MALAYSIAN PRIMARY SCHOOL TEACHERS’ USE OF AND COGNITIONS ABOUT DIGITAL TECHNOLOGY FOR ENGLISH AS A SECOND LANGUAGE LITERACY INSTRUCTION: A CASE-BASED INVESTIGATION

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Declaration

I confirm that this thesis is my own work and that it has not been submitted elsewhere for another degree or qualification.

Saiful Izwan Bin Zainal
Abstract

There have been few descriptive and in-depth studies of the use of digital technology (DT) in literacy instruction among teachers of English as a second/foreign language, especially in relatively low-resource contexts, and there has been limited research which investigates teachers’ cognitions about this use in detail. Understanding the teaching context and teacher cognition are important for improving the quality of teaching and learning in countries like Malaysia, for example via teacher education initiatives. The prime objectives of this study are: 1) to explore how Malaysian teachers use DT for English literacy instruction in the classroom; 2) to examine the nature of Malaysian teachers’ cognitions about (the use of) DT in ESL literacy instruction; 3) to investigate the sources of teachers’ cognitions; and 4) to examine how cognitions are related to actual use. The study utilises an exploratory case study approach, concentrating on three teachers in a rural context in Malaysia. The teachers were observed and interviewed, and the findings were triangulated in a structured analysis process. The results show that although these teachers believe in the capabilities of DT in improving teaching, they have concerns regarding the implementation of the use of technology. In addition, the teachers also face various challenges (mostly in extrinsic forms) that sometimes create obstacles for them to use DT in their teaching. However, intrinsic factors are seen to have a positive influence on their efforts to continue using DT in the classroom. The involved teachers try to balance their perceptions on the use of DT in the classroom, taking into account the positive and negative factors that will arise. These factors are not only dependent on intrinsic factors involving cognition and their experience using DT, but also external contextual and social factors such as student discipline, technical problems, school culture, availability of and access to DT, and so on. Given the importance of DT in the context of education in developing countries such as Malaysia, as well as the importance of understanding teacher cognition related to this aspect, this study has significant implications for researchers, teacher education, curriculum developers, teachers, students and more. This study proposes a modification of Borg’s (2003) model of teacher cognitions, highlighting the importance of considering contextual factors that influence all aspects of teacher cognition (i.e. early formal and informal education/experiences, teacher training and professional development and classroom
practice). The model also shows that contextual factors are influential over different phases of a teacher’s life. Overall, this study also makes a contribution to research in its methodology in that it provides an in-depth qualitative study. The findings indicate that teaching experience builds knowledge of teaching methods and forms teachers’ teaching practices.
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tr>
<td>DT</td>
<td>digital technology</td>
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<tr>
<td>ESL</td>
<td>English as a Second Language</td>
</tr>
<tr>
<td>Frog VLE</td>
<td>Frog Virtual Learning Environment</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>Int1</td>
<td>Interview 1</td>
</tr>
<tr>
<td>Int2</td>
<td>Interview 2</td>
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<td>Int3</td>
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<td>Int4</td>
<td>Interview 4</td>
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<tr>
<td>IntSR</td>
<td>Stimulated recall interview</td>
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<tr>
<td>IPG</td>
<td>Institut Pendidikan Guru (Institute of Teacher Education)</td>
</tr>
<tr>
<td>J-Qaf</td>
<td>Jawi, al-Quran, Arab, Fardu Ain (Quranic reading proficiency programme)</td>
</tr>
<tr>
<td>KSSR</td>
<td>Kurikulum Standard Sekolah Rendah (Standard Curriculum for Primary Schools)</td>
</tr>
<tr>
<td>LCD</td>
<td>liquid crystal display</td>
</tr>
<tr>
<td>mIRC</td>
<td>Internet Relay Chat</td>
</tr>
<tr>
<td>MOE</td>
<td>Ministry of Education Malaysia</td>
</tr>
<tr>
<td>MPIK</td>
<td>Maktab Perguruan Ilmu Khas (Specialist Teacher’s Institute)</td>
</tr>
<tr>
<td>MUET</td>
<td>Malaysian University English Test</td>
</tr>
<tr>
<td>TESL</td>
<td>Teaching English as a Second Language</td>
</tr>
<tr>
<td>UM</td>
<td>University of Malaya</td>
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<tr>
<td>UPSR</td>
<td>Primary School Assessment Test</td>
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CHAPTER 1: INTRODUCTION

In this introductory chapter, I will provide a description of the background to the study (1.1) and a statement of the main problem the study seeks to address (1.2). This will be followed by a rationale for the study (1.3) and a preliminary indication of its significance (1.4). I will also outline the research objectives (1.5) and research questions (1.6) that underpin the study. Finally, the research context will be described, specifically regarding English as a Second Language (ESL) literacy instruction (1.7) and the use of digital technologies (1.8). In this study, the terms digital technology (DT) and Information and Communication Technology (ICT) are used interchangeably because these two terms are treated as largely synonymous in the research context, both referring to technology that assists the teaching and learning process.

1.1 Background of the study

New technologies have resulted in changes to teaching and learning, producing teaching content that is more multimodal in nature compared with traditional teaching methods. The development of ICT and the Internet have generated keen interest in the use of DT in Malaysia. The role of DT in society has been described extensively in the national plan, Vision 2020, where ICT is to be incorporated systematically into the national economy, commerce, and, above all, the Malaysian education system (Government of Malaysia, 2006). Broadly, the objectives in the Vision 2020 plan seek to expand and maximise the use of ICT. Aspects such as the development of the country's educational system, including DT, are addressed in a structured and comprehensive manner to ensure that the progress of Malaysia’s educational system is in line with other national development objectives. With this specific goal in mind, the government has placed great emphasis on the use of DT in teaching and learning, especially for English language education, because of the language’s status as the de facto international language (Government of Malaysia, 2006). This is one of the key government initiatives working towards establishing a democratic country with knowledgeable, competitive and productive citizens (Bakar & Mohamed, 2006).
The national plan highlights the importance of the English language, which is the national second language of Malaysia. However, previous studies have shown that DT is not widely used when teaching English (Cheok, Wong, Ayub & Mahmud, 2017). Several studies have highlighted Malaysian English teachers’ concerns and anxieties in relation to using DT in teaching, citing low levels of English competency and a lack of training and resources, as reasons for not using DT (Che Had & Ab Rashid, 2019). Teachers are also reported to have minimal creativity and low motivation when it comes to the use of DT in the classroom (Wong & Teo, 2009). Aside from this work, not many studies have reported specifically on teachers’ cognitions about and uses of DT in ESL literacy instruction, especially their explanations of why and how they use DT in their classrooms (Wong & Teo, 2009)

Given the importance of English proficiency in Malaysia for educational, financial, and social purposes, and the widespread distribution of technology to support this end, investigating teachers’ cognitions about and uses of DT in ESL literacy instruction is of the utmost importance. Moreover, understanding this in relation to the sociocultural context is essential because contextual factors influence the way teachers conceptualise their use of DT and teach English literacy in real life. Specifically, in this study, I focus on classrooms in rural areas as a research setting, for several reasons. Firstly, I found that the study of teachers’ cognitions in such settings has been particularly neglected. I was raised in a family of educators, where both my parents and most of my siblings are educators, and I feel that studies exploring the voices and thoughts of teachers are very important in shaping the education system in a country. As someone who grew up and went to school in a rural area of Malaysia, I feel, in particular, that studies involving under-resourced classrooms are important, given that most classrooms around the world are of this kind, but that such studies are still generally lacking. My own teaching experience in a rural school led me to become interested in the use of DT in the teaching and learning process and to the belief that the use of DT is very important in ensuring that students acquire both the literacy and the ICT the skills they need in this era. My hope is that this study may be helpful in identifying issues related to the use of DT for ESL literacy instruction in rural areas which can then be resolved if proper steps are taken. Thus, I feel that a case study of teacher cognitions in a rural, under-resourced teaching context will fill a particular gap
in the Malaysian context as well as increase our broader knowledge in the area of teacher cognition about and use of digital technology in ESL literacy instruction.

1.2 Overview of the issue

Past studies have provided evidence of students’ active engagement with DT tools in literacy learning, particularly outside the classroom (Coiro, Knobel, Lankshear, & Leu, 2008; Rhodes & Robnolt, 2009). As a result of student use of social media, text messaging, blogging, gaming, and more, many students have developed competent digital literacy skills (MacArthur, 2006; Prensky, 2005).

Students of this generation are more comfortable with technology and digital literacies (Che Had & Ab Rashid, 2019). (See 2.1.1 below for further definition and consideration of digital literacies). Their education process is profoundly impacted by screen-based messages that solidify various methods of semiotic representations (Kress, 2005; Lankshear & Knobel, 2006). However, although positive outcomes have been identified in previous research pertaining to the use of ICT in the teaching and learning process, the benefits of ICT in ESL teaching remain unclear (Md Yunus, Nordin, Salehi, Embi & Salehi, 2013). DT is prevalent in today’s society, and engagement with technology outside the classroom will have an impact on students’ literacy practices. Students who grow up in an environment which features computer technology will become competent using DT tools. Therefore, it is considered essential for teachers to utilise DT in literacy and language instruction to relate to students’ lives and learning processes (Che Had & Ab Rashid, 2019).

Every teacher has diverse views about teaching and learning, as well as different DT skills, and different levels of motivation with regard to using technology in his or her classroom (Abdullah & Abbas, 2006). Moreover, measuring teachers’ perspectives and cognitions is not easy but investigating these is of the utmost importance because they influence teachers’ instructional practices as well as the quality of their teaching (Borg, 2003; Edwards, Martin, Protacio & Razali, 2010). From the perspective of English education, teacher attitudes and cognitions influence instructional conduct, the methodologies used when teaching, the themes selected to explain, the materials utilised, and levels of acceptance towards the program
recommended by the institutions or the Ministry of Education (Borg, 2003; Brindley & Schneider, 2002).

A few studies reveal that teachers do not use DT as it should be used, primarily in English classes (Chan & Han, 2005; Chong, Tan & Abdullah, 2011), and there are many concerns relating to administrative, personal, professional, and technical issues that could arise when DT is used in teaching (Abdul Razak, Embi, Mustapha & Lubis, 2009; Che Had & Ab Rashid, 2019; Lau & Sim, 2008; Samuel & Abu Bakar, 2007; Thang Murugaiah, Lee, Azman, Tan and LeeT, 2010). It is worrying that, despite the DT tools accessible in most Malaysian schools, Malaysian students are decreasingly proficient in English and are not performing as expected in national examinations, especially in the writing section, which is perceived as the most crucial (Chong et al., 2011). In English teaching, commonly, teachers recognise the need to use DT to help them in their work (Chong et al., 2011; De Rycker & Ponnudurai, 2011). Evidence shows that Malaysian English teachers who have utilised DT report the benefits and convenience of DT in English instruction (Kumar, Che Rose & D'Silva, 2008; Wong & Teo, 2009). Overall, Malaysian people recognise the role of English as the national second language and its significance as a language of instruction in the global community (Government of Malaysia, 2006).

Teachers' use of DT for instructional purposes has been found, at times, to not meet their pedagogical goals (Koehler & Mishra, 2009). Che Had and Ab Rashid (2019) reported that a lack of school support, as well as reluctance from teachers, are barriers to the integration of ICT in the classroom. A review of related literature demonstrates that there has been minimal descriptive and in-depth research on Malaysian English teachers’ cognitions about the use DT in English literacy instruction, and there are very few reports of their actual use of DT. This is an issue that should be addressed because teachers' cognitions towards DT, and their subsequent use of DT, are directly related, and knowledge of these elements is imperative for enhancing the quality of teaching and learning (Koehler & Mishra, 2009). Furthermore, most previous research in this field has been conducted using quantitative methods, which do not give sufficient insights into teachers’ cognition, views, concerns, and their actual uses of DT in English education, as well as in English literacy instruction.
Providing DT tools in English education, and in particular in English literacy instruction, must go beyond the procurement of technical training in ICT and technological infrastructure to encompass the broader social context (Abdul Aziz, 2008). Despite the Malaysian government’s ambition to maximise the potential of DT in education, actual use of DT among teachers varies (Abdullah & Abbas, 2006). This does not just depend on individual teachers but also on their teaching context, because they need support from their school and other regulatory bodies (Abdul Aziz, 2008).

1.3 Rationale for the study

There is significant need for a study that will investigate the utilisation and cognitions of Malaysian teachers in connection with DT in English literacy instruction. Knowledge of teacher cognition about DT, and their actual use of this technology, in teaching English literacy is important, particularly to stakeholders in the education sector, to allow them to correctly plan how to maximise the use of DT in education. Teachers play a significant role in the technology adoption process and their cognitions, which drive their teaching practices, are an essential element. Therefore, it is a priority for us to realize that teachers and their cognitions play a key role in the implementation of any innovation for education (Borg, 2006). Qualitative studies such as case studies can address in depth the nature of teachers’ cognitions about DT and English instruction; their actual usage of DT in English literacy instruction; and their bases for doing as such. Furthermore, these studies must be done while taking into consideration the sociocultural components that influence teachers’ attitudes.

Given the status of English in Malaysia, the role of literacy as an important component in education, and the role of DT in the education system in Malaysia, Malaysian teachers’ cognitions about and utilisations of DT in English literacy instruction need to be investigated. To do so, I will employ a multiple case-study approach to find out about teacher cognitions towards and uses of DT in English literacy instruction in Malaysia, and how they relate to and affect each other.
1.4 The development of English as a second language education in Malaysia

Generally, Malaysian students rely on their teachers to explain everything and educate them in great detail. Teachers are seen as a source of reference to correct any errors related to English (Ali & Md Yunus, 2005; Thang & Alias, 2000; Vengadasamy, 2006). High respect for teachers is a reflection of the Asian culture and also the approach of the British education system (Al-Tamimi & Shuib, 2009; Thang & Alias, 2000). Students in Malaysia are taught four English language skills, namely writing, reading, speaking and listening (Tan, Mohamed & Kim, 2009) from as young as five or six years old (Jalaluddin, Mat Awal & Abu Bakar, 2008). Most English lessons become very content-based, and the syllabus is geared to national examinations (Thang & Kumarasamy, 2006). Lessons are based on the themes or topics contained in the syllabus, and these topics include several areas, from science to current issues (Abu Bakar, 2007). Malaysian classrooms are commonly teacher-centred (Gaudart, 1999) and this teaching approach was found to be favoured by students (Al-Tamimi & Shuib, 2009; Thang & Alias, 2000). Thang and Alias (2000) claim that Malaysian is seen as the source of knowledge and an important asset for the students, and students feel able to put their trust in teachers as a sign of respect.

