Online Games (4%), and DevianArt.com (1%). These results also matched those observed in earlier studies by Lenhart (2015), Mascheroni and Cuman (2014) and Vincent (2015) which found that older children in Europe and the United States were also active in processing and producing digital content through social networking sites and apps such as Facebook, Snapchat, Instagram and Twitter. These results are consistent with those of other studies elsewhere and suggest that older children enjoyed online opportunities and were also reported to be active in using the internet for communication purposes due to the accessibility of messaging apps like WhatsApp (Hinostroza et al., 2015; Lenhart, 2015; Smahel & Wright, 2014; Vincent, 2015).

In my research, I found the participants to be actively engaged online as they consistently went online for Information, with most activities focused on searching for Information regarding their schoolwork and school projects. Based on the findings presented above, the participants in my study reported that they

went online to seek Information for schoolwork and school projects. In other words, this was ranked above Entertainment. Nevertheless, it was also clear that the children found their educational explorations of great interest and they were able to blend their home interests with those of the school. In this way I saw how their schoolwork informed and enriched home practices and vice versa. As has been reported in studies elsewhere, home and school practices, the public and the private, are becoming more blended through digital technology use (Aliagas, 2015; Aliagas & Margallo, 2017; Davies & Merchant, 2009; Dowdall, 2016; Jones, 2014; Potter, 2013).

5.3.2 Coping Strategies to Encounter Online Risks

As mentioned earlier in the previous section regarding E-Safety, I also discussed the coping strategies that were applied by the participants in my study whenever they encountered online risks. This contrasts with the previous study by The Ministry of Education Malaysia in 2014 as that particular study reported that 40 per cent of participants did not know how to protect themselves. On the contrary, participants in my study were confident in handling online risks through their own coping strategies. They also reported that they also sought help from teachers, parents, siblings and from their friends.

Meanwhile, The Ministry of Education Malaysia's (2013) report also identified online bullying as the main risk and concern of children in Malaysia. However, the findings of my study do not support the previous findings by The Ministry of Education Malaysia in 2013 as they reported that they were comfortable while going online and even though they had encountered online bullying and some

of them had experienced negative experience online, they said that they managed to solve the problem. Therefore, they were able to go online without worrying about online risks as they were aware about E-Safety and were confident in managing their online activities. Through a continuous campaign by the Malaysian government, and initiatives taken by their teachers in raising awareness in order to develop children's E-Safety skills, the children in my study demonstrated that they were prepared whenever they went online. These findings are in contrast with previous findings, as the emphasis in Malaysia is portrayed by an overall great concern about Malaysian children's online safety (Fauzi, Ayub, Abidin, & Suwirta, 2014; Hassan & Rashid, 2012; Omar, 2017; Soh, Chew, Koay, & Ang, 2017). Children in my study were also found to have a positive perception towards the online world: they knew how to minimise risks by enhancing their critical thinking when evaluating online content. This showed that the children in my study were able to take charge in managing their online activities. These results are consistent with those of other studies and suggest that children that are confident in their digital practices can enjoy the maximum advantages of the educational, social and entertainment benefits that technology offers (Byron, 2008; Martínez de Morentin et al., 2014; Sasson & Mesch, 2014; Staksrud & Livingstone, 2009).

5.4 Q3: What learning are Malaysian children involved in through their online activities?

In order to answer this question, I refer to existing studies as discussed in the literature review chapter regarding children's online digital literacy experiences at home and school.

Based on children's online activities in my study, I found that the participants involved in my research were involved in three types of learning that overlapped through online activities: Autonomous Learning, Collaborative Learning and Blended Learning.

5.4.1 Autonomous Learning

Many researchers have suggested that the internet promotes children to become capable of autonomous learning by managing their own personalised learning environment (Burden & Kearney, 2016; Gurung & Rutledge, 2014; Lee & Hannafin, 2016; Ting, 2015). As children are going online independently, they are able to construct their own knowledge and also develop their own digital skills, which nurtures the ability to take charge of their own learning. Through school work and projects given by teachers at the school, the participants in my study were found to set self-direction in order to finish the tasks. Therefore, they went online to search for information and selected the right information after evaluating the online content.

As can be seen in Hanna's digital practices, Hanna and her friends were putting extra effort into learning and developing their skills in managing and using MovieMaker by going to YouTube and watching YouTube tutorials. Hazaq, too, was able to learn a lot of things by watching YouTube tutorials on soccer skills, swimming techniques and how to use Lightworks. This finding supports previous research into Autonomous Learning on how digital practices at home and school can develop independent and autonomous learning among children (Lee & Hannafin, 2016; Lin, Chen, & Liu, 2017; Palmer, Lomer, & Bashliyska, 2017; Ting,

2015). It is encouraging to see how the children in my study demonstrated their ability to "play a significant part in choosing their own direction, discovering their own learning resources, formulating their own problems, deciding their own course of action and reflecting on the outcome of that process" (Healey, 2014, p. 2).

5.4.2 Collaborative Learning

Participating children in my study were also actively involved and engaged in Collaborative Learning. Chichi demonstrated a high degree of digital skills by going online to collaborate with her classmates in online discussions through WhatsApp. Through their class WhatsApp group, it can be seen that the conversations were mainly focused on searching for the information they needed to finish their school projects in the Science subject, as well as helping each other by solving the mathematical problems by sharing the solutions online. Students in that WhatsApp group also actively communicated whenever they were facing difficulties in doing their school work.

As can be seen from the observations, Chichi, Hanna and Hazaq used smartphones continuously throughout the time that they were doing their school work. They were observed to use different digital devices at the same time such as smartphones, laptop and iPad as learning aids to support their learning process and to search for learning materials. Through collaborative learning, it can be seen that the children in my study interacted with each other, shared ideas, brainstormed, and discussed using online platforms. This learning experiences supports the lesson at school, and further supported learning activities outside school hours. The flexibility of using mobile devices also gave freedom to the children throughout the

day as instant messaging is available 24 hours-a-day. The present findings seem to be consistent with other research which found that the usage of instant messaging (WhatsApp) has a lot of benefits as it provides a buddy support system and motivation to students as they did not feel alone while doing their school work (Bansal & Joshi, 2014; Bouhnik & Deshen, 2014; Rambe & Chipunza, 2013). Collaborative learning has also been proven to develop active engagement in students, improve the learning process and also promote the peer-learning environment (Greenhow & Lewin, 2015; Jewitt, Hadjithoma-Garstka, Clark, Banaji & Selwyn, 2010; Henderson, Selwyn, & Aston, 2015; Luptáková & Antala, 2017; Rahimi, Van den Berg, & Veen, 2014).

5.4.3 Blended Learning

In addition, the children in this study were found to be involved in Blended Learning. Blended learning can be referred to as 'learning that combines the best of online learning and face-to-face instruction for the purpose of enhancing learning' (Centre for Teaching Innovation, 2017). In my study, as an example, teachers were using FrogVLE, a virtual learning environment system introduced by the Malaysian Ministry of Education to support students in Malaysia. Hazaq was actively going online and managing his learning materials as the system helped him to organise his learning materials. Teachers uploaded study materials, notes and exercises online in order to make them more accessible to the students in my study out-with school hours. Also, in one of the classroom observations, Chichi was answering an online quiz during the lesson.

Based on my participants' responses, blended learning allowed them to gain a number of benefits , such as the availability of notes that were provided and taught online; it did save time for them and replaced the traditional ways which included 'chalk and talk' teaching and learning process as they did not have to jot down in copying the notes (Christensen, Horn, & Staker, 2013; Powell et al., 2015; Slomanson, 2014). Other than that, through blended learning, participants also gave feedback that they were happier as they did not have to bring heavy and thick textbooks to school as all the notes were uploaded online. At the same time, blended learning also allowed the participants in my study to work at their own pace at home, and at the same time provided them with greater opportunities to do revision at home if they did not fully understand the new topics that they learnt in the classroom.

As suggested by many researchers, blended learning has also proven to boost students' motivation, promote learner engagement and provide a conducive online learning platform for effective learning. Not only that, the parents in my study also claimed that they were happy with the implementation of FrogVLE at school and the integration of it into the classroom as they could monitor their children's academic performances online as well as keeping up-to-date with their children's school activities (Grant, 2011; Ponciano, 2014; Selwyn, Banaji, Hadjithoma‐Garstka, & Clark, 2011).

5.5 Summary

Overall, I conclude that through digital practices across home and school, the participating children in my study gained value from their online practices and also

managed to protect themselves from potential online dangers. They also showed a high degree of digital literacy skills based on the Digital Literacy Framework by Hague and Payton; they gradually improved and developed these skills through their wider usage of various digital devices such as smartphones, pen drives, laptops, desktop computers and tablets. They also had the ability to use lots of different types of digital tools in-order to accomplish their different purposes such as communication, information, entertainment, creativity, participation and expression.

CHAPTER 6
CONCLUSION

6.1 Summary of the Thesis and Main Findings

This study set out to determine a nuanced picture of a small group of five Malaysian children's online digital practices, experiences and how they managed these practices both at home and at school. Guided by Hague and Payton's Digital Literacy Framework in light of Street's views of digital literacy as social practice, an inquiry into children's digital access and use, their online activities and experiences, their teachers' and parental mediation was pursued. This inquiry set out to explore how these participating children used online technologies in the classroom and home, with three main questions based around 16-year old children's engagement with online technology, their perceptions of online opportunities and risks, and what kind of learning is involved through their online activities across formal and informal settings at school and home in the Malaysia context.

This study employed a mixed-methods approach recommended by EU Online Kids and it conducted qualitatively different multimodal data from the participating children's own perspectives by carrying out interviews, discussions through a focus group, observing and photographing their digital practices in school and at home, alongside self-completed questionnaires. This study has provided insights into what the young people who participated in my study do when they go online, comparing their online activities at home and school, specifically in describing the participating children's online digital practices through their use and

access, digital literacy skills, parent and teacher mediation and their online experiences, their perceptions towards online opportunities and online risks, as well as an insight into what kinds of online opportunities that these participating children take-up.

6.1.1 Research Question One:

The first research question was *"What do Malaysian children do online at home and in school?"*. Participating children in my study were found to be involved in various online activities by using multiple digital tools and devices. Throughout their digital practices at home and school, they were found to be actively engaged online in finding and selecting information for their daily life tasks and school work, demonstrating functional skills in handling digital tools and devices, creating creative contents and materials, exploring unusual and different social and cultural contexts, applying critical thinking and evaluation in the online world, engaging in collaboration for their personal learning, communicating with their friends, family and teachers, and also implementing E-Safety when online.

The participants also were found to use digital technologies slightly different compared to the other countries. Participating children in my studies were found to go online in more public spaces at home (living room) and also in other places such as their friend's home and cyber café. It can be seen these differences in the way of Malaysian children use of technologies were different because of the cultural context.

The participants were heavily reliant on smartphones, pen drives, iPads and tablets, as well as laptops throughout their online activities. In addition, the pen

drive was also seen to be of most value to all participating children in my study as it was used as a 'transporter' for 'fund and knowledge' across home and school settings.

Parents and teachers were found to play important roles in shaping children's digital literacy skills through active mediation and co-use mediation at home, and by creating the learning activities that enhanced their online experiences at school. In addition, peer-learning and older sibling mediation were found to be as important as parents and teachers, as the children learnt a lot of things from them as well. Children from different financial background were found to use the digital technologies differently. Other than that, a 'borrowing' culture provided opportunities for those children with limited access to the internet and digital devices. Further, there were positive connections between home and school digital practices.

6.1.2 Research Question Two:

The second research question was *"What do Malaysian children see as the opportunities and risks offered by the Internet?*". Children in this study were not concerned or worried about online risks and demonstrated a good level of E-Safety skills. They were found implementing coping strategies when they encountered online risks; in addition, they were prepared and aware about their online safety. Their perceptions towards online risks were inconsistent with what had been portrayed in the literature by the Malaysian government: in contrast, the participating children in this study were confident going online and believed that they were able to protect themselves in the online world.

The children in my study were also found to gain most online opportunities through being actively engaged in online activities related to communication, information, entertainment, creativity, participation and expression. By experiencing online experiences for a long time and participating in a wider range of online activities both individually and in collaboration, they acquired benefits and showed the capacity to take charge of their own digital practices due to greater autonomy. They were also climbing to the top of the 'Ladder of Opportunities'. Refer back to the earlier reference to this in Chapter 2.

6.1.3 Research Question Three:

The third research question was *"What learning are Malaysian children involved in through their online activities?*". The children in this study were involved in three types of learning that overlapped through online activities: Autonomous Learning, Collaborative Learning and Blended Learning. Throughout their digital practices at home and school, they were found to gain benefits from what the internet offered as they were able to setup their own self-direction in constructing their personalised learning experience, primarily through showing greater autonomy while going online. They were also found to be actively engaged in online collaborative learning as they were continuously involved in asynchronous discussions after school hours. For example, through using WhatsApp for collaborative learning, they easily constructed, shared and exchanged knowledge and learning materials which were the reason behind the improvement in their academic performances as well as enhancing their digital literacy skills. They were also able to improve the effectiveness of their own learning, and successfully overcome learning difficulties.

Other than that, the implementation of FrogVLE in the school promoted the flexibility prerequisite for the children in this study to be able to manage their own learning experiences. The children in this study were found to gain benefits from blended learning experiences, as they could access the learning materials anytime, anywhere. In addition, they were found to be more engaged in subject contents, and managed to evaluate their academic performance due to the easy access in tracking their learning activities and also improved communication with other classmates through forum discussions as they could then learn at their own pace based on their own individual needs.

6.2 Contribution to Knowledge

The study provides additional evidence with respect to several areas of research. In particular, it provides insight into an under-reported area of research, i.e. digital practices across home and school settings; children perceptions towards online opportunities; and in-depth understanding regarding the participating children's online experiences in the Malaysian context and what kind of learning is involved through their online activities across formal and informal settings at school and home. There are a number of features which make this study distinctive in the literature, and of particular value: (1) In-depth Understanding of Children's Digital Practices at Home and School; (2) Research Design; and (3) Perception Towards Online Opportunities and Risks.

First, this study contributes to the understanding of the current online digital literacy experiences amongst these five 16-year old children, and whether these children use online technology in the same ways or differently in comparison to

other children in other countries with different social and cultural contexts. Due to the limited extant research in this area, through this study, I present nuanced, in-depth, and rich data findings which are lacking in previous research set in the Malaysian context as I investigated these issues both in home and school settings.

Second, another contribution derived from this study is that it supports the ideas promoted by other researchers from a European context, which has promoted the mixed-methods approach combining qualitative and quantitative data gathering and analysis because they argue that this particular methodological approach in researching children and online technologies will "… capture fully the richness of their experiences" within children's digital practices (Lobe et al. 2007, p. 13; see also Neill & Livingstone, 2011; Olafsson et al., 2013b). As this kind of design has never been conducted in Malaysia before (as indicated in Chapter 2), through the Digital Tour, observations, questionnaires, semi structure interviews and focus group discussion, the findings from adopting a mixed-methods approach provides an in-depth understanding and an all-round understanding of Malaysian children's digital literacy experiences, as I used the same participants for home and school visits. Therefore, I was able to examine and compare their management of online activities in both settings.

Third, this study also provides a significant account of these participating children's perceptions towards online opportunities and risks, as through this study I was able to reject the ideas on the misunderstanding regarding children's E-Safety skills as many other studies in Malaysia had previously portrayed the internet as a space that exposed Malaysian children to dangers. Further, Malaysian children were also previously perceived as not being capable to protect themselves online. At the

same time, the findings of this study add to a growing body of literature concerning the understanding of online opportunities gained by Malaysian children.

6.3 Limitation of the Study

All research is subject to limitations, therefore the findings in this study are subject to at least four limitations.

First, due to the limited thesis word count as outlined by School of Education, I had to narrow down my findings as the data that I collected was overwhelming. Originally, I planned on using three groups of participants: children, parents and teachers. However, in order to get an in-depth understanding, because of this limitation I chose to focus on children's digital practices only, and included the parents and parental digital practices as a minor subject in this study. Also, there was one thing that I did not manage to do during the analysis part, which, I would have like to have spent more times in analysing images but there was not enough space for it.

Second, this study used a small sample size. Due to the data collection that needed to be conducted in Malaysia, I only chose to focus the study on Kuala Lumpur area only, and with limited budgets, I only went back once to Malaysia from the United Kingdom to carry out the necessary research. I also redesigned my study to fit in only five children as the main participants, rather than ten children. In addition, I also conducted this study in one school only and only focused on 16-year old students that attended ICT subjects.

Third, this study focused on various usages of digital devices across wider online activities. Therefore, the children's online experiences may be generalised

even though this study was able to provide an in-depth understanding of children's digital literacy at home and school. Thus, more focused studies are needed to explore one particular digital devices (such as smartphones) and one particular online activity (such as social networking).

Fourth, this study had a limited time frame for fieldwork at school. With more time and access, I would have visited the schools more than once per classroom observation compared to two home visits for the observations part. It also would have enabled me to look more in-depth into children's digital practices in the classroom and outside school hours within school areas. These would have strengthened the research findings, as well as offering another form of data triangulation.

6.4 Implications and Recommendations

The findings of this study have important implications and recommendations for future practice. The implications and recommendations are addressed and presented below for: (1) Children themselves; (2) Parents and Teachers; (3) The Malaysian Ministry of Education; and (4) Researchers interested in the field.

For children themselves, this study, in a sense, could help them understand and reflect on their own digital practices and also on their management at home and school. This is important to know as it will enable them in developing their digital literacy skills to ensure they gain the most of online opportunities and also to help them in minimising online risks. In addition, for under privileged children, this information can be used to develop their own strategies in order to bridge the digital divide that occurs due to limited access to the internet infrastructure and digital

devices at home.

For parents and teachers, the findings of this study suggest important factors playing role in developing children's digital literacy through continuous mediation. As this study looked at different domains at school and home, the findings also benefit teachers and parents to better understand how Malaysian children embed online technologies in their lives.

For The Malaysian Ministry of Education, the findings of this study could be used in helping them to understand current Malaysian children's practices at home and school and also indirectly help their continuous efforts in supporting children As this offers a more complete and richer understanding regarding Malaysian children's online experience, this study's findings could help Malaysian Ministry of Education in giving input about an all-round perspective on Malaysian children's digital literacy experiences as well as a clearer idea of student's actual needs.

For researchers, this study could be used as a basis for more extensive research in understanding and developing a comprehensive picture of children's digital practices, online experiences and perceptions. Further, this research adds to the existing body of literature, notably where research on children's digital practices at home and school, and the digital practices of children from poor family backgrounds is limited. Further, this study could, in a sense, help refresh researcher's perceptions and enhance their understanding of current practices in Malaysian children by highlighting that Malaysian children are enjoying online opportunities as many researchers are more attracted to the bad effects of the Internet within E-Safety areas due to the heightened concern portrayed by the

Malaysian government and other research. On the other hand, there is a definite need for further research to involve qualitative approaches such as interviews and observations in investigating children's digital practices at home and school in order to gain different multimodal data and support the insufficient information within this area. Also, further research focusing on parents, teachers and peer mediation would be of great help in providing information on how to support their online learning experiences as well as developing their digital literacy skills in order to transform children into advisors, explorers, problem-solvers and sharers.

6.5 Reflection

In Chapter 3 (see Section 3.2), I described my positionality where I discussed my personal desire, motivations and experiences that affected my study design as well as its process.

Hennink, Hutter, & Bailey (2010, p. 19) refer to reflexivity as "a process that involves conscious self- reflection on the part of researcher to make explicit their potential influence on the research process". Throughout the research process, with guidance from my supervisor, Dr Julia Davies, I constantly forced myself, to reflect on my own research skills at every stage. Therefore, in this section, I reflect on my study "from the beginning to the end, carefully thinking and reasoning every stage" as for me, this study has been an eye-opening journey as I strive to become a better researcher in the future (Mutlu, 2016, p.271).

6.5.1 Dramatic Shift in Position

Throughout my PhD journey, this study has made me question my positionality as a researcher. At an early stage in the process, based on my own friend's online experience, I was determined to conduct research focusing on E-Safety skills in managing online risks among Malaysian children. This initial motivation was also shaped by literature from a Malaysian context that emphasized negative online experiences among Malaysian children. However, my supervisor urged me to step aside from the direction in my mind on the heightened concern regarding the safety of Malaysian children when they went online. Starting from there, I moved forward, trying to think 'outside the box'. Therefore, I chose to widen my reading to other previous research in-order to reshape my research aims.

By broadening the scope of my literature review, this helped me to evaluate and review children's digital practices not only in Malaysia but also to include research conducted around the globe. By improving my research skills by critically reviewing the literature and developing my understanding on literacy as social practices, I made a dramatic shift in position as a researcher. Using a more sociological, qualitative lens through which to look at childrens' practices, and by enetering childrens homes and tracing specific details of what some young people were doing, I was able to start understanding what young people were doing in a more positive light.

In addition, I found many interesting data which did not align with my early ideas about the danger of going online because of the richness of opportunities in various online activities that my participants were involved. I was surprised when witnessing interesting moments that happened during the observations at home and

school and so excited about the data findings because they used online technologies creatively and confidently which was totally different from what I had imagined before and totally contrasted with reports that had been published by the Ministry of Education Malaysia. They were capable of handling and managing their online activities at home and school independently, and these were among the reasons why I shifted my position from viewing children practices as negative activities to very positive activities that opened the door to unlimited online opportunies.

Aside from that, my research experience had also changed my perspective of digital literacy as merely a set of skills that can be measured and evaluated. By viewing digital literacy as social praxis, I shifted positonality once again as a pure computer science researcher to social science researcher because I believed that my research should not focus on pure statistics and it should not only be measured quantitatively. This was because it involved humans and their daily practices in life and I needed to understand more by going in-depth for my data collection through the implementation of qualitative methods. Coming from the Department of Computing in my workplace, I was used to a research culture where the majority of academics carry out research focused more on quantitative data where ideology is to get results that can be interpreted statistically. However, throughout my research journey, I became a social science researcher because my ideology regarding the delivery of research methods and design had becoming wider and also because I believed that this is right way to conduct my research in particular.

6.5.2 Position as a Funded Researcher

In order to conduct my research in Malaysia, I needed to get approval from the Economic Planning Unit Malaysia and Ministry of Eucation Malaysia due to my position as a researcher from an institution based abroad. I wanted to conduct research in a school and this had additional implications. I had been advised by my friend during pre-application to recheck my research focus, the questionnaire and the questions that I will ask during the home and school visits because I would be required to submit all of these documents to that particular department. Because of my positionality as a Malaysian government funded student, she advised me avoid showing data that reflected any Malaysian government weakness. However, I made calls explaining to officers and also explaining in my application to research in Malaysian Schools, that my intention was not to critique the government or Ministry of Education Malaysia, respectively. Rather, it was more to understand and explore the digital practices of my participants and that my research involved qualitative methods (interviews, observations and focus group discussion). Therefore, my research offered different perspectives from other previous research that had been conducted in Malaysia.

Even though at first I was quite nervous regarding my research and anxious before the data collection, I was able to reflect on my findings without 'covering anything up'. I trusted that my government, especially the Ministry of Education in Malaysia, would welcome and encourage new knowledge, as a means to give constructive feedback for a better future. This is also the reason why our government keeps sending Malaysian students to study abroad in the first place, and because of this, I believe that I fulfilled my responbilities as a Malaysian.

Therefore, there was nothing to be afraid of, especially as my research was solely focused on children and education and did not contain any political remarks. My research can be considered alongside other types of study.

I am also glad that I learnt so many new things regarding conducting research from outside Malaysia such as the University of Sheffield's research procedures which I implemented into my research. These different approaches in the way researchers in the United Kingdom conduct research helped improve my skills in considering the ethical component of undertaking research. As an example, in Malaysia, throughout my experience in conducting research during my undergraduate and Masters' degrees, I had never been asked to apply for ethical approval. Therefore, through this practice in the UK, this helped nurture this aspect of my research skills as my ethical application had to be revised three times.