English became Malaysia’s second official language after the Malay language after Malaysia's independence (Had Salleh, 2003). Before Malaysia gained independence in 1957, English was widely used and was considered as important as the national Malay language (Hussin, 2008), and at that time, most Malaysians were bilingual, as the language of instruction and learning materials in schools was in English. English continued to be used as a formal language of education until 1975 when a new policy was introduced specifying that all instruction was to be conducted in Malay (David, Cavallaro & Coluzzi, 2009). The new policy was intended to heighten the spirit of nationalism among Malaysians, as well as support the government's efforts to establish Malaysia as an independent country with its own individuality (David et al., 2009). The policy, therefore, reduced the role and use of the English language (David et al., 2009). Although English was still officially a second language, English language education was given less attention. English then came to be perceived as a foreign language rather than a second language over the next
few decades, especially in less developed areas in Malaysia, where local ethnic groups had very limited exposure to the English language (Hussin, 2008).

Moreover, the English language was recognised as an important language to acquire knowledge and advantages in many aspects following the introduction of information and communication technology (ICT) and the Internet. Consequently, English language education, particularly English literacy, became an important subject in school, because of the importance of mastering English literacy for national examinations, for admission into universities, and also for future career paths (Mansor, 2008).

1.5 **Significance of the study**

It is anticipated that by conducting this study, I will be able to supplement the research in this area that is very limited. This study will contribute to the field of education in Malaysia and beyond, particularly concerning the importance of DT in teaching English, specifically in ESL literacy instruction.

There is a need to address how primary teachers use DT in the classroom because primary teachers first expose students to English literacy and are important in this respect in the students’ language-learning journeys. At the same time, the study can be expected to reveal other elements such as teachers’ anxiety about the use of DT in instruction. Whereas most research, in the Malaysian context, concentrates on the successes and/or failures of certain techniques, approaches, and strategies in the utilisation of DT in English education in general. These previous investigations, furthermore, have a tendency to draw upon large scale quantitative methodologies, or are smaller studies concentrating on discrete phenomena. However, primary school teachers have been largely excluded. There is a need to address this issue, as teaching English literacy can be enhanced through an understanding of how educators see and use DT in the classroom.

In conclusion, there is insufficient research on primary school teachers’ cognitions and uses of DT in English literacy instruction. The exploratory and descriptive nature of this study, therefore, is significant to inform current and future teachers, researchers, curriculum developers, and policy-makers on the utilisation of
DT in English literacy instruction in Malaysia, and the current concerns with regard to DT in English literacy instruction.

1.6 Research questions

This study is guided by four research questions:

1. How do Malaysian teachers use DT for ESL literacy instruction in the classroom?
   1.1 What are their overall ESL literacy instruction practices?
   1.2 How do they use DT within those practices?

2. What is the nature of Malaysian teachers’ cognitions about (the use of) DT in ESL literacy instruction?
   2.1 What are their cognitions about ESL literacy instruction in general?
   2.2 What are their cognitions about the role of DT in ESL literacy instruction?

3. Where do the teachers’ cognitions about the use of DT in ESL literacy instruction come from?
   3.1 Where do their cognitions about DT come from?
   3.2 Where do their cognitions about the use of DT in ESL literacy instruction come from?

4. How are Malaysian teachers’ cognitions about DT related to their use of DT in ESL literacy instruction?

It is expected that the findings from this study will provide useful input in the preparation of a pedagogical framework in the context of under-resourced language-learning classrooms.
1.7 Overview of digital technology (DT) in Malaysian education

The next section details the development of DT usage in the education sector in Malaysia, including the role of DT in teacher training and professional development and the implementation of Smart Schools.

1.7.1 Advancement of DT in the Malaysian education system

Large capital investment has been allocated by the MOE over the last two decades to provide DT tools to schools across Malaysia (Che Had & Ab Rashid, 2019). The use of DT in schools in Malaysia is not an unusual concept (Abu Bakar, 2007). The Vision 2020 project, an initiative of the Malaysian government to promote the development of the country in various sectors is the most comprehensive plan to incorporate DT into daily life. Through the Vision 2020 policy, the MOE launched a transformation of the national education system, and the use of information and communication technology (ICT) was one of the core concepts proposed (Bakar & Mohamed, 2008; Che Had & Ab Rashid, 2019). The concept envisioned a system that could control the collection of information, management, access, and communication in various forms (Government of Malaysia, 2006). According to Vision 2020, ICT development implemented in the education system in Malaysia is for use by all students acts as a tool for teaching and learning, as a subject in itself, and as part of every subject; and will be applied to improve productivity, efficiency and effectiveness in the management system (Government of Malaysia, 2006).

Vision 2020 requires constant development of the nation and can only be accomplished with the progress of citizens who are able to engage adequately in the global economy of the 21st century (Government of Malaysia, 2006). To actualise this policy, the MOE has provided ICT learning tools to all public schools to accommodate teachers and students in teaching and learning. For instance, in English instruction, English textbooks are equipped with CD-ROMs that are devised to meet the necessities of students and allow students to improve independent skills in literacy (Ng, 2007). Other than that, the MOE provided training to teachers, administrators and other staff in the use of ICT, as well as created instructional materials such as electronic books and other electronic learning tools (Bakar & Mohamed, 2008; Chan,
2002; Che Had & Ab Rashid, 2019). The Moe also has provided Internet facilities and computer laboratories to schools to facilitate the process of teaching and learning. (Bakar & Mohamed, 2008; Che Had & Ab Rashid, 2019).

Nowadays, teachers in schools are expected to reject traditional methods, namely the ‘chalk and talk’ method (Rahamat, 2019), and refusal to change from old teaching practices is deemed unacceptable (Cheok et al., 2017). However, the support system provided to support each educational reform in Malaysia is still incapable of assisting teachers to master the skills required to achieve the objectives (Che Had & Ab Rashid, 2019). Apart from providing support system operated by skilled trainers, the MOE needs to ensure that the initiatives that are being implemented have been thoroughly examined by experts to ensure their effectiveness (Che Had & Ab Rashid, 2019).

1.7.2 Malaysian Smart Schools initiative

In 1997, the MOE launched an initiative to promote the use of ICT in schools, known as the Smart School (Che Had & Ab Rashid, 2019). The first step in this program is to introduce students to computers, related applications, courseware and software in schools, in addition to using DT in the teaching and learning process (Abdul Kader, 2007). The project attempts to make the learning process more reflective, individually paced, self-directed, and contextualised by optimising the use of computer technology as the main medium (Abdul Razak et al., 2009). The main idea behind the Smart School program is to provide teaching and learning practices that are appropriate to the students’ academic levels by integrating a variety of methods in pedagogical practices (Abu Bakar, 2007). Other software is also used to manage and administer enrolment, school finances, human resources, amenities, facilities at the hostel, and other educational resources (Abdul Kader, 2007).

The Smart School project includes many inter-related initiatives, including training for teachers and administrators, upgrading school infrastructure, and developing the management of the national school system to link the school with the surrounding communities (Abdul Kader, 2007). The main features of the Smart School project are the alignment of the curriculum, pedagogy, assessments and teaching materials to match the aspirations of the government in equipping students for the
To optimise the effectiveness of this project, teachers are given training by the MOE to develop proficiency, performance and knowledge in the use of ICT in teaching, and usually the training is provided at teacher training centres or institutions recognised by the government (Che Had & Ab Rashid, 2019; Thang et al., 2010). This project is a national plan to reinvent education institutions in Malaysia in terms of teaching and learning, as well as school management, to prepare students to face the new millennium (Abu Bakar, 2007).

Because of economic and global changes, particularly the national economic crisis from 2007 to 2010, the Malaysian Prime Minister amended the Vision 2020 project. Even though the Malaysian government is still pursuing Vision 2020, a few changes have been made in recent years. Malaysia is now expected to become a ‘developed’ country by 2030, ten years after the original deadline (Pakiam & Adam, 2009). The government continues to provide DT-based lesson resources and materials and continues the development of DT in schools (Che Had & Ab Rashid, 2019). Meanwhile, integration and implementation of ICT in the education system in Malaysia is still being actively carried out, particularly in the form of teaching and learning using DT. Other initiatives such as cluster schools were also established, where excellent schools in their clusters in terms of school management and student achievement were selected, and their teachers were sent to receive training for ICT based on their teaching options, and they are expected to integrating the use of ICT in the classroom (Che Had & Ab Rashid, 2019).

1.7.3 DT in professional development and teacher training

To be teachers who remain relevant in the ICT era, proper training has been provided by the MOE to equip them with the necessary skills. Teachers in training are required to undergo instruction in ICT in education provided by the institutions of higher learning since ICT is now a compulsory subject in teacher training in Malaysia (Mahmud & Hj. Ismail, 2010). These courses cover basic computer literacy skills and Smart School preparation (Che Had & Ab Rashid, 2019; Government of Malaysia, 2006). Training is provided by various agencies in the MOE, such as introductory courses to computer technology organised by the Teacher Education Division, the
Examinations Syndicate, and the Educational Technology Division (Chan, 2002). In addition, teacher training institutions and other agencies, whether from inside or outside the ministry, have provided continuous training to educators (Jamil, Abdul Razak, Raju & Mohamed, 2011).

Teachers can also receive qualifications for their competency in DT skills (Mahmud & Hj. Ismail, 2010). In-service teachers are also given short courses and workshops in basic ICT from time to time (Mahmud & Hj. Ismail, 2010). Furthermore, all teacher-training programs related to English education in public teacher education institutions offer courses on electronic literacies including online, multimedia, and computer-mediated communication (Abdul Aziz, 2008; Che Had & Ab Rashid, 2019). The MOE also collaborates with other agencies to provide specialised training in the field of management using ICT, as well as ICT and strategic leadership to help school administrators (Jamil et al., 2011). In addition to the government’s in-service training conducted twice a year, schools are encouraged to organise training to hone the skills of in-service teachers in ICT (Jamil et al., 2011). All of this training follows a specific course model, and thus teachers will undergo appropriate training before they train their colleagues at their respective schools (Chan, 2002). Curriculum Development Centres also train teachers, particularly in ICT literacy and how to use ICT in the classroom (Chan, 2002).
In this chapter, I will present an overview of literature related to the study, including the latest debates in the field, relevant research, and the rationale for this study. The chapter begins by considering approaches to literacy in the 21st century, in conjunction with the role of DT in literacy. Next, I review the factors and elements associated with teacher cognition about DT, beginning with the use of DT among language teachers in general, before discussing the issue in the context of Malaysia, and then specifically focusing on the use of DT in ESL literacy instruction. The review shows the likely importance of the influence of teacher cognition on the ways teachers use DT in literacy instruction. I finally explore the relationship of teacher attitudes and experiences as students at school and teacher training institutions with their cognition and teaching practices.

2.1 21st century literacies (New Literacies)

Creating meaning through writing, speaking, listening, reading and presenting information has changed following the inception of ICT and the Internet (Coiro et al., 2008). Advances to literacy in the 21st century differ greatly from the past. The changes require a redefinition of what is regarded as ‘literacy’ in the 21st century (Cope & Kalantzis, 2009). According to Lankshear and Knobel (2006), the reasons that contributed to the change are: (1) critical literacy emerged as a way of reading and writing critically to understand the world, (2) political and public calls for changes in education to ensure that students acquire original and functional reading literacies, and (3) the introduction of sociocultural perspectives that juxtaposed literacy not only with experience but also the historical, social, cultural, political, and mental backgrounds of people.

Before the 1970s, the term 'literacy' was not commonly used as it is today to describe reading and writing in an educational environment (Street, 1984). The term 'literacy' historically described programs that helped illiterate adults gain basic reading and writing skills outside of a formal educational setting. Today, the term 'literacy' can be used to describe the practices associated with meaning-making, because it includes the wider notion of writing and reading in the 21st century, which is dominated by the
use of technology. New technologies are used in various places, including schools, libraries, science laboratories and literacy classrooms. Teachers no longer need to rely on pen and paper to teach literacy but can utilise the power of ICT in the classroom to ensure that students develop relevant skills for the 21st century. In the formal educational setting, the term 'reading' is often used instead of 'literacy' to reflect the environment depicted in psycholinguistics as teaching students some skills, i.e. the skills of decoding and encoding texts in the classroom (Lankshear & Knobel, 2006).

The eruption of ICT use is very prevalent around the world. In the 21st century, literacy has undergone a drastic transformation due to the technological advances of ICT in education. New technologies are used in various places, including schools, laboratories, libraries and literacy classrooms. Teachers no longer need to rely on pen and paper to teach literacy but can utilise the power of ICT in the classroom to assure that students develop relevant skills for the 21st century. A study conducted by Ito, Horst, Bittani, Boyd, Herr-Stephenson, Lange, Pascoe and Robinson (2008) on the presence of digital multimodal technologies in teenagers’ everyday lives in the United States found that digital technologies are a necessity in youth culture and provide many opportunities for them to communicate with friends, download and upload media, and play video games using mobile phones and iPods (Ito et al., 2008). In addition to using mobile phones, all kinds of people use laptops to access the Internet. American youths are also significantly involved in this phenomenon (Coiro et al., 2008).