6.5.3 Positive Researcher - Participants Relationship

Throughout the data collection process, conducting data collection at home gave me an advantage as I was able to successfully build a positive relationship with the participants. Through several visits to their homes, spending time alone during the interviews opened-up opportunities for me to gain their trust as they were becoming very comfortable around me. They were also very comfortable with me when I observed them at school. As an example, one of my participants was lying on one side on her bed during the home interview and the moment that my participants took out their smartphones in class in front of me (even though it was prohibited to use phones in the classroom). These two examples showed that my participants trusted me and felt relaxed even though they knew that I was observing them. These

friendships made me feel that they trusted me for the whole data collection process because they could be relaxed and conduct their usual practices, while I observed them. They also were using non-formal Malay language when we had a WhatsApp conversation, also during our conversations at school or at home. This made me reflect on my previous research undertaken during my degree and master, because my participants back then were quite shy and were not very open during the data collection process. Therefore, I will always ensure in the future to build a good relationship with my future research participants.

6.5.4 Co-construction of the Data by the Participants

Based on Hague and Payton's framework and guidelines for observations and questions for interviews, I conducted my research by giving freedom to my participants.

As I valued my friendships and stable relationships with them, I gave them choices to lead the research. As an example, I was supposed to observe the participant (Bella) on her digital practices at home. However, she did not have Internet access at home and she mentioned to me that she wanted to go to a cyber café to seek information for her school project. When we arrived there, she started her online activities by watching an episode of a Korean drama for half an hour before reading the latest gossip about Korean artists. At the same time, she also downloaded the episode onto her pen drive as she wanted to watch it at home via her laptop. Then she continued exploring Facebook, checking her friends' status updates. In between that, Bella then started browsing the internet, using the Google search engine to seek for information for her school project.

As can be seen here, even though at first I wanted to observe her online activities for the school purpose, I was flexible in my research as I just let her be, doing whatever she wanted, and it was up to her to show me what she wanted to. And, although I used Hague and Payton's framework as the baseline for my data collection, in order to look at the eight components of digital literacy such as functional skills; creativity, critical thinking and evaluation, critical and social understanding, collaboration; the ability to find and select information, effective communication and E-safety, I did not want to burden my participants by asking them to discuss them one by one or to show to me whatever online activities that can be related to the framework. This is because I believe the position of digital literacy as social practice, thus my research needed to be delivered in a natural way without any interference on my behalf (set of instructions) and I was very happy with the facts that they were leading my research by taking charge during my data collection. Thus, it can be seen that they enjoyed and led parts of the process, were focused, and did not feel that they were forced to get involved.

6.5.5 Personal Reflection

The biggest 'nightmare' 'struck' me as I failed my first confirmation review viva. I knew, during the viva, that I would fail in defending my proposal when the examiner told me that my proposed research was like doing 3 PhD studies in 1 and that this was impossible for me to complete within 3 years. Reflecting on that, I was aware that I had become greedy and too ambitious in pursuing this PhD.

Through the constructive feedback from the examiners, I was aware that the most important part of this PhD journey was my research skills and ability to

contribute to knowledge; even though it might be small, it still can give input to and add to a growing body of literature on children's digital practices in the Malaysian context. In addition, I am very thankful to have my supervisor, as her continuous support and guidance successfully pushed me to put in the extra miles, and pushed me out of my comfort zone. Not only that, after I was done with my data analysis, there was one situation where I was being so judgmental in presenting my findings. My supervisor, through her critical comments, injected a new dimension in enhancing my research skills by encouraging me to reflect on this matter myself. She advised me to avoid assuming that my participants were constantly in danger online, which had biased my view during the research process because as she consistently reminded me, my position as a researcher was to investigate and examine children's current digital practices, and that I should play an active role in trying to understand their online experience in order to achieve my research aims. Therefore, it was an eye-opening lesson for me, as I learnt that, in order to be a good researcher, I needed to avoid many of my biases and try to see what the participants were doing, and let them show me new ways of seeing things.

The 'looping' process throughout my research process also provided me with positive impacts because, as a researcher, I should always have a back-up plan and be able to make a quick decision professionally. The challenges and difficulties that occurred during the data collection also enhanced my skills in organising and planning my research.

Throughout this research journey, I was also able to develop my critical thinking in academic writing. In-order to write a thesis and present the findings, I realised that I should position myself in a 'researcher mode' at all times. This

included changing my mind and resetting it into my 'researcher's mind' in every aspect and at all levels of my research process. I learnt how to distinguish a 'normal state of mind' and transformed my thinking into 'researcher mind'. I also realised that my ability to write a piece of academic writing had been improved as well as my English language skills. As a second language speaker, I tried to apply and reshape my thinking mode into using English as 'a medium language for my brain' because I wanted to avoid any misunderstandings when constructing meaningful data from the findings.

By doing this research, I also believe that I have developed myself into someone who is more confident, more organised and more positive and had gained a new perspective on life as I was doing it in different settings, abroad and in a new learning environment. Through the great example from my supervisor on supervising PhD students, this helped me to nurture and prepare myself to become a better academician back in my home, Malaysia.

Throughout this thesis too, I often put myself in the participants 'shoes' in-order to understand their perspectives. This is because I believe that by their voluntary participation in my study, of course they hoped that their 'voices' would be heard. And I really hope that I have done a good job and played my role, as a medium platform and a 'representative' throughout this research and the findings. I really hope that I have successfully 'voiced' the words, perceptions and opinions of our future generation as in Malaysia, these little voices are hardly listened to and have always been ignored due to the social and cultural context.

Lastly, through this beautiful journey, I hope that I have provided a platform for them to gain their rights and equal opportunities in the online world as well as

gaining full controls in empowering their own online learning experiences in Malaysia as throughout this study, it has been proven that they were doing well when they went online. I also believe this research is not only for me, that it is also not just about getting a PhD itself, but that it comes with a greater responsibility in 'engineering the future'.

"It always seems impossible until it's done."

Nelson Mandela

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APPENDICES

APPENDIX A

Ethical Approval Letter

(School Of Education, University Of Sheffield)

Downloaded: 18/11/2017
Approved: 23/12/2015

Haslinda Hashim
Registration number: 130226611
School of Education
Programme: PhD (Education)

Dear Haslinda

PROJECT TITLE: Digital Practices Among Malaysian Children
APPLICATION: Reference Number 006411

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 23/12/2015 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 006411 (dated 06/12/2015).
- Participant information sheet 1012911 version 1 (27/10/2015).
- Participant consent form 1012910 version 1 (27/10/2015).

The following optional amendments were suggested:

I did not see the information sheets in English. I suggest this is approved once the changes stipulated by Julia Davies are done.

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

David Hyatt
Ethics Administrator
School of Education

APPENDIX B

Approval Letter for Conducting Research in Malaysia (Economic Planning Unit Malaysia)

UNIT PERANCANG EKONOMI
Economic Planning Unit
Jabatan Perdana Menteri
Prime Minister's Department
Block B5 & B6
Pusat Pentadbiran Kerajaan Persekutuan
62502 PUTRAJAYA
MALAYSIA

Telefon : 603-8000 8000

Ruj. Tuan:
Your Ref.: UPE 40/200/19/3324 ( )

Ruj. Kami:
Our Ref.:

Tarikh:
Date: 17 June 2016

Ms. Haslinda binti Hashim
27 Duncombe Street
S6 3RH
United Kingdom
Email : hhashim1@sheffield.ac.uk

APPLICATION TO CONDUCT RESEARCH IN MALAYSIA

With reference to your application, I am pleased to inform that your application to conduct research in Malaysia has been approved by the **Research Promotion and Co-ordination Committee, Economic Planning Unit, Prime Minister's Department.** The details of the approval are as follows:

Researcher's name	:	**HASLINDA BINTI HASHIM**
Passport No./ I.C No	:	**841013-14-5644**
Nationality	:	**MALAYSIAN**
Title of Research	:	**"DIGITAL PRACTICES AMONG MALAYSIAN CHILDREN"**
Period of Research Approved	:	**1 month (17.6.2016 – 16.7.2016)**

2. Please take note that the study should avoid sensitive issues pertaining to local values and norms as well as political elements. At all time, please adhere to the conditions stated by the code of conduct for researchers as attached.

3. The issuance of the research pass is also subject to your agreement on the following:

a) to obtain approval from school administration office;

b) to ensure submission of a brief summary of your research findings on completion of your research; and

c) to submit three (3) copies of your final dissertation/publication.

4. Thank you for your interest in conducting research in Malaysia and wish you all the best in your future research endeavor.

Yours sincerely,

(**AZRAL IZWAN BIN MAZLAN**)
for Director General
Economic Planning Unit
Prime Minister's Department

Email: azral.mazlan@epu.gov.my
Tel : 03 88725277
Fax : 03 88883798

ATTENTION

This letter is only to inform you the status of your application and **cannot be used as a research pass.**

c.c.

Ketua Setiausaha
Kementerian Pendidikan Malaysia
Sektor Penyelidikan dan Penilaian
Bahagian Perancangan, Penyelidikan dan Penyelarasan Dasar
Aras 1-4, Blok E8
Kompleks Kerajaan Parcel E
62604 Putrajaya
(u.p. YBrs. Dr. Maimunah binti Muda)

APPENDIX C

Approval Letter for Conducting Research in School (Ministry Of Education Malaysia)

BAHAGIAN PERANCANGAN DAN PENYELIDIKAN DASAR PENDIDIKAN
KEMENTERIAN PENDIDIKAN MALAYSIA
ARAS 1-4, BLOK E-8
KOMPLEKS KERAJAAN PARCEL E
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62604 PUTRAJAYA.

Telefon: 03-88846591
Faks : 03-88846579

Ruj. Kami : KPMSP.600-3/2/3 Jld19 (12)
Tarikh : 10 Mei 2016

Ketua Pengarah
Seksyen Ekonomi Makro
Unit Perancangan Ekonomi
Jabatan Perdana Menteri
Blok B5 Aras 4
Kompleks Jabatan Perdana Menteri
Pusat Pentadbiran Kerajaan Persekutuan
62502 PUTRAJAYA
(u.p.: En. Azral Izwan bin Mazlan)

Tuan,

Permohonan Untuk Menjalankan Penyelidikan di Malaysia
Nama: Haslinda binti Hashim

Dengan hormatnya saya merujuk kepada perkara di atas.

2. Adalah saya diarahkan memaklumkan bahawa permohonan tuan untuk menjalankan kajian bertajuk:

" Digital Practices Among Malaysia Children " diluluskan dengan syarat.

3. Bersama-sama ini disertakan ulasan Bahagian ini ke atas cadangan penyelidikan yang dikemukakan.

Sekian dimaklumkan, terima kasih.

Salinan Diakui Asal Dan Sah

b/p Ketua Pengarah
Unit Perancang Ekonomi
Jabatan Perdana Menteri

AZRAL IZWAN BIN MAZLAN
Ketua Penolong Pengarah
Seksyen Ekonomi Makro
Unit Perancang Ekonomi
Jabatan Perdana Menteri

" BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(DR MAIMUNAH BINTI MUDA)
Ketua Unit
Sektor Penyelidikan Dan Penilaian
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan
b.p. Ketua Setiausaha
Kementerian Pendidikan Malaysia

REVIEW OF RESEARCH PROPOSAL
ULASAN TENTANG CADANGAN KAJIAN

Researcher's Name : **Haslinda Binti Hashim**

Research/ Kajian: [✓] **Ph.D / Kedoktoran** [ ] **Sarjana Masters** [ ] **Am**

Name of institution/ Nama institusi : **University of Sheffield**

Research Title/ Tajuk Kajian : **Digital Practices Among Malaysia Children**

a) **Views concerning the research proposal:**
Setelah membaca cadangan kajian seperti yang dinyatakan di atas, pandangan terhadap cadangan kajian adalah seperti berikut:

i) **Area of study/ Bidang yang akan dikaji:**

[✓] **Suitable / Sesuai** [ ] **Not Suitable / Tidak Sesuai**

ii) **Sample and research location / Sampel dan lokasi kajian:**

[✓] **Suitable / Sesuai** [ ] **Not Suitable / Tidak Sesuai**

[ ] **Not Clearly Stated / Kurang Jelas**

iii) **Benefits of the research or its importance to the Ministry Of Education, Malaysia / Hasil penyelidikan - faedah penyelidikan kepada Kementerian Pendidikan Malaysia**

[✓] **Benefit / Faedah** [ ] **No benefits / Tidak Berfaedah**

[ ] **Not Identified / Tidak Pasti**

Findings of this study will be important to the MOE because it informs policy makers on:

"Digital Practices Among Malaysia Children"

b) **Suggestions made by EPRD, Ministry of Education, Malaysia / Cadangan BPPDP, Kementerian Pendidikan Malaysia:**

[ ] **Approved / Diluluskan** [✓] **Approved with conditions / Diluluskan dengan bersyarat**

[ ] **Not Approved / Tidak diluluskan**

*** Remarks:**

- **Kelulusan menjalankan kajian ini bergantung kepada kebenaran pentadbir sekolah yang berkenaan.**

DR. MAIMUNAH BINTI MUDA)
For the Head of Sector
Research and Evaluation Sector
Educational Research and Planning Division
Ministry of Education, Malaysia

Tarikh: 9 Mei 2016

APPENDIX D

Questionnaire Used for Data Collection (Malay Version)

The University Of Sheffield.

Saya Haslinda Hashim adalah pelajar Fakulti Pendidikan Universiti of Sheffield dan sedang mengkaji tentang Amalan Penggunaan Digital dalam kalangan Kanak-Kanak di Malaysia (*Digital Practices among Malaysian Children*). Borang soal selidik ini adalah untuk mengumpul maklumat yang berkaitan bagi melengkapkan kertas projek program Doktor Falsafah, Universiti of Sheffield.

PANDUAN MENJAWAB BORANG SOAL SELIDIK PELAJAR

1. Borang soal selidik ini bukan satu ujian atau penilaian dan tiada jawapan yang betul atau salah.
2. Sebarang maklumat yang diberikan dalam borang soal selidik ini adalah **sulit** terhad kepada **penyelidik sahaja** dan digunakan untuk tujuan penyelidikan sahaja. Segala maklumbalas anda tidak akan dikongsi dengan sesiapapun termasuk ibu bapa dan guru anda. Hanya penyelidik sahaja yang berhak ke atas maklumat ini.
3. Borang soal selidik ini mengandungi tiga bahagian iaitu bahagian **1,2,3, 4** dan **5.**
4. Sila tandakan dengan **jujur** dan **ikhlas** berdasarkan diri anda yang sebenar kerana maklumat yang anda berikan adalah sangat berguna untuk kajian ini.
5. Sekiranya anda mengalami sebarang kesukaran untuk memahami konteks soalan, anda digalakkan bertanya terus kepada penyelidik.
5. Segala kerjasama dan masa anda amatlah dihargai dan saya dahului dengan ribuan terima kasih.

Bahagian A: Maklumat Diri

Jantina: L / P

Nama Samaran (Nickname) : _____

Bahagian 1: Konteks dan Latar Belakang

1. Tandakan orang yang tinggal serumah dengan anda?

Orang	✓	Umur
Bapa atau bapa tiri atau pasangan bapa		
Ibu atau ibu tiri atau pasangan ibu		
Abang		
Kakak		
Adik lelaki		
Adik perempuan		
Datuk & nenek		
Saudara-mara lain		
Orang		

2. Pendidikan tertinggi bapa?

- Sekolah Rendah ☐
- Sekolah Menengah ☐
- Kolej ☐
- Universiti ☐

3. Pendidikan tertinggi ibu?

- Sekolah Rendah ☐
- Sekolah Menengah ☐
- Kolej ☐
- Universiti ☐

4. Pekerjaan / Pendapatan Isi Rumah Bulanan

Rendah – Bawah RM 3860; Pertengahan – Antara RM3861 ke RM8319; Tinggi – Atas RM 8320

Bapa : _____ Ibu : _____

Kategory Pendapatan Isi Rumah: _____

Bahagian 2 : Capaian & Penggunaan

5. Tempat penggunaan?

- Bilik tidur anda (atau bilik peribadi yang lain) di rumah ☐
- Di rumah tetapi bukan di bilik anda (atau bilik peribadi anda) ☐
- Di sekolah (makmal computer) ☐
- Di sekolah (kelas) ☐
- Di kawasan sekitar sekolah ☐
- Tempat lain (rumah kawan atau saudara, di dalam perpustakaan, kafetaria dll) ☐
- Apabila keluar bersiar-siar atau dalam perjalanan ke sekolah atau tempat lain ☐
- Di dalam perpustakaan awam atau tempat awam lain ☐
- Di dalam kafe siber ☐
- Di rumah ahli keluarga/saudara ☐
- Di rumah kawan ☐

6. Apabila anda menggunakan Internet, berapa kerap anda menggunakan peranti di bawah dalam talian?

1- Beberapa kali setiap hari
2- Setiap hari atau hampir setiap hari
3- Sekurang-kurangnya setiap minggu
4- Tidak pernah

- Telefon Bimbit ☐
- Telefon Pintar ☐
- Tablet / iPad ☐
- Komputer ☐
- Komputer Riba ☐
- Permainan Konsol ☐
- TV Pintar ☐
- Lain-lain: ☐

7. Peranti digital yang dimiliki (milikan peribadi)?

- Telefon Bimbit ☐
- Telefon Pintar ☐
- Tablet / iPad ☐
- Komputer ☐
- Komputer Riba ☐
- Peranti mudah alih lain ☐
- TV Pintar ☐
- Lain-lain ☐

8. Apabila anda menggunakan Internet, berapa kerap anda masuk dalam talian atau menggunakan Internet di lokasi berikut?

Bilik tidur anda (atau bilik peribadi yang lain) di rumah	☐
Di rumah tetapi bukan di bilik anda (atau bilik peribadi anda)	☐
Di sekolah (makmal computer)	☐
Di sekolah (kelas)	☐
Di kawasan sekitar sekolah	☐
Tempat lain (rumah kawan atau saudara, di dalam perpustakaan, kafetaria dll)	☐
Apabila keluar bersiar-siar atau dalam perjalanan ke sekolah atau tempat lain	☐
Di dalam perpustakaan awam atau tempat awam lain	☐
Di dalam kafe siber	☐
Di rumah ahli keluarga/saudara	☐
Di rumah kawan	☐

9. Berapa umur anda semasa pertama kali menggunakan Internet? _____

10. Kali pertama anda menggunakan Internet, apa yang anda lakukan? Dimana dan dengan siapa?

_____

11. Berapa umur anda semasa mendapat telefon pintar pertama / tablet / komputer / kumputer riba?

_____(Peranti: _____)

12. Adakah anda boleh bersambung dengan Internet dari peranti digital anda dan jika boleh, bagaimana anda bersambung? (Tandakan semua yang berkenaan)

Saya menggunakan sambungan Internet	☐
Saya menggunakan "WiFi' percuma (tempat awam)	☐
Saya menggunakan sambungan Internet telefon (pascabayar atau prabayar)	☐
Tidak	☐

13. Adakah terdapat WiFi disediakan di sekolah anda dan jika ya, adakah pelajar dibenarkan menggunakannya?

Tidak, Wifi tidak disediakan di sekolah saya	☐
Ya, Wifi dirsediakan tetapi pelajar tidak dibenarkan untuk menggunakannya	☐
Ya, Wifi disediakan, pelajar tidak dibenarkan menggunakannya tetapi kami menggodam kata laluan	☐
Ya, Wifi disediakan dan pelajar dibenarkan untuk menggunakannya tetapi dengan beberapa sekatan (contohnya. Tidak semua laman web / aktiviti dalam talian boleh diakses)	☐
Ya, Wifi disediakan dan pelajar dibenarkan menggunakannya tanpa sebarang sekatan	☐
Tidak tahu	☐

14. Adakah pelajar dibenarkan untuk menggunakan telefon pintar mereka apabila di sekolah?

Tidak, pelajar tidak dibenarkan menggunakan telefon pintar di sekolah saya	☐
Ya, pelajar dibenarkan menggunakan telefon pintar mereka dengan beberapa sekatan (cth: Hanya apabila diberi kuasa, hanya semasa istirahat pelajaran dll)	☐
Ya, pelajar dibenarkan menggunakan telefon pintar mereka dan tidak ada sekatan khusus	☐
Tidak tahu	☐

15. Anggaran berapa lamakah anda menghabiskan masa pada Internet pada hari sekolah biasa?

Sedikit or tiada	☐
Sekitar setengah jam	☐
Sekitar 2 jam	☐
Sekitar 3 jam	☐
Sekitar 4 jam	☐
Sekitar 5 jam	☐
Sekitar 6 jam	☐
Sekitar 7 jam atau lebih	☐
Tidak tahu	☐
Saya masuk dalam talian 24/7	☐

16. Anggaran berapa lamakah anda menghabiskan pada Internet pada hari bukan sekolah (hujung minggu atau cuti)?

Sedikit or tiada	☐
Sekitar setengah jam	☐
Sekitar 2 jam	☐
Sekitar 3 jam	☐
Sekitar 4 jam	☐
Sekitar 5 jam	☐
Sekitar 6 jam	☐
Sekitar 7 jam atau lebih	☐
Tidak tahu	☐
Saya masuk dalam talian 24/7	☐

17. Berapa kerap anda menggunakan Internet?

Setiap hari atau hampir setiap hari	☐
Sekali atai dua kali seminggu	☐
Sekali atau dua kali sebulan	☐
Kurang daripada sekali dalam sebulan	☐
Tidak tahu	☐

Bahagian 3 : Aktiviti Atas Talian & Literasi Digital

18. Tandakan 1-3 untuk aktiviti dalam talian paling digemari (susunan menaik).

Aktiviti dalam talian berasaskan kandungan (misalnya kerja sekolah, bermain permainan, menonton klip video, membaca berita atau memuat turun muzik)	☐
Aktiviti dalam talian berasaskan perhubungan / komunikasi (cth. Pesanan segera, e-mel, berbual, panggilan video, WhatsApp, Skye)	☐
Mengendalikan / menyertai actitiviti rakan sebaya (mis. Blogging, menangkap, mengedit dan menyiarkan foto, atau menyertai laman perkongsian fail)	☐

19. Apakah tujuan utama anda menggunakan Internet? (Tandakan 1-6 dalam turutan menaik).

Maklumat	☐
Komunikasi	☐
Hiburan	☐
Penyertaan	☐
Kreativiti	☐
Ekspresi	☐

20. Berapa kerap anda melakukan perkara berikut dalam sebulan yang lalu?

1- Beberapa kali setiap hari
2- Setiap hari atau hampir setiap hari
3- Sekurang-kurangnya setiap minggu
4- Tidak kerap
5- Tidak pernah