The expanding accessibility of digital technologies is a determinant in the development of reading and writing among adolescents, in addition to producing different literacy practices (Lankshear & Knobel, 2006). Acknowledging the transition in the meaning-making process, Luke (2004) began to investigate how digital technologies influence the construction of meaning, and also how these digital technologies affect traditional literacy. Luke recommended a need to redefine ‘literacy’ in the 21st century since present-day texts are no longer limited to writing, but may also incorporate sounds, graphics, gestures, symbols, moving images, and more with a variety of multimodal digital technologies (Luke, 2004). Some earlier studies demonstrate that the use of digital technologies has established various forms of representations of meaning-making as these factors are dependent on the social practices of the people (Kress, 2003; Luke, 2004).
2.1.1 Views on the New Literacies

According to Heitin (2020), "Digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills". However, over time, the term digital literacy has developed to become ‘new literacies’, as scholars and researchers realised that users require different abilities, attitudes, skills and mindsets to engage with ICT and the Internet. There are a number of terms associated with new literacies: Literacies Internet, new media literacies, 21st-century literacies, information literacy, multiliteracies, digital literacies, computer literacy, ICT literacies and so forth (Coiro et al., 2008). Often used interchangeably, these terms refer to the concept of ‘new literacies’ outlined above (Coiro et al., 2008). There are also significant variations in the concepts of new literacies, sometimes in terminology only, and others in practices and approaches (Coiro et al., 2008). The singular 'literacy' has changed to 'literacies' to reflect the diversity of texts (Kress, 2000), associated with the use of various digital technologies (Cope & Kalantzis, 2000), which may encompass elements such as visual, spatial, textual, aural and gestural practices and modalities (Street, 2003).

Today's society needs to master various DT skills, not only to enhance personal and social skills but to avoid the risks related to exposure to digital media and mass media (Feola, 2016). This conception of literacy differs from traditional literacy in the sense that digital literacy is the ability to integrate and evaluate information from multimodal texts. Gilster emphasised that digital literacy requires the ability to use the Internet to gather information and synthesise it (Lankshear & Knobel, 2006). Technology has changed our lives in line with changes in the way we engage with literacy (MacArthur, 2006). Gilster (1997) coined the term ‘digital literacy’ to describe literacy practices that incorporate and result from using DT. Leu, Kinzer, Coiro and Cammack (2004) claimed that the world has changed significantly since the introduction of the Internet and ICT. How we engage with literacy has changed due to the impact of technology in our lives (MacArthur, 2006).

Multimodality is seen as the most significant change of literacy due to the various modes of representation (Cope & Kalantzis, 2000). Leu and colleagues (2004) note that the new literacies require the right attitudes, strategies and skills to adapt to multimodal and ever-changing DT, in order for meaning making to take place. The
modes of spatial, audio, gestural, linguistic, and visual representations through which meaning is created have transformed literacy in culturally and socially diverse ways (New London Group, 1996). New London Group (1996) advocates the concept of what they term ‘multiliteracies’. This term reflects the creation of various modes of text as a result of globalisation, with increasingly diverse languages and cultures.

By using certain applications, even users with basic skills can produce videos, animations, voice recordings, images, and more. Lankshear and Knobel (2007) stated that the new literacies consist of two components, the "ethos stuff" and "technical stuff" (p.7). The "ethos stuff," consisting of the approach and mindset, is collaborative, participatory and distributive in orientation, and shows less individualisation, publication, individual expertise, and "author-centric" practices. The "technical stuff", on the other hand, refers to the variety of applications that are found on computers, digital-electronic apparatuses, MP3 players and so on (Lankshear & Knobel, 2007). Currently, researchers associate the "ethos stuff" with the development of Web 2.0, which allows us to move beyond passively consuming online content to collaborating and communicating online (Ludlow, 2012). Lankshear and Knobel (2007) described the different "ethos" of new literacies with regards to traditional physical space versus cyberspace. In their view, physical space and cyberspace coexist at the same time, but only cyberspace is related to new literacies.

The field of new literacies continues to evolve, as new definitions are introduced as technology develops. Although there are various views on the new literacies, Coiro and colleagues (2008) have compiled the attributes most commonly associated with new literacies. New literacies are multimodal, deictic, and multifaceted.

2.2 Factors influencing the adoption of ICT in language teaching

Past studies show some intrinsic and extrinsic factors that influence teachers' motivation levels and decisions to use ICT in the classroom (Che Had & Ab Rashid, 2019). The factors that influence the adoption of ICT among teachers will be further discussed in the next section.
2.2.1 Computer skills

Past research shows there is a strong relationship between the accessibility of resources and teachers' computer skills (Jones, 2004). It is difficult for a teacher to develop computer skills in an environment that does not have access to these technologies. The relationship between computer skills and the accessibility of technology is supported further by additional literature (Che Had & Ab Rashid, 2019). A study by Che Had and Ab Rashid (2019) also found that a lack of computer skills is a barrier to the effective integration of ICT in education. However, it has to be kept in mind that ICT skills among teachers do not necessarily result in the effective integration of ICT, because there are also other factors involved, such as willingness to change, teacher cognition, and the availability of further training (Che Had & Ab Rashid, 2019). While there are teachers who are reluctant to change their stance on the use of ICT in teaching, these traditional teachers need to recognise the importance of ICT to their students, who are digital natives, and they must try to equip themselves with ICT skills to meet current needs (Che Had & Ab Rashid, 2019). According to Bayne and Ross (2007), young people – ‘digital natives’ – have grown up with and been exposed to the convenience of computers, and will naturally be more proficient in digital technologies, compared with older people – ‘digital immigrants’ – who will be relatively left behind in this regard. Also, immersion in digital technologies among digital natives has triggered different learning styles among them in terms of speed of access, multi-tasking capability, inefficiency in linear thinking, and so on (Bayne and Ross, 2007).

Jones (2004) emphasises that a lack of ICT skills among teachers is associated with a lack of training provided to teachers, as well as other problems such as limited time to attend further training related to ICT usage, and negative perceptions among teachers of the potential of ICT tools in the classroom. Jones (2004) also finds evidence that demonstrates that teachers lack the opportunity to use ICT hardware while they are undergoing teacher training, and this affects their knowledge of ICT, both technical aspects and teaching pedagogy.

In a study conducted by Gobbo and Girardi (2001) on the use of technology in Italian schools, technological skills were also found to influence teachers' tendency to use technology in the classroom, as well as their desire to increase their skills. Highly
skilled teachers demonstrated more willingness to improve their ICT skills through their own learning and formal training, compared to those who were less skilled. In addition, the actions and strategies that teachers used in the classroom were also influenced by the interaction between computer-based skills and teaching epistemology.

2.2.2 Access to technology

Alshmrany and Wilkinson (2017) stated that if good and effective facilities can be provided for all, teachers will be more eager to use them for the teaching process. Al Mulhim (2014), Alshmrany and Wilkinson (2017), Che Had and Ab Rashid (2019), González-Carriedo and Esprívalo Harrell (2018), and Mumtaz (2000) support this statement, arguing that the lack or absence of ICT hardware in schools is a major obstacle for teachers who want to use ICT facilities in their teaching. Teachers in schools need to be provided with the most up-to-date ICT technology (Al Mulhim, 2014), and lack of ICT equipment such as software and computers will limit the ability of teachers to optimise the facilities in classroom teaching (Mumtaz, 2000). It is not reasonable to expect teachers to use technology in teaching if the DT facilities are insufficient.

Che Had and Ab Rashid (2019) propose that accessibility of DT tools is associated with successful implementation of technology, and a lack of access to technology would limit the use of technology among teachers and might demotivate them from using ICT in their teaching. Al Mulhim (2014) highlights that the enhancement of ICT facilities will directly increase the use of ICT hardware in the classroom, and teachers are reported to be more confident when they are more familiar with the computer hardware provided. Mumtaz (2000) also notes that the availability of appropriate software, which suits the needs and interests of teachers, is a driving force behind their use of ICT hardware. Hence, educational institutions need to understand and recognise the kind of ICT equipment needed to facilitate the work of teachers.
2.2.3 Technical assistance

Another important factor determining whether or not teachers will adopt technology is the availability of technical assistance (Al-Waaili, 2018). Both anxiety about damaging the equipment and lack of technical support can affect the confidence of teachers wishing to use DT (Jones, 2004). Roslan and Tan (2005) state that damage to computer hardware will reduce the confidence of teachers, and that teachers who use DT on a regular basis for their teaching require reliable hardware. Due to these factors, access to technical support is an important element with regards to the integration of technology in teaching (Che Had & Ab Rashid, 2019).

Jones (2004) states that a key barrier to the adoption of ICT is equipment damage, as well as other problems associated with prolonged and frequent technical breakdowns. According to him, if the school does not provide the technical assistance needed by teachers, ICT problems will often occur due to the lack of monitoring and maintenance of ICT equipment. Lack of maintenance may also result in more severe technical damage and ultimately make teachers less enthusiastic about using ICT for teaching purposes. Gobbo and Girardi (2001) found that teachers showed more inclination to increase their skills and become more competent in computer usage if they had sufficient technical support while using ICT.

2.2.4 Teacher's self-confidence and morale

Despite various efforts to ensure optimum use of DT, there are still teachers who remain sceptical of using DT for teaching and learning processes (Rahamat, 2019). Hammond (2013) states that at the individual level, some teachers may lack confidence in using ICT facilities. The desire to optimise DT depends on early exposure and willingness to spend time incorporating DT into the classroom (González-Carriedo & Esprívalo Harrell, 2018). Che Had and Ab Rashid (2019) argue that there is a gap between teachers who are familiar with technology, and teachers who want to maintain conventional teaching practices in the classroom. They added that teachers who have been exposed to DT from childhood are limited in terms of their learning opportunities if teachers use traditional, non-DT methods. Alshmrany and Wilkinson (2017) suggest that teachers with good computer-based skills will feel
more confident learning how to use new ICT tools for teaching. Their confidence also makes it easier to master the use of ICT in the classroom. Because teachers have different experiences and cognitions about using ICT, their understanding of the true potential and effectiveness of ICT in the classrooms will be different (Mumtaz, 2000).

Aside from access to good technical assistance, the teacher’s level of trust in their own abilities to handle ICT hardware is one of the most important factors affecting the integration of ICT in teaching and learning (Mumtaz, 2000). The school can provide the necessary encouragement and technical support, but it is up to the teacher to take the initiative and develop confidence in the use of ICT in the classroom.

Furthermore, some studies show a correlation between the confidence of teachers and their ICT training (Che Had & Ab Rashid, 2019; Mumtaz, 2000; Sandberg & Karlsudd, 2014). Teachers who have little or no training in how to use computers in their teaching are likely to avoid using DT (Che Had & Ab Rashid, 2019). Therefore, teachers need to have the confidence necessary to deal with technology. In a different study, evidence shows that teachers may have different cognitions, and the use of new technologies and requests to meet these new requirements are a threat to teachers' abilities to manage their work (Sandberg & Karlsudd, 2014).

As this factor affects the adoption of technology significantly, I feel that it is important to discuss the literature that addresses how to improve teacher confidence. Ertmer and Ottenbreit-Leftwich (2010) state that the best strategy is to provide support for teachers to gain experience in using technology. Therefore, researchers have underlined the importance of providing opportunities for teachers to experiment with technology in their teaching.

2.2.5 Teachers’ teamwork

While formal training is very important in preparing teachers to use technology, informal training is also relevant. Teachers should work together to generate new ideas and solutions to problems that arise (Motteram, 2019). Teachers can learn from each other by exchanging ideas and experiences in the process of learning how to use computers. Zhao and Frank (2003) affirm the importance of informal over formal learning, because informal learning occurs in social settings and colleagues are better
equipped to influence each other’s attitudes and cognitions. They also state that, in a social environment where other teachers use technology actively and are able to provide “contextual information about the value and implementation of technology” (p. 17), a teacher will feel the urge to use DT, and will be more easily convinced to try it. In addition, the informal information and guidance shared by fellow teachers puts indirect pressure on one another to use technology (Zhao & Frank, 2003).

When receiving guidance on the use of DT, teachers should also be given space and time to work together to improve their performance (Zhao & Frank, 2003). ICT sessions in the computer laboratory among colleagues, including discussion sessions afterwards, were found to increase teacher confidence and willingness to use DT, in addition to direct coaching from skilled personnel (Gobbo & Girardi, 2001). Gobbo and Girardi (2001) found that teachers preferred to share experiences about their ICT usage and their ICT needs in their classroom with their colleagues, and they were more likely to talk to each other to solve problems related to ICT rather than go to courses related to those aspects. In this particular study, teachers were more comfortable sharing their weaknesses with their colleagues, rather than looking for advice and opinions from experts outside their school context.

2.2.6 Education in the use of technology

Although the development of computer skills for teachers is very important, literature from across the world has reported a lack of ICT training among teachers (Al Mulhim, 2014; Baylor & Ritchie, 2002; Che Had & Ab Rashid, 2019; Hammond, 2013; Md Yunus, 2007; Mumtaz, 2000). These studies point to the training needs of teachers as being one of the most important elements prior to adopting ICT in the classroom. Hammond (2013) notes that lack of training or weaknesses in the training provided make it difficult to adopt ICT. Teachers need to integrate ICT into their teaching pedagogy, and hence, they need to receive sufficient training, so their ability aligns with students’ expectations, and they are able to carry out tasks effectively (Che Had & Ab Rashid, 2019).

It is necessary to train teachers in teaching pedagogy, to use ICT effectively for teaching preparation as well as for teaching purposes in the classroom, and not simply to train them how to use ICT tools (Jones, 2004). However, Jones (2004) also
notes that there is evidence that some teachers, especially those who are older and have not been fully trained in college, require more specific training regarding the use of ICT facilities.

Che Had and Ab Rashid (2019) found that, although there were a moderate number of computers in schools, the investment made towards training teachers in how to use them was minimal. Al Mulhim (2014) notes that a key element that should be provided by the Ministry of Education is proper in-service training for all teachers at all levels, so that they have the latest skills in teaching techniques appropriate to the current requirements. Al Mulhim also observes that technical training and teaching pedagogy should be emphasised in parallel, to achieve an effective and relevant impact. Such training should be carried out while the teacher is in training, to ensure that every teacher who is teaching has sufficient technical skills and pedagogy to avoid any problems when they begin to teach.