Menggunakan Internet untuk kerja sekolah	1	2	3	4	5
Menonton klip video (cth. di YouTube)	1	2	3	4	5
Menonton muzik atau filem yang boleh didapati dalam talian	1	2	3	4	5
Membaca/menonton berita di Internet	1	2	3	4	5
Menghantar/menerima e-mel	1	2	3	4	5
Menggunakan tapak rangkaian sosial (cth. Facebook dan lain-lain)	1	2	3	4	5
Melawat bilik sembang	1	2	3	4	5
Menggunakan mesej segera	1	2	3	4	5
Bermain permainan dengan orang lain di Internet	1	2	3	4	5
Bermain permainan Internet (seorang diri atau dengan komputer)	1	2	3	4	5
Menghabiskan masa di dunia maya (komuniti dalam talian)	1	2	3	4	5
Menggunakan kamera untuk komunikasi video (cth. Skype, Facetime)	1	2	3	4	5
Meletakkan (atau menghantar) mesej di laman web	1	2	3	4	5
Menulis blog atau diari dalam talian	1	2	3	4	5
Meletakkan (atau menghantar) gambar, video atau muzik untuk dikongsi dengan orang lain	1	2	3	4	5
Mencipta watak, haiwan peliharaan atau avatar	1	2	3	4	5
Menggunakan laman perkongsian fail [tambah contoh]	1	2	3	4	5
Memuat turun aplikasi percuma	1	2	3	4	5
Membayar untuk memuat turun aplikasi	1	2	3	4	5
Mencari peta/jadual waktu	1	2	3	4	5
Mendengar muzik dalam talian (Spotify, YouTube, laman radio, dll.)	1	2	3	4	5
Mendaftar lokasi geografi saya (menggunakan Facebook, Foursquare, dll.)	1	2	3	4	5
Membaca kod QR/mengimbas kod bar	1	2	3	4	5
Membaca e-buku	1	2	3	4	5
menggunakan enjin carian (cth. Menggunakan Google, Yahoo, Bing, dll.)	1	2	3	4	5
Membeli barang dalam talian	1	2	3	4	5
Menonton siaran telivisyen dalam talian/menonton filem dalam talian (cth. Di iTunes, Vimeo, Youtube, dll.)	1	2	3	4	5
Melihat-lihat barang untuk dibeli	1	2	3	4	5
Memaparkan mesej di Twitter	1	2	3	4	5
Menggunakan ensiklopedia atau kamus dalam talian	1	2	3	4	5
Memeriksa maklumat selebriti atau sukan dalam talian	1	2	3	4	5
Mengambil bahagian dalam laman sivik (cth. menyokong perkara bertujuan baik)	1	2	3	4	5
Mengambil bahagian dalam laman komersil (cth. Untuk menyokong atau mempromosikan produk)	1	2	3	4	5

Mengambil bahagian dalam laman web mengenai politik	1	2	3	4	5
Mengambil bahagian dalam laman peminat	1	2	3	4	5
Menulis kod komputer (cth. Scratch)	1	2	3	4	5
Menghantar mesej di Twitter / Facebook / Instagram	1	2	3	4	5

21. Senarai laman web / aplikasi / perisian dalam talian / dll. kegemaran saya (dalam susunan menaik)

_____

_____

22. Di sekolah berapa kerap guru mahu pelajar melakukan perkara-perkara ini?

Menggunakan Internet untuk melakukan pencarian untuk tugasan sekolah ☐
Bekerjasama dengan pelajar lain melalui Internet ☐
Menggunakan telefon pintar untuk tugasan di dalam kelas ☐
Menggunakan komputer riba untuk tugasan dalam kelas ☐

23. Adakah anda mempunyai profil anda sendiri di rangkaian laman sosial yang anda gunakan sekarang, atau tidak? Ya / Tidak

24. Berapa banyak profil rangkaian sosial yang anda ada (di laman yang sama atau laman web yang berbeza)?

Satu profil ☐
Lebih daripada satu profil ☐
Lebih daripada satu profil (termasuk profil palsu) ☐
Saya tidak mempunyai profil rangkaian social ☐

25. Kira-kira berapa ramai orang yang anda hubungi ketika menggunakan [profil rangkaian sosial]?

Mencecah 10 ☐
11-50 ☐
51-100 ☐
101-300 ☐
Lebih daripada 300 ☐
Tidak tahu/tidak ingat ☐

26. Jenis hubungan anda dalam rangkaian social?

Rakan karib ☐
Keluarga ☐
Saudara ☐
Orang asing ☐
Saling berkawan ☐
Tidak tahu/tidak ingat ☐

27. Adakah profil anda ditetapkan kepada...?

Umum, supaya semua orang boleh melihatnya ☐
Sebahagiannya peribadi, supaya rakan kepada kawan atau rangkaian anda dapat melihatnya ☐
Tertutup supaya hanya kawan-kawan anda boleh melihat ☐
Tidak tahu ☐

28. Bagaimana anda biasanya membalas permintaan daripada orang untuk menjadi 'rakan' anda di rangkaian laman sosial anda / aplikasi?

Saya selalunya menerima semua permintaan ☐
Terima hanya jika kami mempunyai yang sama (saling berkawan) ☐
Terima hanya jika saya kenal mereka ☐
Terima hanya jika saya mengenali mereka dengan baik ☐
Tidak tahu/tidak ingat ☐

29. Berapa benarkah ini kepada anda?

1- Tidak benar
2- Sedikit benar
3- Sangat Benar
4- Tidak tahu

Saya lebih tahu mengenai Internet daripada ibubapa saya	1	2	3	4
Saya lebih tahu mengenai Internet daripada guru saya	1	2	3	4
Saya lebih tahu mengenai Internet daripada rakan-rakan saya	1	2	3	4
Saya lebih tahu mengenai Internet daripada adik beradik saya	1	2	3	4
Saya tahu banyak perkara tentang penggunaan Internet	1	2	3	4

Terdapat banyak perkara bagus didalam Internet untuk kanak-kanak sebaya saya	1	2	3	4
Saya lebih tahu tentang penggunaan telefon pintar daripada ibubapa saya	1	2	3	4
Saya lebih tahu tentang penggunaan telefon pintar daripada guru saya	1	2	3	4
Saya lebih tahu tentang penggunaan telefon pintar daripada rakan-rakan saya	1	2	3	4
Saya lebih tahu tentang penggunaan telefon pintar daripada adik beradik saya	1	2	3	4

30.

Yang mana antara perkara berikut anda tahu bagaimana untuk melakukan di Internet?	**Ya**	**Tidak**	**Tidak Tahu**
Membandingkan laman web berbeza untuk menentukan jika maklumat benar			
Tukar pilihan tapisan			
Tanda buku laman web			
Sekat iklan yang tidak diingini atau mel spam / spam			
Padam rekod laman web yang telah anda lawati			
Tukar tetapan privasi pada profil rangkaian sosial			
Saya tahu bagaimana untuk menggunakan butang 'laporkan penyalahgunaan' (cth. butang yang boleh anda gunakan apabila anda mahu melaporkan penggunaan gambar anda tanpa kebenaran)			
Sekat mesej daripada seseorang yang anda tidak mahu dengar			
Sekat tetingkap timbul (tetingkap yang tidak diminta yang muncul semasa melayari web)			
Mencari maklumat bagaimana menggunakan Internet dengan selamat			
Menyiarkan komen di blog, laman web atau forum			
Muat naik imej video atau muzik ke media sosial			
Edit imej video atau muzik ke media sosial			
Buat blog			

31.

Antara perkara berikut yang mana anda tahu bagaimana untuk melakukannya ke atas telefon pintar atau tablet?	**Ya**	**Tidak**	**Tidak Tahu**
Muat turun aplikasi			
Nyahaktifkan fungsi yang menunjukkan kedudukan geografi anda (di Facebook, Peta Google, dll.)			
Sambung ke rangkaian wifi dari telefon pintar / tablet / komputer riba anda?			
Sekat pemberitahuan tolak dari aplikasi yang berbeza			
Mempunyai dokumen, kenalan dan aplikasi yang sama pada semua peranti yang anda gunakan (telefon pintar, tablet, PC)			
Sekat tetingkap timbul yang mempromosikan aplikasi, permainan atau perkhidmatan yang anda perlu bayar (tetingkap yang tidak diminta yang muncul semasa melayari web)			
Lindungi telefon pintar dengan PIN / dengan corak skrin			
Kemas kini status anda di laman rangkaian sosial yang paling kerap digunakan			
Mencari maklumat bagaimana menggunakan telefon pintar dengan selamat			
Bandingkan aplikasi yang berbeza dengan fungsi yang sama untuk memilih yang paling boleh dipercayai			
Mengambil gambar atau video pendek dengan telefon pintar anda dan memuat naik ke media sosial			
Edit gambar atau video pendek dengan telefon pintar anda dan memuat naik ke media sosial			

32. Sila nyatakan betapa tepatnya pernyataan berikut apabila memikirkan bagaimana anda menggunakan Internet.

1- Tidak benar
2- Sedikit benar
3- Sangat benar

Saya tahu bagaimana untuk membuka fail yang dimuat turun	1	2	3
Saya tahu cara memuat turun / menyimpan foto yang saya dapati dalam talian	1	2	3
Saya merasa sukar untuk menentukan kata kunci terbaik untuk digunakan untuk pencarian dalam talian	1	2	3
Saya merasa sukar untuk mencari laman web yang saya lawati sebelum ini	1	2	3
Saya tahu maklumat yang mana boleh dan tidak boleh dikongsikan dalam talian	1	2	3

Saya tahu bila saya boleh dan tidak boleh kongsikan maklumat dalam talian	1	2	3
Saya tahu bagaimana untuk mencipta sesuatu yang baru dari imej, muzik atau video	1	2	3
Saya tahu bagaimana untuk membuat perubahan asas kepada kandungan yang	1	2	3
Saya tahu cara memasang aplikasi pada peranti mudah alih	1	2	3
Saya tahu cara memasang aplikasi pada peranti mudah alih saya	1	2	3
Saya tahu bagaimana untuk mengawasi kos penggunaan aplikasi mudah alih	1	2	3

33. Dalam 12 bulan yang lalu, berapa kerap anda melihat atau mengalami sesuatu di Internet yang mengganggu anda atas beberapa sebab? (cth. membuat anda berasa tidak selesa, sedih atau merasakan anda tidak sepatutnya melihatnya)

Beberapa kali setiap hari ☐
Setiap hari atau hamper setiap hari ☐
Sekurang-kurangya setiap seminggu ☐
Tidak kerap ☐
Tidak pernah ☐

34. Sekiranya anda telah melihat atau mengalami sesuatu di Internet yang mengganggu anda atas beberapa sebab, adakah anda bercakap dengan sesiapa dibawah tentangnya? Ya / Tidak

Ibu atau bapa saya ☐
Abang atau kakak saya ☐
Rakan ☐
Guru ☐
Seseorang yg bekerja membantu kanak-kanak ☐
Orang dewasa lain yang saya percayai ☐
Orang lain ☐
Tidak tahu ☐

35. Dalam 12 BULAN YANG LALU, adakah sesiapa melayan anda dengan cara [menyakitkan dan teruk] ini dan jika ya, betapa kecewa anda terhadap apa yang berlaku?

Ya, dan saya berasa sangat kecewa ☐
Ya, dan saya berasa sedikit kecewa ☐
Ya, tetapi saya tidak begitu kecewa ☐
Tidak, saya tidak pernah mengalamnya ☐
Tidak tahu ☐
Tidak mahu mengatakannya ☐

36. Jika seseorang telah melayan anda dengan cara seperti ini, bagaimana ia berlaku? ... (tandakan semua yang berkenaan)

Secara bersemuka (orang yang bersama dengan anda di tempat yang sama pada masa yang sama)	
Dengan panggilan telefon bimbit	
Dengan mesej yang dihantar kepada saya di telefon saya (SMS / TEXT atau MMS)	
Di laman rangkaian sosial (contohnya Facebook, Twitter dll.)	
Pada platform perkongsian media (YouTube, Instagram, Flickr)	
Dengan mesej segera (MSN, Whatsapp, Skype dan lain-lain)	
Dalam ruangan sembang	
Melalui emel	
Dalam laman web permainan	
Lain-lain	
Saya tidak pernah mengalaminya	
Tidak tahu	
Tidak mahu mengatakannya	

37. Pada tahun yang sebelum, anda telah melihat banyak imej yang berbeza ... Kadang-kadang ia mungkin seksual secara terang ... Dalam 12 BULAN YANG LALU, adakah anda melihat apa-apa sepertinya jika ya, betapa kecewa anda dengan apa yang anda lihat?

Ya, dan saya berasa sangat kecewa ☐
Ya, dan saya berasa sedikit kecewa ☐
Ya, tetapi saya tidak begitu kecewa ☐
Tidak, saya tidak pernah mengalamnya ☐
Tidak tahu ☐
Tidak mahu mengatakannya ☐

38. In the past 12 months, have you seen websites where people discuss...?

1- Ya
2- Tidak
3- Tidak tahu
4- Tidak mahu mengatakannya

Cara membahayakan atau menyakiti diri secara fizikal	
Cara-cara untuk membunuh diri	
Cara-cara untuk menjadi sangat kurus (seperti menjadi anoreksia atau bulimia)	
Mesej kebencian yang menyerang kumpulan atau individu tertentu	
Bercakap tentang atau berkongsi pengalaman mereka mengambil dadah	
Imej ngeri atau ganas	

39. Dalam tempoh 12 bulan yang lalu, pernahkah yang berikut berlaku kepada anda di Internet?

1- Ya
2- Tidak
3- Tidak tahu
4- Tidak mahu mengatakannya

Seseorang menggunakan maklumat peribadi saya dengan cara saya tidak suka	
Komputer mendapat virus	
Saya kehilangan wang dengan ditipu di Internet (kita maksudkan wang sebenar, bukan wang dalam permainan komputer)	
Seseorang menggunakan kata laluan saya untuk mengakses maklumat saya atau berpura-pura menjadi saya	
Seseorang telah membuat halaman atau imej tentang saya yang bermusuh atau menyakiti hati	

40. Pernahkah anda mempunyai hubungan di Internet dengan seseorang yang anda tidak pernah bersemuka sebelum ini?

Ya / Tidak

41. Dalam 12 BULAN YANG LALU, pernahkah anda berjumpa dengan sesiapa sahaja yang anda kenali pertama kali di Internet dan jika ya, adakah anda sama sekali kecewa dengan apa yang anda lakukan atau berharap anda tidak melakukannya?

Ya, dan saya berasa sangat kecewa	
Ya, dan saya berasa sedikit kecewa	
Ya, tetapi saya tidak begitu kecewa	
Tidak, saya tidak pernah mengalamnya	
Tidak tahu	
Tidak mahu mengatakannya	

42. Dalam 12 BULAN YANG LALU, adakah anda menerima mesej seksual seperti ini (ia boleh menjadi kata-kata, gambar atau video) dan jika ya, betapa kecewa anda?

Ya, dan saya berasa sangat kecewa	
Ya, dan saya berasa sedikit kecewa	
Ya, tetapi saya tidak begitu kecewa	
Tidak, saya tidak pernah mengalamnya	
Tidak tahu	
Tidak mahu mengatakannya	

Bahagian 5 : Pemantauan & Bimbingan

43.

Adakah ibubapa anda/salah seorang ibu bapa anda kadang-kadang ...	**Ya**	**Tidak**
Bercakap dengan anda tentang apa yang anda lakukan di Internet?		
Menggalakkan anda untuk meneroka dan mempelajari sesuatu di Internet?		
Duduk dengan anda semasa anda menggunakan Internet?		
Berada berdekatan apabila anda menggunakan Internet?		
Melakukan aktiviti Bersama-sama anda di Internet?		
Bercakap dengan anda tentang apa yang anda lakukan di Internet?		

44. Untuk setiap perkara dibawah, sila beritahu saya jika ibu bapa anda SEKARANG membenarkan anda melakukannya bila-bila anda mahu, atau membenarkan anda melakukannya hanya dengan izin atau pengawasan ibu bapa anda, atau TIDAK PERNAH membenarkan anda melakukannya.

1- Boleh melakukannya bila mahu
2- Hanya boleh melakukannya izin atau pengawasan
3- Tidak boleh melakukannya
4- Tidak tahu

Mempunyai profil rangkaian sosial anda sendiri	
Memberi maklumat peribadi kepada orang lain di Internet	
Menggunakan mesej segera	
Muat turun muzik atau filem di Internet	
Tonton klip video di Internet	
Muat naik foto, video atau muzik untuk dikongsi dengan orang lain	
Muat turun aplikasi percuma	
Membayar untuk memuat turun aplikasi	
Daftar lokasi geografi saya (menggunakan Facebook, Foursquare, dan lain-lain)	
Menggunakan mesej segera (MSN, aplikasi Apa, Skype dan lain-lain)	

45.

Pernahkah ibubapa/salah seorang daripada ibu bapa anda melakukan perkara-perkara ini dengan anda?	**Ya**	**Tidak**
Membantu anda apabila terdapat sesuatu yang sukar dilakukan atau dicari di Internet		
Mencadangkan cara untuk menggunakan Internet dengan selamat		
Menjelaskan mengapa sesetengah laman web itu bagus atau tidak bagus		
Mencadangkan cara berbuat baik terhadap orang lain dalam talian		
Membantu anda pada masa lalu apabila ada sesuatu mengganggu anda di Internet		
Secara amnya, bercakap dengan anda tentang apa yang perlu dilakukan jika ada sesuatu di Internet mengganggu anda		

46.

Adakahkah ibubapa/salah seorang daripada ibu bapa anda kadangkala kemudian memeriksa perkara dibawah?	**Ya**	**Tidak**
Laman web mana yang awak lawati		
Rakan atau kenalan mana yang anda tambah ke profil rangkaian sosial / perkhidmatan mesej segera anda		
Mesej-mesej dalam e-mel atau akaun pesanan segera anda		
Profil anda di rangkaian sosial atau komuniti dalam talian		

47.

Adakah ibubapa / ibu atau bapa anda menggunakan mana-mana yang berikut ...?	**Ya**	**Tidak**
Kawalan ibu bapa atau cara lain untuk menyekat atau menapis beberapa jenis laman web		
Kawalan ibu bapa atau cara lain untuk mengawasi laman web yang anda lawati		
Perkhidmatan atau kontrak yang menghadkan masa yang anda belanjakan di Internet		
Perisian untuk mencegah spam atau mel spam / virus		
Kadang kala mengambil telefon saya untuk melihat apa yang saya lakukan atau dengan siapa saya berhubung		
Membuat peraturan bagaimana telefon mudah alih digunakan		
Membuat peraturan bagaimana telefon pintar digunakan		
Tidak membuat peraturan, tetapi kadang kala mereka merampasnya untuk tempoh (1 hari, 1 minggu, dan lain-lain)		
Tiada peraturan di rumah saya		

48.

Pernahkah rakan anda melakukan perkara dibawah?	**Ya**	**Tidak**
Membantu anda apabila terdapat sesuatu yang sukar dilakukan atau dicari di Internet		
Mencadangkan cara untuk menggunakan Internet dengan selamat		
Menggalakkan anda untuk meneroka dan belajar perkara-perkara di Internet?		
Menjelaskan mengapa sesetengah laman web itu bagus atau tidak bagus		
Mencadangkan cara berbuat baik terhadap orang lain dalam talian		
Membantu anda pada masa lalu apabila ada sesuatu mengganggu anda di Internet		

49.

Pernahkah anda memberi cadangan tentang cara penggunaan Internet yang selamat kepada rakan anda?	**Yes**	**No**

50.

Pernahkah adik-beradik anda melakukan perkara dibawah?	**Ya**	**Tidak**
Membantu anda apabila terdapat sesuatu yang sukar dilakukan atau dicari di Internet		
Mencadangkan cara untuk menggunakan Internet dengan selamat		
Menggalakkan anda untuk meneroka dan belajar perkara-perkara di Internet?		
Menjelaskan mengapa sesetengah laman web itu bagus atau tidak bagus		
Mencadangkan cara berbuat baik terhadap orang lain dalam talian		
Membantu anda pada masa lalu apabila ada sesuatu mengganggu anda di Internet		

51.

Pernahkah guru di sekolah anda melakukan perkara dibawah?	**Ya**	**Tidak**
Membantu anda apabila terdapat sesuatu yang sukar dilakukan atau dicari di Internet		
Mencadangkan cara untuk menggunakan Internet dengan selamat		
Menggalakkan anda untuk meneroka dan belajar perkara-perkara di Internet?		
Bercakap dengan anda tentang apa yang anda lakukan dengan Internet		
Menjelaskan mengapa sesetengah laman web itu bagus atau tidak bagus		
Mencadangkan cara berbuat baik terhadap orang lain dalam talian		
Membuat peraturan tentang apa yang anda boleh lakukan dengan Internet di sekolah		
Membantu anda pada masa lalu apabila ada sesuatu mengganggu anda di Internet		
Secara amnya, bercakap dengan anda tentang apa yang perlu dilakukan jika ada sesuatu di Internet mengganggu anda		
Memeriksa jika pelajar telah mematikan atau menghidupkan telefon pintar/mudah alih mereka		
Kadang kala mengambil telefon saya untuk melihat apa yang saya lakukan atau dengan siapa saya berhubung		
Membuat peraturan bagaimana telefon mudah alih digunakan		
Membuat peraturan bagaimana telefon pintar digunakan		
Tidak membuat peraturan, tetapi kadang kala mereka merampasnya untuk tempoh (1 hari, 1 minggu, dan lain-lain)		
Tiada peraturan di sekolah saya		

52. Berapa banyak yang anda rasa ibu bapa anda mengetahui tentang apa yang anda lakukan di Internet?

- Banyak ☐
- Agak sedikit ☐
- Hanya sedikit ☐
- Tiada ☐
- *Tidak tahu* ☐

53. Secara keseluruhan, anda ingin ibu bapa anda untuk lebih mengambil tahu atau kurang taha dalam apa yang anda lakukan di Internet, atau untuk kekal sama?

- Banyak ☐
- Agak sedikit ☐
- Hanya sedikit ☐
- Tiada ☐
- *Tidak tahu* ☐

-TERIMA KASIH-

APPENDIX E

Questionnaire Used for Data Collection (English Version)

Part 1 : Context and Background

1. **Which of the following people live in the same household with you?**

People	✓	Age
Father or stepfather or my father's partner		
Mother or stepmother or my mother's partner		
Older brother(s)		
Older sister(s)		
Younger brother(s)		
Younger sister(s)		
Grandparents		
Other relatives		
Other people		

2. **What is the highest level of schooling your father completed?**
   - Primary school ☐
   - Secondary school ☐
   - College ☐
   - University ☐

3. **What is the highest level of schooling your mother completed?**
   - Primary school ☐
   - Secondary school ☐
   - College ☐
   - University ☐

4. **Occupation / Household Total Monthly Income***

   Low – Below RM 3860; Middle – In between RM3861 to RM8319; High – Above RM 8320

   Father : _____ Mother : _____

   Total Income Category: _____

Part 2 : Access & Use

5. **Places of use?**
   - Your bedroom (or other private room) at home ☐
   - At home but not in your room (or your private room) ☐
   - At school (computer lab) ☐
   - At school (classroom) ☐
   - At school area ☐
   - Other places (homes of friends or relatives, in libraries, cafés etc.) ☐
   - When out and about or on the way to school or elsewhere ☐
   - In a public library or other public place ☐
   - In a cyber café ☐
   - At a relative's home ☐
   - At a friend's home ☐

6. **When you use the Internet these days, how often do you use the following devices to go online?**

   1- Several times each day
   2- Daily or almost daily
   3- At least every week
   4- Never

   - Mobile Phone ☐
   - Smartphone ☐
   - Tablet / iPad ☐
   - Computer ☐
   - Laptop ☐
   - Games console ☐
   - Smart TV ☐
   - Others: ☐

7. **Digital devices ownership (personally own)?**
   - Mobile Phone ☐
   - Smartphone ☐
   - Tablet / iPad ☐
   - Computer ☐
   - Laptop ☐
   - Other handheld portable devices ☐
   - Smart TV ☐
   - Others: ☐

8. When you use the Internet these days, how often do you go online or use the Internet at the following locations?

Your bedroom (or other private room) at home	☐
At home but not in your room (or your private room)	☐
At school (computer lab)	☐
At school (classroom)	☐
At school area	☐
Other places (homes of friends or relatives, in libraries, cafés etc.)	☐
When out and about or on the way to school or elsewhere	☐
In a public library or other public place	☐
In a cyber café	☐
At a relative's home	☐
At a friend's home	☐

9. How old were you when you first used the Internet? _____

10. The very first time you used the Internet, what did you do? Where and with whom?

_____

_____

11. How old were you when you got your first smartphone / tablet / computer / laptop?

_____(Device: _____)

12. Are you able to connect to the Internet from your digital devices and if so, how do you connect? (Tick all that apply)