2.2.7 Culture of the educational institution

Institutional policies and rules have a significant impact on the adoption of technology (Al-Waaili, 2018). There are situations where access to technology is available but does not fit the cultural context. A study conducted in an Arab country suggested that teachers may use a variety of digital tools but may choose not to use the Internet for social and moral reasons (Albirini, 2006). Contrary to the findings, in another study, teachers noted that these cultural barriers do not prevent them from using ICT in the classroom and they always take their own initiative to attract students (Alshmrayn & Wilkinson, 2017). Al Mulhim (2014) argues that countries like Saudi Arabia, who have some cultural norms that are not compatible with the use of ICT in the classroom, should provide a database for teachers that includes appropriate materials, to enable ICT to adapt to their culture.

Zhao and Frank (2003) point out that, in order to bring about changes in the use of technology in an educational institution, one needs to understand the structure and culture that is practised there because the same approach does not necessarily apply to all institutions. The authors add that social pressure plays an important role in support, as well as opposition to the use of technology. Teachers will be less likely
to use computers when they are forced to implement various new things that are contrary to their culture and practices (Zhao & Frank, 2003).

2.2.8 Integration time and effort

Many studies reported time constraints as a major obstacle in the integration of technology (Al Mulhim, 2014; Jones, 2004; Mumtaz, 2000). Mumtaz (2000) notes that time pressures from inside and outside the classroom are a barrier for teachers to learn how to use ICT in the classroom. The amount of time a teacher has to commit to integrating DT into their teaching impacts levels of training, computer skills, teacher collaboration, and confidence. Integration of technology requires a time commitment from teachers, and among other things, teachers need adequate time to attend training sessions, practice what they have learned in their lessons, create materials for teaching using computers, and reflect on their progress so that improvements can be made.

The issue of time limitations also arises when educational institutions have little or no understanding of the importance of addressing the problem or feel that changes in terms of time are not required by teachers (Mumtaz, 2000). Al Mulhim (2014) argues that the problem with time constraints is that it is not just about having time to prepare for teaching or receive training, but also time to handle ICT hardware while teaching in the classroom. Al Mulhim highlights the importance of giving teachers extra time and reducing their workload in terms of other curricula tasks, so they can better meet the needs of each learning session using ICT, besides having more time to receive training.

2.3 Teacher cognition and ICT adoption

Having discussed several aspects of implementing ICT, I now will outline the importance of teacher cognition in the adoption of technology in teaching. Studies have shown that ample opportunities given to teachers for the integration of technology ensure greater success in ICT implementation (Al Mulhim, 2014; Alshmrany & Wilkinson, 2017; Che Had & Ab Rashid, 2019; González-Carriedo & Esprívalo Harrell, 2018; Mumtaz (2000).
2.3.1 Teacher cognition as an overarching factor in adoption of ICT

As well as being influenced by external factors, teaching practices are also shaped by teachers’ knowledge, beliefs and cognitions. Since these external and internal aspects are often linked, past studies on the implementation of ICT have identified teachers’ cognitions and attitudes as the most important factor in the adoption of technology (Albirini, 2006; Ertmer & Ottenbreit-Leftwich, 2010; González-Carriedo & Esprívalo Harrell, 2018; Lam, 2000; Li, 2017; Rahamat, 2019; Tondeur, Hermans, van Braak & Valcke, 2008). Ertmer (2005), for example, stresses the need to understand teachers’ pedagogical beliefs to better understand the real situation of their use of ICT.

Indeed, Borg (2006) states that, in general, teachers' knowledge and cognitions significantly guide their teaching methods, although teachers may or may not adopt teaching practices that reflect their knowledge and cognitions. Teacher cognition is not easy to study, and attention must be given to the 'ecology' (p. 14) where the teacher is working (Zhao & Frank, 2003). As an important factor in the adoption of technology, teacher cognition should therefore be studied in greater depth, in its context.

2.3.2 Teacher cognition and teacher cognition research

Kagan (1992) stated that, as more research is undertaken on teacher beliefs, the deeper our understanding will be on how to produce good teachers. Studies in the field of teacher cognition are crucial to understanding the thought processes of teachers and the relation between their thoughts and practices (Borg, 2006; Li, 2017). Pajares (1992) argues that one of the problems relating to studying teacher cognition is that the terminology is often arbitrary and inconsistent. Borg (2006) encounters the same difficulty in his literature review with respect to teacher cognition between the years 1976 and 2006. He states that the same terms are used for different concepts, and different terms are used to refer to similar concepts. He concludes that a common frame of reference may help to standardise and advance the field, a change which would be very useful. This study will use the term ‘cognition’ following the work of Borg (2006). This term is used to describe the complex mindset of teachers: what they know, think or believe at any stage of their careers, and how this relates to their
profession, teaching practices, and the relationship between their practices and cognitions (Borg, 2006).

Studies in the field of teacher cognition are crucial due to the importance of understanding the thought processes of teachers and their relation to teaching (Borg, 2006; Li, 2017) but background experiences in the construction of cognitions are also important. Teacher cognition usually grows out of personal or cultural experiences, where new experiences are formed and shaped by past experiences (Ertmer, 2005). Classroom practice and teacher cognitions are strongly influenced by prior experiences, as Borg (2003, 2006) has highlighted. In a diagram in his 2003 book, he presents a visual representation (Figure 2.3) of the influence of what he terms ‘schooling’ and ‘professional coursework’ on teacher cognitions and thence on classroom practice. Work in these two areas will be summarized in sections 2.3.3 and 2.3.4, respectively, below.
2.3.3 Relationship between experiences as students and teacher cognitions

Recent studies have shown that one’s experience as a student in school affects the formation of cognitions later as a teacher. (Borg, 2003, 2006, 2009; Ertmer & Ottenbreit-Leftwich, 2010; Windschitl & Sahl, 2002). Windschitl and Sahl (2002) added that past experience gives teachers mental models of instruction that shape their behaviour in a very significant way. As I want to discuss teaching methods involving engagement pedagogy and technology, the impact of this early experience should be highlighted.

Prior experiences as a student are a key factor shaping teacher cognition (Borg, 2003), but the teachers' belief systems are often filtered by new experiences (including the use of technology in education) (Ertmer, 2005). Changes in teacher cognition are
possible, though difficult (Borg, 2003). Because trust is something of a personal concept, it can be very static, deeply rooted and difficult to change (Ertmer, 2005).

Borg (2003) notes that some previous studies show evidence that the cognitions and experiences of teachers during their schooling years have shaped their cognition and teaching practices. Gobbo and Girardi (2001) also posit that the past experiences of teachers, either as students or teachers, will influence their DT use and pedagogical beliefs. According to Windschitl and Sahl (2002), many teachers find it difficult to adopt constructivist approaches since many of them experienced a traditional education system as students. There is still a gap between teachers and students, whereby some teachers choose to use conventional teaching methods, whereas students are more likely to use DT (Che Had & Ab Rashid, 2019). Teachers who were exposed to technology early in their lives should be agents of change and teach their students based on the students’ needs, rather than holding them back by using old methods in the classroom (Che Had & Ab Rashid, 2019).

2.3.4 The influence of teacher education/training on teacher cognition

From the studies that have been discussed above, it is clear that teacher education is capable of playing a significant role in shaping pre-service teachers’ cognitions. Borg (2011) emphasises that "it is widely recognised that teacher education is more likely to impact on what teachers do if it also impacts on their beliefs" (page 370). Although Borg (2003) highlights that many studies show the effect of teacher education on teacher cognition, there is some evidence to suggest that teacher cognition and classroom practices are less influenced by teacher education (Kagan, 1992). A study conducted by Kagan (1992) shows that the cognitions of the teachers involved remained strong and ‘unchanged’ (p. 142) even through a pre-service programme. Abasifar and Fotovatnia (2015) and Borg (2011) find similar results: the cognitions of the teachers involved did not change significantly after they completed a teacher education programme.

Ertmer and Ottenbreit-Leftwich (2010), on the other hand, claim that teacher training courses are able to influence and change pre-service teachers’ practices and cognitions, by promoting the capabilities of ICT to produce better learning outcomes. Borg (2003) also cites evidence indicating that teacher education has different effects
on different teachers. Longitudinal studies on the processes and structures of teacher education are needed, to enable us to better understand the relationship between teacher education and teacher cognition (Borg, 2006). According to Borg (2003), “much existing literature about the ineffectiveness of teacher education in changing trainees’ cognitions (i.e., beliefs, knowledge, attitudes) has focused on the content of these cognitions” (p. 91).

2.3.5 The effects of teacher cognition on technology practice

Some studies suggest that DT does not embody any particular pedagogy, and teachers use technology based on their cognition (Che Had & Ab Rashid, 2019; Gobbo & Girardi, 2001). The findings of a study of five Omani teachers (Al-Waaili, 2018) show a discrepancy between teachers’ cognition about the use of technology and their actual teaching practices. According to Al-Waaili (2018), although teacher cognitions influence teachers' decisions to use technology, frequent integration of technology in teaching also impacts their cognitions. Findings from previous studies indicate that teachers' practices are influenced by factors that interact and sometimes conflict with each other (Borg, 2003). Teacher cognition is one of the factors that strongly influences teaching practices, although sometimes it does not reflect the foundations, principles and cognitions of a teacher (Borg, 2003).

In a study conducted by Gobbo and Girardi (2001) on the use of technology in Italian schools, it was reported that the majority of teachers acknowledged positive aspects of computer use at school. However, they did not show total acceptance, and were not yet ready to completely abandon traditional teaching methods. Although the data show changes in terms of teachers' willingness to use technology, teachers had different cognitions regarding the teaching and learning process. Technological skills were also seen as a factor influencing teachers' inclination to increase their skills as well as their tendency to use technology in the classroom.
2.4 Teachers’ concerns, perspectives, competency, and uses of DT in English education and ESL literacy instruction in Malaysia

Next, the following section will outline past studies related to Malaysian teachers’ concerns, perspectives, competency and uses of DT in Malaysian English education system.

2.4.1 Teachers’ concerns with DT

Several studies have reported a lack of DT in schools, and a lack of training among teachers, in the context of English language and English literacy instruction in Malaysia (Che Had & Ab Rashid, 2019). Khambari and colleagues (2009) in their study, in which participants expressed concerns about their ability to use ICT tools; they were often depressed because they could not maximise the potential of DT. Similar results were obtained in a quantitative study conducted by Roslan and Tan (2005) related to computer anxiety among 93 teachers in postgraduate education in a public institution in Malaysia, where concerns relating to facility damage was the main source of their anxiety. They also found a significant relationship between levels of concern and anxiety about the task. Abdullah and colleagues (2006) found factors that caused concern among teachers with regards to ICT in the English language classroom were lack of access to computers, time constraints in the use of computers in teaching, and lack of computer skills. In a different study of English teachers in 75 vocational secondary schools in Malaysia, Md Yunus (2007) reported that ICT was used appropriately in teaching English, and there were variations in the use of ICT for teaching English in the schools. She identified many challenges that limited the use of ICT in the teaching of English, mainly a result of lack of access to DT tools and lack of training related to ICT in the teaching of English.

Samuel and Abu Bakar (2006) looked at the use of ICT in English instruction among 30 teachers in three schools and reported that teachers felt that the computers laboratories provided were not sufficient to meet the demand of all the teachers. In addition, technical issues often occurred, such as damage to computers and laptops, computer virus attacks, outdated software, faulty cable systems and wiring, and computer laboratories that were not connected to the central server, making it difficult
for teachers to access the school database. The study also highlighted that maintenance of the ICT equipment was quite poor, and the funds provided by the MOE took time to be processed. Furthermore, these teachers rarely used the ICT tools supplied to them by the MOE because of a lack of time, and there were even teachers who were not aware of the existence of those tools. In addition, the study highlighted that some computer technicians lacked the skills needed to solve technical issues. Teachers reported that they received very little support from school administrators, other than admitting that the school did not have the capacity to further their ICT skills (Samuel & Abu Bakar, 2006; Che Had & Ab Rashid, 2019). The teachers also complained about inadequate training and education on how to use DT in teaching and mentioned that very few teachers received training related to the integration of ICT in teaching and learning, despite the mandate from the government to provide professional training to all teachers. In fact, many stated that they were not provided with any direct computer training, even though they had been teaching for a long time, and almost two-thirds of the teachers showed very poor ICT skills. Samuel and Abu Bakar (2007) then expanded the research to include more participants (109 secondary and elementary school English teachers). In addition, they also interviewed 10 heads of departments at teacher education institutions in Malaysia to gain insights into the existence of ICT facilities at the schools, the integration of ICT in the teaching of English, and the level of ICT skills among teachers. The authors found that most teachers had a basic knowledge of ICT (i.e., using multimedia presentations, using the Internet, using e-mail etc.), and they reported that the schools were equipped with computer laboratories. However, nearly half of the teachers did not use ICT facilities in teaching English. The results of this second study came to similar conclusions to the one conducted in 2006, in that issues that prevented the use of ICT among teachers were lack of ICT resources, poor and slow maintenance of ICT equipment, unstable Internet connections, and lack of cooperation with other teachers.

A quantitative study conducted by Abdul Aziz (2008) discovered different results. More than 60% of the teachers reported to have undergone training on the implementation of ICT in their English teaching but had concerns in the use of DT. The study found that there was no significant relationship between the number of years of experience using technology in the teaching of English, and teachers’ concerns about their use of technology. The concerns about technology in the classroom
stemmed from anxiety about the appropriateness and relevance of such tools. The author of the study claimed that having experience using ICT tools in teaching did not significantly reduce their concerns (Abdul Aziz, 2008). On the other hand, in a study examining the experiences of three secondary school teachers who were provided with a laptop each for the purpose of teaching, as part of a MOE pilot project, Khambari, Moses and Wong (2009) found that the three teachers did not receive any training related to ICT before commencing the project. The only training that they received was long after being provided with the laptops, and the training was said to be insufficient (Khambari et al., 2009). In addition, they mentioned about the lack of ICT technicians who could help them in school, and this caused them to feel discouraged to use the laptops provided (Khambari et al., 2009).

For the educational reforms proposed by the MOE with regards to incorporating DT into the classroom, the support provided is not sufficient to help teachers adopt the new initiatives (Che Had & Ab Rashid, 2019). In particular, teachers lament poor quality equipment, and outdated computers; lack of technical support; time restraints restricting their development of computer skills; and lack of computer training (Che Had & Ab Rashid, 2019; Md Yunus, 2007).

2.4.2 Teachers’ perspectives towards the use of DT

A study involving 60 pre-service English teachers and the effectiveness of WebQuest (a database that contains a variety of activities and lessons), Noordin, Abdul Samad and Mohamed Razali (2007) found that pre-service teachers showed a positive attitude towards WebQuest as a tool for teaching English, and claimed that WebQuest was able to provide authentic learning experiences, promote higher-order thinking, and provide a challenge to motivate students (Noordin et al., 2007). Online learning was also described as an alternative that could provide a better experience than face-to-face learning (Pang et al., 2005). Meanwhile, in another study on pre-service teachers’ attitudes and perceptions of ICT in education showed positive results. Pang, Lee and Tan (2005) studied 324 undergraduate pre-service teachers from various fields including English education in a teacher training institute which focuses on the impact of online English learning. The authors found that teachers believed that online learning could help them in teaching.
A study conducted by Mahmud and Hj. Ismail (2010) on basic ICT literacy skills among teachers discovered that most teachers considered ICT a great tool. The formal training that they had received contributed to their understanding of ICT. Md Yunus (2007) described that a large majority of English teachers displayed positive attitudes towards ICT and believed that ICT supported them to understand the English language more easily, as well as being able to motivate their students, help them to monitor student progress, provide a source of authentic materials, and provide them more satisfaction in teaching. Moreover, in another study related to levels of motivation towards using ICT to teach English, the majority of 62 English teachers in a district in Malaysia demonstrated a positive attitude and high levels of motivation towards ICT as a tool. A study conducted by Mahmud and Hj. Ismail (2010) on basic ICT literacy skills among teachers discovered that most teachers considered ICT a great tool. The formal training that they had received contributed to their understanding of ICT. Md Yunus (2007) described that a large majority of English teachers displayed positive attitudes towards ICT and believed that ICT supported them to understand the English language more easily, as well as being able to motivate their students, help them to monitor student progress, provide a source of authentic materials, and provide them more satisfaction in teaching. Moreover, in another study related to levels of motivation towards using ICT to teach English, the majority of 62 English teachers in a district in Malaysia demonstrated a positive attitude and high levels of motivation towards ICT as a tool for teaching English, and they actively used ICT in their teaching (Abdullah et al., 2006). The authors claimed that intrinsic elements such as a sense of responsibility and self-value played an important role in increasing their motivation (Abdullah et al., 2006). Md Yunus also claimed that most teachers felt confident in their skills and reported that they had their own computers at home (Md Yunus, 2007). Sa’ari, Wong & Roslan, (2005) conducted a quantitative study of 160 secondary school teachers’ perceived competencies and attitudes towards ICT. They found that most teachers exhibited a positive attitude towards the use of ICT, exhibited high confidence in the handling of ICT, and they believed that the use of ICT could improve their work performance. Focusing beyond teachers, a study conducted by Zain, Atan and Idrus (2004) involving 36 Smart School administrators and principals showed positive attitudes towards ICT in management of the schools, citing the culture of ICT among teachers and students as allowing more efficient
management, accessibility to information, and better use of school resources. Roslan and Tan (2005) studied anxiety in the use of ICT among 93 in-service teachers who were undergoing their graduate studies in a Malaysian public teacher education institution. They identified that most respondents were very confident with the use of ICT, and they also exhibited positive attitudes towards its use.

2.4.3 The use of DT among teachers in Malaysia

In a case study about co-writing a science dictionary with Wiki, Chong and colleagues (2011) examined 23 high school students in urban areas and found that the students who were actively involved in the project had positive views on the use Wiki. Moreover, students with low English and DT skills gained more from the project because they were able to improve their skills (Chong et al., 2011). Tan and colleagues (2009) monitored classroom writing and conducted a discourse analysis of documents written by 31 high school students in urban areas in the West Coast of Peninsular Malaysia. They found that by using social networking sites, the students interacted with those outside their social circle to complete their English homework. In addition, Abu Bakar and Mickan (2005) conducted an ethnographic study in a smart school to consider the use of computers among students for writing activities. Their data highlighted that students can develop their English language skills in different social situations within computer-based learning environments. However, they also identified that the effectiveness of computers in the learning process was dependent on the nature and difficulty of the activities carried out, both of which were usually determined by the teachers (Abu Bakar & Mickan, 2005).

In an ethnographic case study on the practices of teachers of English in Malaysia as described on an unmediated Internet forum, Kabilan (2003) saw teachers create collaborative partnerships to improve their teaching practices. Teachers also demonstrated positive attitudes, such as sharing and exchanging ideas to help one another to improve the quality of their teaching. In addition to demonstrating the same educational goals, they also shared knowledge, experiences and techniques with each other, showing their principles in their teaching practices. They also discussed current issues related to education and teaching English. In a different context, Ngah and Yeoh (2005) found evidence of positive learning and effective support in the online
discussion group. In addition, the teachers felt that online discussions brought them closer, in that they could share ideas and problems encountered in teaching. Kumar and colleagues (2008) in their study observed that perceived usefulness and perceived ease of use were key factors which determine the use of computers. With regards to perceived usefulness and perceived ease of use, teachers believed that computers should be easy to use and useful in their teaching. In addition, the teachers considered the use of computers an additional workload, and the use of technology was not relevant unless it was easy to use (Kumar et al., 2008).

Hussin identified that teachers used the Internet in their teaching, although the use of ICT was insufficient and did not reach its full potential. In addition, Hussin (2004) discovered that teachers displayed positive attitudes towards the usefulness of ICT. According to him, the teachers used e-mails, Internet access, and also sent and received files via email for education-related purposes. Teachers were also active in the process of data collection, including searching for entertainment such as movies and songs and reading the news. In a quantitative study about the intentions and acceptance of computers in teaching among 245 student-teachers, Wong and Teo (2009) noted that teachers felt that the computer was very useful, easy to use, and they displayed positive attitudes towards the use of computers. In addition, the study showed that perceived usefulness was significantly influenced by perceived ease of use, and both these factors directly influenced the use of computers and the attitude towards the use of computers. Apart from the few studies that show positive findings of the attitude of Malaysian teachers in the use of information and communication technology (ICT) in teaching English, there are also some studies that show positive findings on the use of ICT in education among students in Malaysia. For example, in a quantitative study conducted by Hamzah, Embi and Ismail (2010) related to the impact of technology on students in 12 Smart Schools, most of the students had access to the Internet and computers in their homes, and they used the computers in school for at least an hour a week. Hamzah and colleagues observed that the students had positive views on the use of computers.

De Rycker and Ponnudurai's (2011) quasi-experimental study analysed 90 essays to determine whether print-based reading or online reading better helped Malaysian students to write argumentative essays. The data suggested that online reading had a more positive impact on writing performance, helping students to
produce better essays and thesis statements. However, they also stated other factors, such as the role of teachers, which helped students to use the online reading platform and thus to write better (De Rycker & Ponnudurai, 2011). Ng (2007) undertook a mixed methods study to consider the autonomy of students while studying writing and speaking skills using computer-assisted language learning (CALL) technology. The study found that students exhibited positive attitudes towards the use of the computer, stating that computers were easy to use, and enabled them to learn independently. Ng also found that by learning through e-mails, students became more aware of their weaknesses in writing. In addition, students felt that computers were very useful in correcting their writing errors, allowing them to write autonomously. However, students reportedly still chose to learn English face-to-face, because they preferred to have guidance from teachers.

2.4.4 Teachers’ DT competency

Many studies involving in-service teachers' ICT skills suggest negative attitudes. In a study conducted by Sa'ari and colleagues (2005) in three secondary schools in a state in Malaysia, it was found that most teachers of various subjects had moderate skills in handling ICT tools, yet they lacked the ability to integrate DT into their teaching. In a quantitative study involving English teachers who worked at vocational schools, Abdul Razak and colleagues (2009) reported that most English teachers were novice users of ICT. One factor that led to this situation was a low level of computer competence, lack of training, lack of infrastructure, lack of focus on the latest technology, and high levels of anxiety during the use of ICT. The results were quite surprising given that almost half of the teachers reported receiving ICT instruction during their training and also received ongoing training throughout their careers. Almost the same results were found by Mahmud and Hj. Ismail (2010) in their study, with most teachers exhibiting moderate ICT skills and knowledge. Other than that, another study conducted by Abdul Razak and Embi (2004) with in-service secondary school English teachers around Malaysia showed that most English teachers were not competent in the use of ICT tools, particularly those involving web-based learning and teaching, and computer-mediated communication. The study also found that English teachers felt that they were not sufficiently proficient in the use of ICT, and most of
them felt that they had many things to learn, especially online teaching and learning skills. In different studies, teachers were found to be reluctant to use DT because they were not familiar with the tools and were worried that DT would change the way they teach (Abdul Razak et al., 2009; Che Had & Ab Rashid, 2019).

A study conducted by Bakar and Mohamed (2008) with respect to pre-service teachers' abilities to use and integrate DT, found that the pre-service teachers felt quite confident with their ICT skills in teaching. In particular, they found that male pre-service teachers who had experience teaching in schools, as well as pre-service teachers who came from vocational schools, had greater levels of confidence in their ICT skills in teaching (Bakar & Mohamed, 2008). Several other studies have been conducted to assess in-service and pre-service English teachers' levels of competency and digital literacy (Abu Bakar, 2007; Badusah & Hussin, 2000; Pandian, 2003). The results showed that pre-service teachers' experiences and competency levels in ICT in various subjects were generally high. A study of seven pre-service teachers working with programmers and researchers to build a website identified that the experience the teachers gained from the activity was very helpful in increasing their professionalism (Raja Hussain, 2004). The experience equipped them with the ability to find useful educational websites, giving them the opportunity to apply their knowledge and provided more confidence that their knowledge of the technology would help them in their future profession (Raja Hussain, 2004).

Most of these studies were conducted on teachers who teach a variety of subjects, and although there are also studies that focused on English teachers specifically, only a few studies centred specifically on the level of competence among English teachers in the use of DT (Abdul Razak & Embi, 2004; Abdul Razak et al, 2009). In conclusion, most studies carried out to examine teachers' DT competency levels have been conducted quantitatively, and although these have proved to be very useful, they do not provide explanations as to why teachers' competency levels are low.

### 2.4.5 Studies of technology use in teaching in Malaysia

Badusah and Hussin (2000), in a study involving secondary school teachers in Selangor, Malaysia, reported that Internet and computer use among public school
teachers in Malaysia is very limited: 59% of schools do not have Internet access, 39% of teachers who use the Internet do not receive formal training on how to use it and 56.3% of teachers have never used the Internet. Pandian (2003) in his study involving Malaysian English teachers in Penang, Malaysia found that only 19.2% of the teachers acknowledged that they used computers for teaching the English language.

With the alarmingly low rate of computer usage, several studies have been conducted to study Malaysian English teachers' attitudes and perceptions, the use (or lack of), the level of competence, and concerns about the use of DT in English (literacy) instruction. Chong and colleagues (2011) found that teachers used computers for limited purposes such as PowerPoint presentations or using CD-ROMs supplied by the MOE. Abu Bakar (2007) conducted a case study to examine non-computer-based and computer-based activities carried out in smart schools, and she found that teachers and students used computers only for the purpose of looking for reading materials and as presentation tools. These findings are worrying because the studies were conducted in smart schools, which are equipped with state-of-the-art computer facilities. The implementation of digital technologies needs to be practised by teachers to ensure success in the classroom (Che Had & Ab Rashid, 2019; De Rycker & Ponnudurai, 2011; Ng, 2007). However, at the moment, learning English through the use of DT in Malaysia seems to be given a relatively low priority.

2.4.6 The use of DT in classrooms in rural areas

None of the above studies focus on use of or cognitions about use of DT among teachers specifically in rural schools, the focus of the present study. It also seems to be the case that – even though much of the teaching of English in the world is carried out in such contexts – there have been very few studies specifically focused on technology use in rural schools in other developing countries, either. While several studies have been conducted on the use of DT in education in rural communities in developed countries (e.g. Batte 2005), very few such studies have been conducted in developing countries. In one rare exception, involving 173 college students from urban and rural backgrounds in India, Kurinchi Vanan and Subramani (2015) found that students' attitude toward DT acceptance was not geographically dependent. The study also showed that digital inequalities do not exist between urban and rural areas. In the
Malaysian context, research has focused on urban areas and selected schools such as Smart schools, as reviewed above. In a rare exception which does touch on rural teachers’ attitudes, Harris, Bala, Songan, Lien and Trang (2001) in their action-research involving the Kelabit community in the Malaysian state of Sarawak found that, because the communities in the area were far from other communities, the main source of information among the members of the community was not ICT, but face-to-face communication among them. However, they also found that the majority of teachers in the area showed a positive attitude and acceptance towards the use of ICT.