I use home Internet connection	☐
I use free WiFi (public place)	☐
I use the mobile's Internet connection (postpaid or prepaid)	☐
No	☐

13. Is there Wifi available at your school and if so, are the students allowed to use it?

No, Wifi is not available at my school	☐
Yes, Wifi is available but the students are not allowed to use it	☐
Yes, Wifi is available, students are not allowed to use it but we hacked the password	☐
Yes, Wifi is available and the students are allowed to use it but with some restrictions (eg. Not all websites/online activities are accessible)	☐
Yes, Wifi is available and the students are allowed to use it with no restrictions	☐
Don't know	☐

14. Are students allowed to use their smartphones when at school?

No, students are not allowed to use smartphones at my school	☐
Yes, students are allowed to use their smartphones with some restriction (e.g. only when authorized, only during the lesson's break etc)	☐
Yes, students are allowed to use their smartphones and there are no special restrictions	☐
Don't know	☐

15. About how long do you spend on the Internet on an ordinary school day?

Little or nothing	☐
About half an hour	☐
About 2 hours	☐
About 3 hours	☐
About 4 hours	☐
About 5 hours	☐
About 6 hours	☐
About 7 hours or more	☐
Don't know	☐
I go online 24/7	☐

16. About how long do you spend on the Internet on a non-school day (weekend or holidays)?

Little or nothing	☐
About half an hour	☐
About 2 hours	☐
About 3 hours	☐
About 4 hours	☐
About 5 hours	☐
About 6 hours	☐
About 7 hours or more	☐
Don't know	☐
I go online 24/7	☐

17. How often do you use the Internet?

Every day or almost every day	
Once or twice a week	
Once or twice a month	
Less than once a month	
Don't know	

Part 3 : Online Activities & Digital Literacy

18. Rate 1-3 for your most online activities' preferences (ascending order).

Content-based online activities (eg. schoolwork, playing games, watching video clips, reading news or downloading music)	
Contact/communication-based online activities (eg. instant messaging, email, chatting, video call, WhatsApp, Skye)	
Conduct/peer participant actitivites (eg. blogging, capture, editing and posting photos, or participating on file-sharing sites)	

19. What are your main purposes in using the Internet? (Rate 1-6 in ascending order).

Information	
Communication	
Entertainment	
Participation	
Creativity	
Expression	

20. How often you have done the following in the past month?

1- Several times each day
2- Daily or almost daily
3- At least every week
4- Less often
5- Never

Used the Internet for school work	1	2	3	4	5
Watched video clips (e.g. on YouTube)	1	2	3	4	5
Watched music or films available online	1	2	3	4	5
Read/watched the news on the Internet	1	2	3	4	5
Sent/received email	1	2	3	4	5
Used a social network site (e.g. Facebook etc)	1	2	3	4	5
Visited a chatroom	1	2	3	4	5
Used instant messaging	1	2	3	4	5
Played games with other people on the Internet	1	2	3	4	5
Played Internet games (on your own or against the computer)	1	2	3	4	5
Spent time in a virtual world (online community)	1	2	3	4	5
Used a camera for video communication (e.g. Skype, Facetime)	1	2	3	4	5
Put (or posted) a message on a website	1	2	3	4	5
Written a blog or online diary	1	2	3	4	5
Put (or posted) photos, videos or music to share with others	1	2	3	4	5
Created a character, pet or avatar	1	2	3	4	5
Used file sharing sites [add examples]	1	2	3	4	5
Downloaded free Apps	1	2	3	4	5
Paid for downloading apps	1	2	3	4	5
Looked up maps / timetables	1	2	3	4	5
Listened to music online (Spotify, YouTube, web radio, etc.)	1	2	3	4	5
Registered my geographical location (using Facebook, Foursquare, etc.)	1	2	3	4	5
Read QR codes/scan barcodes	1	2	3	4	5
Read an ebook	1	2	3	4	5
Used a search engine (e.g. using Google, Yahoo, Bing, etc.)	1	2	3	4	5
Bought things online	1	2	3	4	5
Watched broadcast television online / watched a movie online (e.g. on iTunes, Vimeo, Youtube, etc.)	1	2	3	4	5
Browsed for things to buy	1	2	3	4	5
Posted messages on Twitter	1	2	3	4	5
Used an online encyclopedia or dictionary	1	2	3	4	5
Checked out celebrity or sports information online	1	2	3	4	5
Participated in a civic site (e.g. to support a good cause)	1	2	3	4	5
Participated in a commercial site (e.g. to support or promote a product)	1	2	3	4	5
Participated in a site about politics	1	2	3	4	5
Participated in a fan site	1	2	3	4	5
Written computer code (e.g. Scratch)	1	2	3	4	5
Browsed for things to buy	1	2	3	4	5
Posted messages on Twitter / Facebook / Instagram	1	2	3	4	5

21. List of my favourites websites / Apps / online software / etc. (in ascending order)

_____

_____

22. At school how often do the teachers want students to do these things?

Use the Internet to do research for school assignments	☐
Collaborate with other students over the Internet	☐
Use smartphones for assignments in class	☐
Use laptops for assignments in class	☐

23. Do you have your own profile on a social networking site that you currently use, or not? Yes / No

24. How many social network profiles do you have (on the same site or different sites)?

- ☐ One profile
- ☐ More than one profile
- ☐ More than one profile (including fake profiles)
- ☐ I don't have a social networking profile

25. Roughly how many people are you in contact with when using [social networking profile]?

- ☐ Up to 10
- ☐ 11-50
- ☐ 51-100
- ☐ 101-300
- ☐ More than 300
- ☐ Don't know/can't remember

26. Your type of connection in social networking?

- ☐ Real friends
- ☐ Family
- ☐ Relatives
- ☐ Strangers
- ☐ Mutual friends
- ☐ Don't know/can't remember

27. Is your profile set to...?

- ☐ Public, so that everyone can see it
- ☐ Partially private, so that friends of friends or your networks can see Private so that only your friends can see
- ☐ Don't know

28. How do you generally respond to requests from people to become your 'friends' on your social networking sites / Apps?

- ☐ I generally accept all requests
- ☐ Accept only if we have friends in common (mutual friends)
- ☐ Accept only if I know them
- ☐ Accept only if I know them very well
- ☐ Don't know/Can't remember

29. How true is this about you?

1- Not true
2- A bit true
3- Very true
4- Don't know

I know more about the Internet than my parents	1	2	3	4
I know more about the Internet than my teachers	1	2	3	4
I know more about the Internet than my friends	1	2	3	4
I know more about the Internet than my siblings	1	2	3	4
I know lots of things about using the Internet	1	2	3	4
There are lots of things on the Internet that are good for children of my age	1	2	3	4
I know more about using smartphones than my parents	1	2	3	4
I know more about using smartphones than my teachers	1	2	3	4
I know more about using smartphones than my friends	1	2	3	4
I know more about using smartphones than my siblings	1	2	3	4

30.

Which of these things do you know how to do on the Internet?	Yes	No	Don't know
Compare different websites to decide if information is true			
Change filter preferences			
Bookmark a website			
Block unwanted adverts or junk mail/spam			
Delete the record of which sites you have visited			
Change privacy setting on a social networking profile			
I know how to use 'report abuse' buttons (e.g. the button you can use when you want to report an un-authorised usage of your picture)			
Block messages from someone you don't want to hear from			
Block pop ups (unrequested windows that appear during web surfing)			
Find information on how to use the Internet safely			
Publish a comment on a blog, websites or forum			
Upload images videos or music onto social media			
Edit images videos or music onto social media			
Create a blog			

31.

Which of these things do you know how to do on a smartphone or tablet?	Yes	No	Don't know
Download apps			
Deactivate the function showing your geographical position (on Facebook, Google Maps, etc?)			
Connect to a wifi network from your smartphone/tablet/laptop?			
Block push notifications from different apps			
Have the same documents, contacts, and apps on all devices that you use (smartphones, tablets, PCs)			
Block pop ups which promote apps, games or services you have to pay for (unrequested windows that appear during web surfing)			
Protect a smartphone with a PIN/with a screen pattern			
Update your status on the social networking site used the most			
Find information on how to use smartphones safely			
Compare different apps with similar functions in order to choose the one that is most reliable			
Take a picture or a short video with your smartphone and upload it onto social media			
Edit picture or a short video with your smartphone and upload it onto social media			

32. Please indicate how accurate the following statements are when thinking about how you use the Internet.

1 - Not true
2- A bit true
3- Very true

I know how to open downloaded files	1	2	3
I know how to download/save a photo I found online	1	2	3
I find it hard to decide what the best keywords are to use for online searches	1	2	3
I find it hard to find a website I visited before	1	2	3
I find it hard to decide what the best keywords are to use for online searches	1	2	3
I find it hard to find a website I visited before	1	2	3
I know which information I should and shouldn't share online	1	2	3
I know when I should and shouldn't share information online	1	2	3
I know how to create something new from existing online images, music or video	1	2	3
I know how to make basic changes to the content that others have produced	1	2	3
I know how to install apps on a mobile device	1	2	3
I know how to download apps to my mobile device	1	2	3
I know how to keep track of the costs of mobile app use	1	2	3

33. In the past 12 months, how often have you seen or experienced something on the Internet that has bothered you in some way? (e.g. made you feel uncomfortable, upset or feel that you shouldn't have seen it)

- Several times each day ☐
- Daily or almost daily ☐
- At least every week ☐
- Less often ☐
- Never ☐

34. If you have seen or experienced something on the Internet that has bothered you in some way, did you talk to anyone of these about it? Yes / No

- My mother or father ☐
- My brother or sister ☐
- A friend ☐
- A teacher ☐
- Someone whose job it is to help children ☐
- Another adult I trust ☐
- Someone else ☐
- Don't know ☐

35. In the PAST 12 MONTHS, has someone treated you in this kind of [hurtful and nasty] way and if so, how upset were you about happened?

- Yes, and I was very upset ☐
- Yes, and I was a little upset ☐
- Yes, but I was not at all upset ☐
- No, I haven't experienced this ☐
- *Don't know* ☐
- *Prefer not to say* ☐

36. If someone has treated you in this kind of way, how did it happen?... (tick all that apply)

In person face to face (a person that is together with you in the same place at the same time)	
By mobile phone calls	
By messages sent to me on my phone (SMS/TEXT or MMS)	
On a social networking site (e.g. Facebook, Twitter etc.)	
On a media sharing platform (YouTube, Instagram, Flickr)	
By instant messaging (MSN, What's app, Skype etc.)	
In a chatroom	
By e-mail	
In a gaming website	
Other	
I haven't experienced this	
Don't know	
Prefer not to say	

37. In the past year, you will have seen lots of different images… Sometimes these might be obviously sexual… In the PAST 12 MONTHS, have you seen anything of this kind and if so, how upset were you by what you saw?

Yes, and I was very upset	☐
Yes, and I was a little upset	☐
Yes, but I was not at all upset	☐
No, I haven't experienced this	☐
Don't know	☐
Prefer not to say	☐

38. In the past 12 months, have you seen websites where people discuss…?

1- Yes
2- No
3- Don't know
4- Prefer not to say

Ways of physically harming or hurting themselves	
Ways of committing suicide	
Ways to be very thin (such as being anorexic or bulimic)	
Hate messages that attack certain groups or individuals	
Talk about or share their experiences of taking drugs	
Gory or violent images	

39. In the past 12 months, has any of the following happened to you on the Internet?

1- Yes
2- No
3- Don't know
4- Prefer not to say

Somebody used my personal information in a way I didn't like	
The computer got a virus	
I lost money by being cheated on the Internet (we mean real money, rather than money in a computer game)	
Somebody used my password to access my information or to pretend to be me	
Somebody created a page or image about me that was hostile or hurtful	

40. Have you ever had contact on the Internet with someone you have not met face to face before? Yes /No

41. In the PAST 12 MONTHS, have you ever met anyone face to face that you first got to know on the Internet and if so, were you at all upset by what happened or wish that you had not done it?