On the other hand, Nair, Muda, Goon, Han and Lee, (2010), in their study about the socioeconomic factors that influence the general use of computers in rural fishing and agricultural communities in Malaysia found that factors such as social network (family support, teachers etc.), type of community, educational background, ethnicity, language, age, and gender influenced the use of computers in those areas. They also point out that low levels of computer literacy, high cost of computer ownership and lack of interest and relevance are the main reasons why computers are rarely used in rural communities. Finally, Songan, Ab Hamid, Yeo, Gnaniah, and Zen (2004), and Gnaniah, Songan, Yeo, Zen, and Ab Hamid (2006) in their study in Long Bedian and Bario showed relatively negative findings, in which computer use among the rural communities studied was low due to several factors, namely lack of awareness, lack of DT infrastructure, lack of training, low education level, and the perception that DT is irrelevant to their lives. It therefore seems that a study of rural teachers’ cognitions about and actual use of DT in ESL literacy instruction will fill an under-researched gap. Specifically, it will be of interest to see whether attitudes may be more positive than was revealed in previous studies, given the length of time since those studies.

Finally, I need to mention two studies which influenced the overall approach taken in this study – to search for examples of ‘good teachers’ who could be models for other teachers in similar teaching situations – and a recent publication which has adopted a similar approach. The first is a (2013) book by Wedell and Lamb, who set out to identify cases of what they call ‘inspiring teachers’ in two cities in developing countries – Guangzhou and Jakarta – by asking students to nominate exemplary teachers. The teachers were not teaching in rural or otherwise difficult circumstances and not generally using DT. However, in another book – Smith, Padwad and Bullock
(2016) – an attempt was made to ask teachers in under-resourced classrooms in Bangladesh, India, Nepal and Pakistan to nominate a recent successful teaching experience and to ask them to share this experience. One short story in the book is of a teacher – Sagun Shrestha – who introduces use of technology by bringing his own laptop into the classroom.

In another British Council book (Motteram 2017), which I read after the present study had begun, there are several further inspiring short stories of teachers in India in rural schools integrating DT into their teaching. Harsh Tiwari, for example, describes an experience of digitizing delivery of teaching and learning in a night school in Tilonia, finding that students’ attendance at school improved and both classroom interactions and parental involvement showed a positive improvement. In another report, Jyotsna Ayyagari describes how use of an offline moodle-based learning management system involving 450 active users led to a change among teachers from being a non-tech group, to a group of resourceful users of technology for teaching purposes. Students also reported an increase in their confidence in using technology. Finally, in another report, Darwan Singh Bandari used the Internet as a teaching resource and found that students’ interest and learning outcomes were improved.

Similar to the intention to seek for cases of good / successful practice of Wedell and Lamb (2013), Smith, Padwad and Bullock (2016), I decided to try to focus on teachers who could be a good example of DT use in rural schools in Malaysia.

2.5 Summary of gaps in the literature

Although the field of teacher cognition has existed for more than decades, a focus on second language teachers was only introduced in the mid-1990s and has grown since then (Borg, 2009). However, research in this field has concentrated on countries such as Hong Kong, the United States and the United Kingdom (Borg, 2006). Therefore, further studies involving other second language teaching areas are much needed (Borg, 2006, 2009). Lam (2000) confirms that the area of cognitions relating to technology use among second language teachers remains under-researched. According to her, only a few studies have been conducted on teacher perspectives relating to the use of technology in language teaching. In addition, Tondeur and colleagues (2008) note that
studies related to the relationship between technology and educational practices and cognitions are minimal. So far, most language-related studies cover grammar, writing and reading, and other areas are less studied (Borg, 2006). Ertmer (2005) supports this statement by arguing that although studies on teachers’ cognitions are very established, the area of teachers’ cognitions of technology is less explored.

If we recognise the importance of the role of teachers, we also realise that the integration of technology in teaching depends on the pedagogical beliefs of teachers (Che Had & Ab Rashid, 2019). This review has focused on teacher cognition and underlines the key role of teachers in the process of adopting ICT in education. Therefore, teachers need to cooperate with others in a supportive and professional environment (Zhao & Frank, 2003), be given space to reflect on their teaching practices (Ertmer, 2005), and to see examples of good practice of ICT (Ertmer & Ottenbreit-Leftwich, 2010). This review has discussed factors related to the integration of DT in teaching and outlined the differences between those factors. I have also reviewed studies in teacher cognition and identified some gaps in the literature.

If we narrow down the focus to a more specific context, namely the context of developing countries such as Malaysia, some further gaps can be identified. Most studies involving English teachers' perceptions and use of DT in teaching were carried out in smart schools, as compared to public schools. This may be because the smart schools have better ICT facilities. However, even though public schools may not have as sophisticated ICT equipment, I believe that it is appropriate for more research to be carried out in such an environment since most schools around the world have a moderate level of technology. Other than that, most studies have focused on teachers' attitudes towards, general perceptions of, and perceived levels of competence, in the use of DT in English language education. There is very little descriptive and in-depth research on English teachers' cognitions and their actual use of DT in literacy instruction. Moreover, most of the previous research has used quantitative methods, and although such studies may be useful in describing the perceptions of teachers and the use of DT, they do not provide in-depth information, compared to the information that can be obtained through qualitative methods. In addition, although a few studies have been conducted to assess the level of ICT skills among Malaysian teachers, only two were conducted specifically on English teachers (Abdul Razak et al., 2009; Abdul Razak & Embi, 2004) while other studies have focused on subject areas such as
science and mathematics (e.g., Mahmud & Hj. Ismail, 2010; Sa'ari et al., 2005), and one study has assessed prospective teachers of a variety of different subjects (Bakar & Mohamed, 2008).

Looking at the research on teacher cognition and ICT, specifically in the context of a developing country and focusing on second language teachers in rural schools, a number of gaps have been identified, and more research would clearly be useful in this area.
CHAPTER 3: RESEARCH METHODOLOGY

After considering the relevant literature, the nature of the research problem, and the
guiding conceptual framework, it appears that an extensive qualitative, in-depth and
descriptive research approach is useful in order to study the nature and relevance of
Malaysian teachers’ cognitions about and uses of DT in literacy instruction, while
additionally considering the historical, linguistic, social and geographical elements
behind them. A multiple case study approach was chosen, one of several approaches
typically utilised as a part of naturalistic inquiry. This chapter will clarify the
principles behind the methodological decisions, and details of the procedure
undertaken to select the five participants. This will be followed by an elaboration on
the different data analysis methods as well as the analytical techniques employed.
Consideration is then given to the reliability and validity of the research. As stated in
Chapter 1, this research aims to address the following questions all connected with the
overall aim of understanding how and why Malaysian teachers in rural schools can
use DT for ESL literacy instruction:

1. How do Malaysian teachers use DT for ESL literacy instruction in the
classroom?
   1.1 What are their overall ESL literacy instruction practices?
   1.2 How do they use DT within those practices?

2. What is the nature of Malaysian teachers’ cognitions about (the use of) DT in
   ESL literacy instruction?
   2.1 What are their cognitions about ESL literacy instruction in general?
   2.2 What are their cognitions about the role of DT in ESL literacy instruction?

3. Where do the teachers’ cognitions about the use of DT in ESL literacy
   instruction come from?
   3.1 Where do their cognitions about DT come from?
   3.2 Where do their cognitions about the use of DT in ESL literacy
       instruction come from?
4. How are Malaysian teachers’ cognitions about DT related to their use of DT in ESL literacy instruction?

3.1 Type of research: qualitative

Guided by the research questions, a qualitative research design has been chosen for this study. Below, I will explain the reasons for choosing this approach by a) explaining the definitions of a ‘qualitative design’ and its main characteristics, and b) emphasising the association between the descriptions and my study.

3.1.1 Definition and rationale

Qualitative research has a long, rich history that cuts across various fields, for example, anthropology, history, sociology and social psychology. The meaning of qualitative research is, therefore, tied to the particular historical setting within which it is being undertaken (Denzin & Lincoln, 2008). This may explain why some introductory scholarly work on qualitative research does not have a clear definition of the research design used in this study. Nonetheless, the explanation below gives a fundamental explanation. Qualitative research focuses on a naturalistic approach to interpret situations. Qualitative researchers will study a phenomenon in its original setting, in order to understand, interpret, and analyse the phenomenon from the points of view of those involved (Denzin & Lincoln, 2008; Creswell, 2014; Newby, 2010). Qualitative research also converts the world into a series of representations, using methods such as interviews, photographs, recordings, journals, field notes and more. Previous literature has provided descriptions of the differences between qualitative and quantitative studies. The following is a synthesis of this literature, offering elaborations on the key characteristics of qualitative research:

- Conducted in the actual setting where the researcher will experience what happens in the situation personally. (Creswell, 2014; Newby, 2010).
• The design showcases the subjective understanding and is generally interpretive (Creswell, 2014).

• The design is based on a situation that has many realities, and not only by one definite situation (Newby, 2010).

• Inductive approaches to data analysis are followed in this design, and holistic and in-depth accounts are usually produced (Newby, 2010).

• Through this design, the outcome cannot be expected to be too early, as when field studies are conducted, there will be changes in terms of the review process (Creswell, 2014).

• Researchers become the main tool of the research process and the study conducted does not rely heavily on instruments that are made or designed by other researchers (Creswell, 2014).

• The reflexive nature of the research will be affected by the background of the researcher (Creswell, 2014; Denzin & Lincoln, 2008).

• The study conducted does not rely heavily on instruments that are made or designed by other researchers (Creswell, 2014).

This study examines the nature of Malaysian teachers' cognitions about DT, cognitions that are unobservable but play an important role in the professional lives of teachers. This study will also explore how teachers use DT in literacy instruction. Relating the objectives of this study to those of qualitative research will justify the decision to employ such a research design.

Related literature on teacher attitudes and perspectives shows a tendency to use qualitative research methods. For example, Pajares (1992) argues that qualitative approaches are very useful in the study of teachers' cognitions. In fact, looking at the recent literature on teacher cognitions, positivistic research is rarely used in this field (Borg, 2006).

Reflecting on qualitative research, Creswell (2014) states that qualitative studies use diverse methods and that qualitative researchers organize their data in understandable categories and themes in order to interpret it. Therefore, I feel that this method is appropriate for studying multi-faceted teacher cognitions, which needs to be studied with different methods before the actual situation can be understood.
3.2 Research tradition: case study

A qualitative case study design was used in this research. A case study design aims to answer ‘why’ and ‘how’ questions (Newby, 2010) and offers the ability to focus on issues or concerns through prolonged engagement with participants as they go about their daily lives. The case study in this research specifically examines language teaching practices among ESL teachers, and their language learners’ responses to instruction.

Having located this study within the tradition of qualitative research, I will explain the rationale behind my decision further by describing a) the definition and characteristics of a case study, and b) the connection between the description and my study.

3.2.1 Definition and rationale

Case study research has been described in various ways, depending on what researchers consider to be ‘a case’. A case study gives a real picture of real people in their real life and environment, and that factor gives the reader a clear picture of the actual situation of a case (Cohen, Manion & Morrison, 2018).

Case study is a qualitative method that requires the researcher to explore a specific phenomenon (a case) or some phenomena (cases) within a certain time frame, through the accumulation of comprehensive data, taking into account various sources of information (e.g., interviews, surveys, documents, observations etc.), before reporting the descriptions and themes of the case (Cohen, et. al., 2018).

The literature has recognised various general attributes connected with case study research. These include:

- Case studies focus on studying why a case occurs as it happens and pay attention to discussing the importance of a particular example, which can be compared to other cases (Cohen, et. al., 2018; Newby, 2010).
• This approach focuses empirically on the ordinary thoughts, activities, and behaviours of participants in order to gain a better understanding of their lives (Creswell and Poth, 2017).
• A case study focuses on what is happening over a relatively long period of time, to get in-depth data (Newby, 2010).
• Case studies apply various methods of data collection such as documentation, interviews etc. (Newby, 2010).
• It is important first to determine the overall goal of the study (whether exploratory or evaluative) before deciding the methods to be used (Thomas, 2011). Then, consideration should also be given to whether the study is a multiple case study or a single case study and whether it is retrospective, snapshot or diachronic and whether it is nested, sequential or parallel (ibid.).

My own research examines the complexities and nuances in the thinking of teachers, and how their perspectives relate to their teaching practices. As teachers’ cognitions are formed from and in social interaction, the context in which cognitions and practices arise is very important. After reviewing the methodological options, I decided to use an exploratory multiple case study design for this research, focusing on current DT conceptions and use by a small number of teachers in different rural schools who use technology often and purposively. My intention was not to generalise from these cases but to develop a deeper understanding of the phenomenon of DT use by teachers in rural schools, in particular by going deeper into teachers’ cognitions regarding such use than has been attempted in previous studies. In this way I hoped also to contribute to a better understanding of the nature of teacher cognitions, in general, in this area.

3.3 Research setting

The study was conducted in three primary schools in the southernmost state of Peninsular Malaysia, Johor. Although the schools involved are located in rural areas, all are within an area of development, and have DT facilities (as will be described in
greater detail in 4.1.2, 4.2.2 and 4.3.2), including access to the Internet. Most of the population in this state are of Malay ethnicity. Even though the state is developing immensely and has a successful tourism industry, it is generally viewed as a homogeneously populated and financially immature state, and the English dialect is not widely spoken or utilised as part of day-to-day life (Gaudart, 1999). The high density of a Malay ethnic group, and the lack of other ethnic groups, in the area has likewise constrained the utilisation of the English language (David et al., 2009). Most Malay communities in Malaysia use the Malay language when communicating with each other.

I chose to focus on a rural area of Malaysia because students there are frequently reported to have low English language proficiency, especially in English writing, and they have shown low to intermediate scores in English language national examinations in recent years (Chan et al., 2008; Darus & Subramaniam, 2009; Jalaluddin et al., 2008; Mukundan et al, 2005; Vengadasamy, 2006). Given that the government implementation of ICT across all schools in Malaysia was specifically intended to improve teaching and learning (Bakar & Mohamed, 2008), the decision to conduct the study in a state with under-performing students was relevant and necessary, to determine whether or not DT has fulfilled its purpose in increasing the quality of teaching and learning (specifically in English literacy).

Three schools were chosen from rural areas outside the more populous towns in this southern state of Peninsular Malaysia. The decision to focus on the rural region was because of the variegated degrees of exposure, access, and mastery that the teachers and students were expected to have in the utilisation of DT in their day to day lives, relating to (1) differing financial statuses of teachers and students in a rural setting; (2) linked to this, different levels of access to DT at home and in the neighbourhood, among both teachers and students; (3) different degrees of early exposure or introduction to DT, either from a very early stage in their lives or later on; and (4) variations in the level of expertise in using DT among teachers and students. These aspects of social environment and participants' experiences might be expected to influence their use of DT in daily life and thus might influence attitudes towards and use of DT for literacy instruction in school. Although the study was conducted in rural areas, students and teachers may still have access to the use of DT such as computers and the Internet outside school, but such access may be quite limited as
most students come from relatively poor families. Indeed, as it turned out (and is explained in more detail in findings chapters), most of the students do not have access to a computer at home, and they therefore have relatively little, if any, exposure to computer use outside school.

Focusing on these rural school settings enabled me to perceive how teachers teach students who extend impressively in their competency in DT, particularly during a period when these students are additionally presented with the learning of DT at school and through different wellsprings of data. For example, the students had most likely been heavily exposed to many types of DT communication (i.e., radio, TV, the Internet, and so on) and their peers, despite the fact that some of them might not have any access to DT at home compared to those who come from families with better socioeconomic backgrounds. Studying the utilisation of DT in English literacy instruction within this demographic will enable me to identify the issues faced by teachers in relation to low levels of English language proficiency and poor performance in English national examinations.

3.4 Participants

In order to select the teacher-participants for the study, I prepared a list of criteria. I utilised a chain sampling approach for recruitment purposes and to become familiar with the research settings, and to start the initial communication with the participants. In order to select the teachers, I created a list of criteria based on the needs of the study. The criteria specified that participants must have over five years of involvement in teaching English in Malaysia. Participants needed to show a similar educational background and possess teaching certification from the MOE.

Moreover, participants had to be acknowledged by their peers and superiors as very comfortable and confident using DT. The teachers to be selected should be those who use DT regularly and purposively, especially for teaching purposes. Participants also had to be comfortable discussing their current instructional practices, as well as their past instructional experiences. These criteria had to be met in order for participants to be considered. Selecting based on this systematic approach would, I hoped, help me to paint a comprehensive picture of the similarities (and contrasts) in the nature of cognitions about and employment of DT in ESL literacy instruction in
rural school contexts. The selection procedures were undertaken during the introductory phase of the study, in the first couple of weeks in the schools.

In the selection process, I utilised a purposive and snowball approach in distinguishing potential participants. After being granted access to the schools, I thoroughly discussed the selection criteria with the heads of the English language department in each school, and I then requested their assistance in identifying possible participants for my study. It is critical to note that even though a few recommendations were given by these heads of department, I did not choose exclusively in light of their proposals. I engaged in a second phase of selection, comprising of initial interactions with the suggested teachers, during which close observations were undertaken before finalising the selection process.

3.5 Ethical considerations

As I had to accompany and observe the participants at their places of work, in addition to studying elements related to participants’ personal and professional lives, this particular study raised some ethical issues that needed to be addressed professionally. Although I felt that it was hard to eliminate the risks completely, with appropriate measures in place, they could be minimised. Some important aspects were given due emphasis, such as complete transparency with the participants, obtaining University of Warwick ethical approval following established procedures for doctoral research studies, complying with code of ethics when doing the research, abiding by the institutions’ regulations, and the procedures established whether formal or informal, as well as respecting participants’ requests.

- To gain access to schools, I mailed letters to the District Education Office to request authorisation to conduct this study at five primary schools in the area. Upon consent from the District Education Office, I sent letters to the headmasters of these schools requesting permission to conduct my study.

- After my letters of solicitation were sent to the schools, I called the individual schools to confirm that consent was given to conduct my study. Soon after, I
attended meetings with either the schools' headmasters, deputy headmasters, or heads of the English language department of each school, to formally inform them of and ask for consent to conduct the study at their schools. During these meetings, I clearly explained the background of the study and the commitment required from the schools, especially from the teacher-participants who would be taking part in the study. The participants were also informed that they were entitled to withdraw from participating in the study at any time.

- One issue that received careful consideration was how to maintain the participants' anonymity when reporting the study. Their behaviours, thoughts, identities and associations are personal to them and should not be disclosed to the public. To ensure participant anonymity, I gave a pseudonym to every participant to protect their anonymity. The pseudonyms given were discussed and accepted by each participant prior to use.

- The data collection procedures were explained clearly to the participants, including the process of recording their activities in audio or visual form. The participants were informed that they had the right to make changes to these procedures to suit their privacy and needs. The participants were also informed of the parties who would have access to the study data, such as supervisors, examiners and so on.

- The participants also had the right to refuse to participate in any session, or not answer any questions during the data collection processes. Any data that would be collected were related to the research only, and any data that were not related to the study were discarded.

- I also explained to the participants that I would never intend to exert any influence on their practice of teaching, but only acted as a non-participating observer throughout the study process.
• All information collected was disclosed to the participants at the end of the data collection process, and their consent was obtained before the data were further analysed.

3.6 Pilot study

Before performing the actual research, I conducted a pilot study to make sure the instruments to be used were suitable and able to generate the necessary data. However, the data obtained from this pilot study were not used in the main study. Three methods, namely observations, stimulated recall and semi-structured interviews, were piloted, using two participants who matched the criteria for participation in the study.

The aims of the pilot study were to:

• ensure that the methods chosen to collect targeted information were reliable and rigorous.
• make sure instructions were clear.
• serve as a technical and methodological exercise to minimise problems that might arise during the main study.
• highlight areas that needed adjustments or improvements.
• find out whether anything was missing or lacking.
• gather opinions on how to improve the data collection methods.

The following is a description of the pilot study that was conducted.

3.6.1 Observations

The observations involved a senior teaching fellow who had been teaching for over 35 years. He was very experienced in literacy instruction and showed an active use of ICT in the classroom. Although he stated that he was not tech-savvy, he always used technology to help him in teaching, lesson planning, communicating with students, monitoring student performance, and so on. The pilot observations were conducted across two two-hour sessions and involved him teaching ten international university
students.

The main purpose of the pilot observations was to look at the following aspects: a) availability of digital tools, classroom infrastructure, physical setting, and other educational aids; b) topics, tasks, activities given by the teacher; c) general aspects of the teacher's instruction; and d) the teacher’s general use of ICT. Data collected during the observations also helped in determining questions for the stimulated recall pilot interview. At first, it was intended that these observations would be video recorded, but because there were problems in obtaining permission from the students, the recording had to be cancelled. I found that:

- The pilot observations helped me to understand the situation in a real research setting, which involved a variety of factors that could not have been anticipated, including how the teacher changed his way of teaching and his use of ICT based on the reactions and needs of his students.
- These observations helped in generating useful content and questions for the stimulated recall interviews.
- It seemed important to take notes on an ongoing basis, as the changes that happened during the sessions were quite abrupt and unpredictable. Therefore, I concluded that a video recording would be very important so that every situation that occurred in the classroom could be studied more thoroughly.
- Some technical problems might occur during the process of observations.

3.6.2 Stimulated recall interview

The stimulated recall pilot interview was conducted a few days after the pilot observations. From the stimulated recall pilot interview, I found that:

- It was difficult to discuss specific situations that occurred during the observations without video recording.
- Some interview questions needed to be changed because they were ambiguous and confusing.
- The answers given by the participant were not as expected. Sometimes the answers did not relate to the question that was asked. This is probably because the questions were not clear and confusing to the participant.
During the interview, I asked several times for the teacher to explain why he used certain methods in his classroom, but after a few times, the participant showed signs of discomfort at this question. Perhaps these kinds of questions made him feel as though I was questioning his credibility and the way he taught, which was not the intention. Therefore, after this, I decided to explain to the participants that my interview was not intended to evaluate their teaching methods, but merely to examine the reasons behind their chosen methods in the classroom.

All the questions posed to the participant were answered without any problems. The questions used in the interview were also able to generate the required data, as planned.

3.6.3 Semi-structured interviews

Three semi-structured interviews were conducted with an English teacher from Malaysia. He was chosen because he had more than six years of teaching experience in primary schools in Malaysia and was a frequent user of DT in his classrooms. Due to the distance, all sessions were conducted using the WhatsApp Call application. The sessions went smoothly and there were no disruptions during the interviews, and the quality of the audio was excellent. Each interview session was recorded using a voice recorder application to ensure that all data were securely and conveniently saved. From the semi-structured pilot interviews, I found that:

- The sessions generally went smoothly as planned. The participant showed seriousness and enthusiasm during the interviews and answered all the questions posed in earnest. He also did not show any problems understanding most questions asked.
- The participant used some Malaysian slang when answering the question, but since I am also Malaysian, I was able to understand.
- Sometimes, when giving answers, the participant unknowingly answered questions that I had yet to ask. Due to that, when I asked him certain questions, he responded that he had answered those questions already.
- The questions posed were able to generate the expected data, and the participant was able to understand all the questions asked, without any
confusion.

3.7 Role of the researcher and research participants

As stated in 3.5 above, before I arrived in Malaysia for the data collection process, I contacted and obtained permission from the MOE, the District Education Office, and the schools and teachers involved. Communication with the participants before the research period aimed to build rapport to reduce the influence of my role as observer in the classroom. I also explained the purpose of my study as best as possible so that they did not feel any pressure and could go through the process as naturally as possible. Before commencing the data collection process, we discussed topics related to our interests and backgrounds to bridge the gap between us and to foster a relationship. As a former teacher, I found it easy to relate to them and to understand what they discussed. I also used this initial communication to obtain information from participants regarding their preferences on the data collection process to enable them to feel comfortable throughout. I explained that during the collection process, I would monitor neutrally, and that I did not intend to evaluate or criticise their teaching methods, but rather objectively report on their teaching practices and the reasons behind them. During the classroom observations, I acted as an observer who monitored from the back of the classroom and did not interact with the class during the teaching and learning process. Overall, this study takes a reflexive approach to acknowledge the role I play in the whole process, as well as understanding the impact of such factors on outcomes and process studies (Mann, 2016).

3.8 Data collection methods

At the beginning of the study, individually, each participant was requested to fill out a questionnaire in a face-to-face meeting, before any other data collection process was performed. Each participant was also interviewed at the beginning, the middle, and the end of the study. On average, I observed four to seven lessons taught by the participants, and at least three of these observation sessions for each teacher were video recorded. Field notes were taken during the interviews and lesson observation
sessions. At the same time, I also gathered digital and printed lesson materials for every lesson observed. In addition, I communicated with the participants through telephone calls, WhatsApp messages and emails to discuss matters related to the study. Because this study used a multiple case study method, the data collection procedures were repeated for each participant. In other words, I utilised the same methodologies, procedures, and information gathering instruments and strategies for every teacher. During the data collection process, I also researched the schools, using the Internet and the school’s documents, to understand the sociocultural background of each school. These data were used in the data analysis. Finally, photos and observational notes of each school's infrastructure and amenities (especially the DT infrastructure) were recorded. These photos and observational notes included the classrooms settings, computer facilities and school libraries.

The data collection process took around five to seven months, and after this, ongoing communication continued to be conducted with participants through WhatsApp and email for about two years to obtain more data. Regular member checks were also conducted so that the analysis of data was confirmed to be what the participants intended and understood.

Table 3.1: Data collection processes

<table>
<thead>
<tr>
<th>Participant Date</th>
<th>Nadia</th>
<th>Izzue</th>
<th>Azman</th>
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<tbody>
<tr>
<td><strong>Week 1</strong>&lt;br&gt;(26.7.2016 – 31.7.2016)</td>
<td>• Meeting the headteacher&lt;br&gt;• Obtaining consent&lt;br&gt;• Establishing trust&lt;br&gt;• Negotiating role as researcher&lt;br&gt;• Completing the questionnaires/collection participants’ professional and personal background&lt;br&gt;• Collecting data about the schools’ backgrounds and facilities</td>
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<tr>
<td><strong>Week 2</strong>&lt;br&gt;</td>
<td>• Semi-structured Interview (Session 1)</td>
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<td></td>
<td></td>
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<tr>
<td>• Transcribing data</td>
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<tr>
<td>• Analysis of data</td>
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<tbody>
<tr>
<td>• Stimulated Recall Interview (Session 2)</td>
<td></td>
</tr>
<tr>
<td>• Observations of Lessons</td>
<td></td>
</tr>
<tr>
<td>• Field Notes</td>
<td></td>
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<tr>
<td>• Collection of Lesson Materials</td>
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<td>• Member check</td>
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<tbody>
<tr>
<td>• Semi-structured Interview (Session 3)</td>
<td></td>
</tr>
<tr>
<td>• Observations of Lessons</td>
<td></td>
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<tr>
<td>• Field Notes</td>
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<td>• Collection of Lesson Materials</td>
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<td>• Member check</td>
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<table>
<thead>
<tr>
<th>Week 7</th>
<th>(5.9.2016 – 11.9.2016)</th>
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<tr>
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<td>• Analysis of data</td>
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<tr>
<th>Week 8</th>
<th>(12.9.2016 – 18.9.2016)</th>
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<tbody>
<tr>
<td>• Stimulated Recall Interview (Session 4)</td>
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<tr>
<td>• Observations of Lessons</td>
<td></td>
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<tr>
<td>• Field Notes</td>
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<td>• Collection of Lesson Materials</td>
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<td>• Member check</td>
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<td>• Analysis of data</td>
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<th>Week 10</th>
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<tbody>
<tr>
<td>• Semi-structured Interview (Session 5)</td>
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<tr>
<td>Week</td>
<td>Dates</td>
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<tr>
<td>11</td>
<td>3.10.2016 – 9.10.2016</td>
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<tr>
<td>12</td>
<td>10.10.2016 – 16.10.2016</td>
</tr>
<tr>
<td>13</td>
<td>17.10.2016 – 23.10.2016</td>
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<tr>
<td>14</td>
<td>24.10.2016 – 30.10.2016</td>
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<tr>
<td>15</td>
<td>31.10.2016 – 6.11.2016</td>
</tr>
<tr>
<td>16</td>
<td>07.11.2016 – November 2018</td>
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The following table (Table 3.2) indicates the overall extent of data collected by means of the above process in relation to each research participant – and in relation to specific research questions –and following sections provide further information about each research method in turn.
Table 3.2: Extent of data collected and relationships to the research questions.