Yes, and I was very upset	☐
Yes, and I was a little upset	☐
Yes, but I was not at all upset	☐
No, I haven't experienced this	☐
Don't know	☐
Prefer not to say	☐

42. In the PAST 12 MONTHS, have you received sexual messages of this kind (this could be words, pictures or videos) and if so, how upset were you?

Yes, and I was very upset	☐
Yes, and I was a little upset	☐
Yes, but I was not at all upset	☐
No, I haven't experienced this	☐
Don't know	☐
Prefer not to say	☐

Part 4 : Mediation

43.

Does your parents/do either of your parents sometimes...	Yes	No
Talk to you about what you do on the Internet?		
Encourage you to explore and learn things on the Internet?		
Sit with you while you use the Internet?		
Stay nearby when you use the Internet?		
Do shared activities together with you on the Internet?		
Talk to you about what you do on the Internet?		

44. For each of these things, please tell me if your parents CURRENTLY let you do them whenever you want, or let you do them but only with your parent's permission or supervision, or NEVER let you do them.

1- Can do this anytime
2- Can only do this with permission or supervision
3- Can never do this
4- Don't know

Have your own social networking profile	
Give out personal information to others on the Internet	
Use instant messaging	
Download music or films on the Internet	
Watch video clips on the Internet	
Upload photos, videos or music to share with others	
Download free apps	
Pay for downloading apps	
Register my geographical location(using Facebook, Foursquare, etc.)	
Use instant messaging (MSN, What's app, Skype etc.)	

45. Has your parent/either of your parents ever done any of these things with you?	**Yes**	**No**
Helped you when something is difficult to do or find on the Internet		
Suggested ways to use the Internet safely		
Explained why some websites are good or bad		
Suggested ways to behave towards other people online		
Helped you in the past when something has bothered you on the Internet		
In general, talked to you about what to do if something on the Internet bothered you		
46. Does your parent/either of your parents sometimes check any of the following things afterwards?	**Yes**	**No**
Which websites you visited		
Which friends or contacts you add to your social networking profile/instant messaging service		
The messages in your email or instant messaging account		
Your profile on a social networking or online community		
47. Does your parent/do your parents make use of any of the following...?	**Yes**	**No**
Parental controls or other means of blocking or filtering some types of website		
Parental controls or other means of keeping track of the websites you visit		
A service or contract that limits the time you spend on the Internet		
Software to prevent spam or junk mail/viruses		
Sometimes take my phone to see what I am doing or who I am in touch with		
Make rules about how mobile phones are used		
Make rules about how smartphones are used		
Don't make rules, but sometimes they confiscate it for a period (1 day, 1 week, etc.)		
There are no rules in my home		
48. Have your friends ever done any of these things?	**Yes**	**No**
Helped you when you found something difficult to do or find on the Internet		
Suggested ways to use the Internet safely		
Encourage you to explore and learn things on the Internet?		
Explained why some websites are good or bad		
Suggested ways to behave towards other people on the Internet		
Helped you in the past when something has bothered you on the Internet		
Helped you when you found something difficult to do or find on the Internet		
Suggested ways to use the Internet safely		
Encourage you to explore and learn things on the Internet?		

49. Have you ever suggested ways to use the Internet safely for your friends	Yes	No

50. Have your siblings ever done any of these things?	Yes	No
Helped you when you found something difficult to do or find on the Internet		
Suggested ways to use the Internet safely		
Encourage you to explore and learn things on the Internet?		
Explained why some websites are good or bad		
Suggested ways to behave towards other people on the Internet		
Helped you in the past when something has bothered you on the Internet		
Helped you when you found something difficult to do or find on the Internet		
Suggested ways to use the Internet safely		
Encourage you to explore and learn things on the Internet?		
51. Have any teachers at your school ever done any of these things?	**Yes**	**No**
Helped you when you found something difficult to do or find on the Internet		
Suggested ways to use the Internet safely		
Encourage you to explore and learn things on the Internet?		
Talked to you about what you do on the Internet		
Explained why some websites are good or bad		
Suggested ways to behave towards other people online		
Made rules about what you can do on the Internet at school		
Helped you in the past when something has bothered you on the Internet		
In general, talked to you about what you would do if something on the Internet ever bothered		
Check if students have their mobile phones/smartphones on or off		
Sometimes take my phone to see what I am doing or who I am in touch with		
Make rules about how mobile phones are used		
Make rules about how smartphones are used		
Don't make rules, but sometimes they confiscate it for a period (1 day, 1 week, etc.)		
There are no rules in my school		

52. How much do you think your parent(s) knows about what you do on the Internet?

- A lot ☐
- Quite a bit ☐
- Just a little ☐
- Nothing ☐
- *Don't know* ☐

53. Overall, would you like your parent(s) to take more or less interest in what you do on the Internet, or to stay about the same?

- A lot ☐
- Quite a bit ☐
- Just a little ☐
- Nothing ☐
- *Don't know* ☐

-THANK YOU-

APPENDIX F

Images from Home and School Visits

Due to the limitation of word count, space and time (as mentioned in Section 6.3), I was unable to analyse in-depth the images shown below in the main body of my thesis text. As you can see, these screenshots clearly show the variety of graphic details of the participants during home and school visits. These images also reveal the high level of digital literacy possessed by participating children in my study. Children in my study were found to be very confident in handling digital tools when they went online. As can be seen from the images, participating children were involved in many online activities. The children in these images also can be seen using sophisticated and complex software such as *Audacity (audio editor), GIMP (photo editor), Lightworks (video/film editor)*. Further, one of the participants, Haziq, is portrayed enjoying the complexity of the online games which required him to multi-task at the highest level because as a gamer for the Dota game, one needs to keep moving the *mouse*, interact with your team members using a *microphone*, communicate using the *video* tools and at the same time apply strategies in order to win the game.

Meanwhile, in addition to the software mentioned above, in these images the children in my study also can be seen to be highly engaged with YouTube and Google as platforms for seeking information. For YouTube, participating children in my study were found to use many functions such as *search* and *playlist* button for searching the video; and *view* and *ratings* buttons to evaluate each video from results. The children were also found to use GoogleDrive for online data storage, Microsoft Word (*Spelling and Grammar functions*) and also showed a high level of skills in using the multiple *icons* in FrogVLE. From these images, it also can be seen that the majority of the participants used multiple digital devices (e.g. smart phone, iPad and laptop) at the same time especially when they were doing their homework and school project.

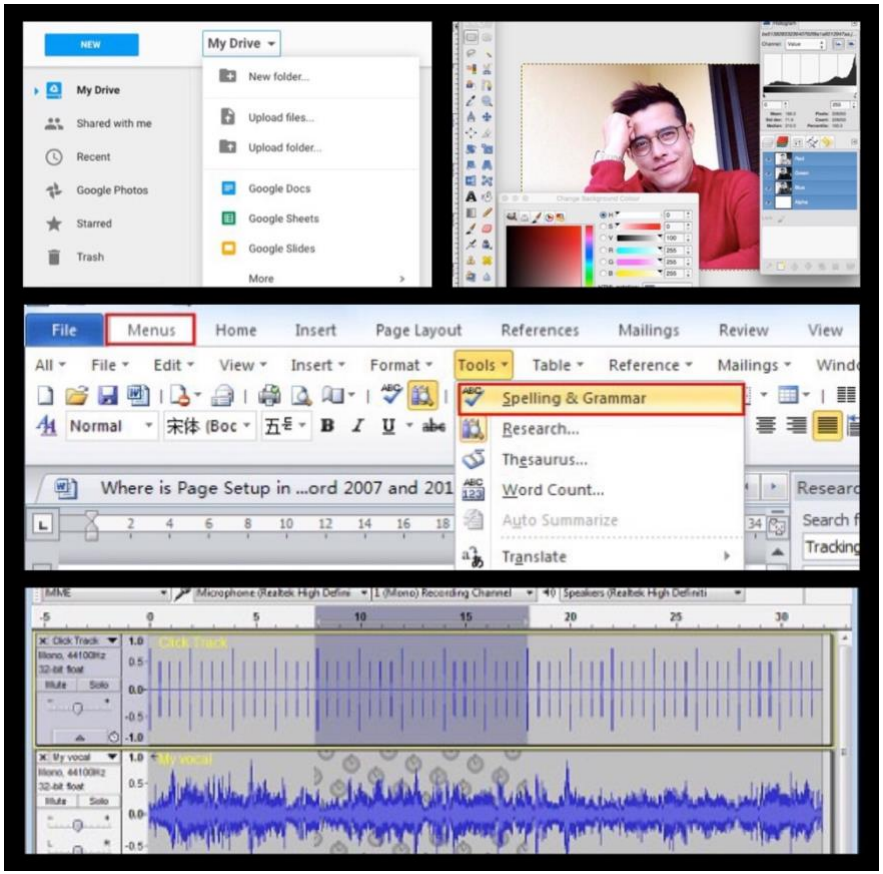
The mediating process as occurred during the home observations such as the co-use mediation that took places in communal areas at home and inside the bedroom

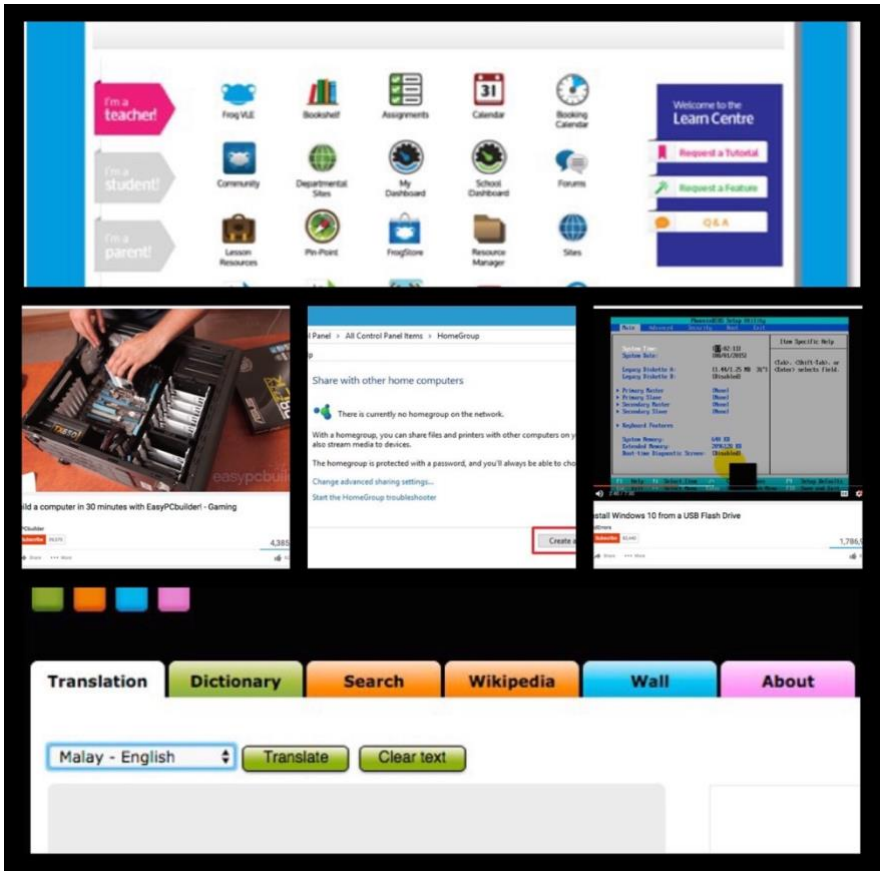
between *son-mother, daughter-mother, elder brother-younger sister* and also *elder sister-younger brother* is also revealed in the images.

In conclusion, I hope these images can provide more inputs and show the complex variety of digital tools and digital devices, and the knowledge and skills possessed by my participants in order to "access, understand, analyse and evaluate information, make meaning, express thought and emotions, present ideas and opinions, interact with others and participate in activities… in their lives" (AC, n.d).

Digital literacy skills possessed by participants during home observations: From left, Hanna, Hazaq and Chichi

Digital literacy skills possessed by participants during home observations: From left, Bella and Fairuz





Digital literacy skills possessed by participants during school observations