<table>
<thead>
<tr>
<th>Data collection methods</th>
<th>Participant</th>
<th>Questionnaire</th>
<th>Semi-structured interview</th>
<th>Stimulated recall interview</th>
<th>Observation of lessons</th>
<th>Field notes</th>
<th>Collection of lesson materials</th>
<th>Related research question(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nadia</td>
<td>1</td>
<td>682 minutes</td>
<td>650 minutes</td>
<td>1225 minutes</td>
<td>21</td>
<td>112 materials</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>Izzue</td>
<td>1</td>
<td>752 minutes</td>
<td>537 minutes</td>
<td>1342 minutes</td>
<td>21</td>
<td>124 materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Azman</td>
<td>1</td>
<td>632 minutes</td>
<td>521 minutes</td>
<td>1287 minutes</td>
<td>22</td>
<td>106 materials</td>
<td></td>
</tr>
</tbody>
</table>

3.8.1 Questionnaire

Each participant answered a preliminary questionnaire at the beginning of the study, before the first interview session (see Appendices 8, 9 and 10 for completed questionnaires of all three participants). The process of filling out the questionnaire was done face-to-face rather than remotely. In this questionnaire, the teachers provided information about their professional and personal background, personal contact details, and the details about their current teaching duties. They were also required to answer some questions using a four-level Likert scale (i.e., 1-Very Seldom; 2-Seldom; 3-Often; and 4-Very Often). This part of the questionnaire asked about their access to and use of DT at school and at home; their DT training for English literacy instruction; their use of DT in English literacy instruction; their personal and
professional training in literacy instruction and DT; and their personal concerns about the use of DT in English literacy instruction. The questionnaire served as an initial starting point in the data collection processes, enabling me to collect some early information on which to base questions for the three interview sessions in the study before, during and after my period of observation of lessons (termed here, with no intention to imply that this was an experimental study, ‘Pre-Instruction Interview’, ‘During-Instruction Interview’, and ‘Post-Instruction Interview’).

The questionnaire served as an initial starting point in the data collection processes, enabling me to collect some early information on which to base questions for the three interview sessions in the study before, during and after my period of observation of lessons (termed here, with no intention to imply that this was an experimental study, ‘Pre-Instruction Interview’, ‘During-Instruction Interview’, and ‘Post-Instruction Interview’).

The data from the questionnaires were used only to obtain background data and a basic overview of DT use among the participants and were used to formulate the questions to be asked during the interviews. Thus, the purpose of the questionnaires was not to collect comprehensive data to answer the research questions, but to provide background and to act as a starting point for the interview and observation processes, which were the main methods employed in this study. Therefore, data gathered from this questionnaire were not analysed quantitatively but were referred to during interviews and as profiles of participants were written (in 4.1.1, 4.2.1 and 4.3.1, and in chapters 5, 6 and 7), but were not analysed separately.

Overall, the process went smoothly. All participants answered all the questions in the questionnaire, and generally, they were able to provide the desired information without any problems. While some of them took a long time to return their questionnaires to me, in the end, I managed to get the data that I required to move on to interviews.

3.8.2 Semi-structured interview

Semi-structured interview sessions were conducted individually with each participant at the start of the study, in the middle of the study, and at end of the study. Every interview session was intended to elicit information about their cognitions about and uses of DT in ESL literacy instruction. I had piloted the interview questions with a few doctoral colleagues and with a few Malaysian English teachers first, in order to refine these questions (i.e., alter, incorporate extra inquiries, and/or exclude unimportant ones) before I utilised them in the actual interview sessions.

Before the first interview, I described the study explicitly and provided an introductory session (separately, to each participant) as a rapport-building step, to try
to ensure that participants would feel comfortable with me during the interviews. I also obtained permission from various parties to ensure that no activities involved in the study would offend anyone or violate any rules. I also asked the participants about their preferences regarding where and when the interview should take place (i.e., at home, in cafes, school etc.). Those steps were taken to assure the quality of data that would be gained from the interviews.

The first interview session (the Pre-Instruction Interview) was conducted with each teacher before the observation sessions. In this interview, I found out about the teachers' attitudes towards and uses of DT in English literacy instruction, as well as their professional and personal backgrounds, English literacy instruction practices, and general employment of DT in their day-to-day lives. The interviews for two teachers, however, had to be delayed for a few days because they were busy with work and personal affairs. The interview sessions were conducted in enclosed and quiet areas, such as the teachers' offices, or in cafes that were not too crowded.

The second interview (the During Instruction Interview) was conducted with each teacher in the middle of the study after I had observed every teacher's ESL literacy teaching 2 or 3 times. During this interview, I asked about their training in English literacy instruction, their training on the utilisation of DT in English teaching, and cognitions about and use of DT in the teaching of English literacy. My questions were also more focused on the aspects of DT usage in the classroom (i.e., the reasons for choosing DT hardware, frequency of use, related issues, etc.), as well as research related questions 1, 2 and 3.

The third interview (the Post-Instruction Interview) was conducted with each teacher towards the end of the study after I had finished the classroom observations and gathered the lesson materials from them. In this interview session, I obtained information about their particular use of DT in English literacy instruction (or lack of use), their reasons behind its utilisation, issues they typically encountered when using DT in English literacy instruction, and their reflections on their attitudes about and uses of DT in English literacy instruction.

Although most of the participants were busy with their work, I managed to complete all the interviews as planned. There were times when I hoped that the interviews could be extended in order to gather more information, but their schedules did not allow this.
3.8.3 Stimulated recall interview

As Tochon (2009) points out, video-based reflections can enable participants to reconstruct and explain what was thought in past events, to reflect on what has happened in the past and to shape the construction of reflections for present and future actions. For these reasons, I felt that stimulated recall interviews would be beneficial for gaining explanations about the thought processes involved in, as well as detailed explanations of, the approaches taken by the participants during their teaching sessions. For this study, fifteen stimulated recall sessions were conducted (three for every teacher). Some of the questions raised in the sessions were generated from the initial analysis of the semi-structured interviews. The participants agreed beforehand which lessons would be recorded for the purposes of the stimulated recall interview. Prior to each session, I informed each participant about the reasons behind utilising this instrument of data collection. I also informed them that they had complete freedom to control the pace of the session. Generally, the participants and I watched their lessons on my PC, and a voice recorder was used to record the recall sessions.

During the sessions, the teachers were asked to watch the lessons that were video recorded during the teaching observations, and they were asked to pause the videos at places that they felt were noteworthy and appropriate for discussions from the point of view of use of DT. In the course of the interviews, participants were asked to narrate the activities that took place, as recorded in the observation videos, before explaining in detail what they had planned, and the reasons why the activities were being conducted in the way observed. They would then provide information on unobservable matters regarding events occurring in the recordings (e.g. the reasons for selection for a particular use of DT and how it was used, their understanding of students' backgrounds and needs, the suitability of the situation, things they would do differently, the advantages and disadvantages of the methods they used, the relevance of the lessons to the curriculum, their thinking processes and reasons for particular actions, plans for future sessions, emotional factors, and so on). I also intervened on occasion to cross check and validate my interpretations regarding the situations that occurred in the recordings. I also asked related questions that I had prepared before those sessions, as well as any questions I had at the time, based on the explanations made.
All of the discussions in the stimulated recall sessions were recorded using a voice recorder and I transcribed each discussion for analysis.

3.8.4 Observation of lessons

I received great cooperation from all participants and their schools and was allowed access to the whole of every school, throughout the day, for the purpose of the study. The motivation behind observing participants’ actual use of DT in English literacy instruction was to create a clear picture of their instructional methodologies and later to check whether there were any differences between the teachers' perceptions and their real employment of DT in ESL literacy instruction. I thus carefully observed their general use of DT in ESL literacy instruction, taking notes about general aspects of the teacher’s practices such as the theme of the lesson and the assignments or exercises, as well as focusing specifically on observing the sorts of DT instruments utilised and how they were used. Moreover, I conducted observations of the teachers’ general ESL literacy instruction when not using DT. This was to observe and compare whether their cognitions about ESL literacy instruction, and their actual teaching methods, differed when using DT versus when not using DT.

In order to conduct the observations, I arranged with the participants in advance when I would attend their teaching sessions. Most participants were very busy with examinations and revision at the time of the study. There were times when I had to conduct up to four classroom observations in one day because the teachers were not available on other days. Nonetheless, I felt that all sessions provided sufficiently detailed data to portray how the teachers used DT in their teaching.

Each teacher was observed between fifteen to seventeen times during their ESL literacy instruction, but video recordings were only done between eight to ten times for each of the participants for ethical reasons. The teachers' lesson plans were observed and discussed before each lesson and, as a whole, only sessions that focused on the use of DT by teachers were video- and audio-recorded. Some of the other lessons were not video recorded because, based on the lesson plans given, the lessons focused only on the learning activities or projects done by the students, and the teachers only acted as facilitators for these activities. Because I was unable to obtain
parental permissions for some of the students, I could not video record those particular sessions, but I recorded my observations from those sessions in my field notes.

Before each observation, I reminded the teachers and students that my presence there was only as an observer, not as an assessor. I also tried to make them as comfortable as possible so that my presence there would not change their habits or ways of teaching and learning. I sat in one corner in the classroom to observe the activities that occurred, without interacting with the teachers or the students. Of course, I had also told the teachers involved that their identities and the schools would be kept confidential, and the findings from this study would not have any impact on their careers. Although the teachers and students involved were aware that they were being monitored and recorded, I did not feel any awkwardness or discomfort during the sessions. The teachers involved also stated that they had taught as usual and were not affected by the observations, nor had they made any changes as a result of the observations. They also stated that the students acted as usual even though they were being watched.

Before doing the classroom observations, I made sure that all the equipment and technical aspects involved were sufficient and of high enough quality for the recording processes. I used high-quality cameras and ensured that the quality of the video- and audio-recordings were good enough to be used as data. Prior to the recording process, I did several trial recordings to ensure that the quality of the recordings was satisfactory and to ensure that I was able to clearly record all the areas that I wanted. Using the tripod, I placed the camera at the side of the classroom, facing the teacher, to ensure a clear view of the teaching sessions. During the recording sessions, I sometimes adjusted the angle of the camera to continuously record the teaching done by the teachers. At the same time, I also recorded findings from my own observations in my field notes. After finishing the recording sessions, I made sure the recording videos were of sufficient quality before storing them in hard drives.

3.8.5 Field notes

I additionally took field notes to record the teachers' implicit and explicit attitudes about and utilisation of DT, particularly during the observations and interview
sessions (see Appendices 11, 12 and 14 for samples). This method was useful in recording practical components of the teachers' instruction (i.e., lesson plans, DT equipment, classroom seating plan, facilities, student attendance, and so on) that may have influenced the teaching practices. I also took field notes to record what I saw during the observations and compared my notes to the information gathered in the interviews and questionnaires. Field notes on my observations of the teachers' use of DT in their professional and personal lives were also taken.

These field notes served to supplement, compare, and contrast data collected from the questionnaires, observations, interviews and lesson materials. The field notes allowed me to record aspects of the teachers' professional and personal activities and interactions that were deemed relevant to the study. The field notes additionally assisted me in recalling the information gathered from the interviews, surveys, observations, and interactions, and to break down the information thoroughly and in more detail.

I observed and took notes of the schools’ DT facilities, basic amenities, the accessibility of DT in the classrooms, and the physical states of the classrooms and other places in which ESL literacy was taught. Photos of classrooms and other facilities were taken regularly with the consent of the teachers and school administrations. These photos recorded the accessibility of DT equipment, basic infrastructure, physical settings (i.e., seating arrangements), and other educational facilities that were involved in the literacy instruction.

The whole process went smoothly. The schools for all participants allowed me to access the entire areas of the school for the purpose of the study.

3.8.6 Collection of lesson materials

During the period I observed lessons, I also collected the lesson materials (i.e., digital and printed materials, lesson plans, textbooks, etc.) utilised in each session, gathered from each participant. These lesson materials (both printed and digital) were generally gathered before or during every observation. The reason for gathering these lesson materials was that they served to triangulate the information collected from the observations and interviews. This allowed me to cross-reference the teachers' lesson
materials with their attitudes about and utilisations of DT in English language literacy instruction. See Appendices 13 and 15 for samples.

3.9 Data analysis

The main data for this study were collected from the observations, the interview sessions, and the field notes. Findings were triangulated by using information from additional sources (Cohen, et. al., 2018), such as the teachers' lesson materials and questionnaire responses. The set of data provided numerous sorts of information for the purpose of answering the research questions. I then analysed the data using cross-case and within-case analysis.

To begin data analysis, I transcribed all interviews immediately after the sessions. Interviews (and transcripts) were mainly in English, with occasional use of Bahasa Malaysia. Everything was transcribed verbatim. English was used most of the time, and I included the translations for any Bahasa Malaysia words in the quotations. This was a time-consuming process requiring precision and concentration. I named the relevant files according to the type of data, the name of the participant, and the date it was collected. For instance, (Nadia/Int1/27Sep16) indicated that the data concerned the first interview undertaken with Nadia (pseudonym) and was conducted on September 9, 2016. In addition to storing the data on a laptop, I kept backup copies on external hard drives to reduce the risk of data loss. After transcription, I imported the data into NVivo 11 Qualitative Research Software to facilitate the process of analysis and to make reviewing the data easier. I then recognised a few guiding categories related to the research questions. However, the data analysis was exploratory in nature and I continuously looked for other emerging themes that were also discussed and analysed. The picture below shows the number of codes (nodes) analysed from the interviews for all three participants:
Picture 3.1: The number of codes (nodes) analysed from the interviews and observation videos for all three participants using NVivo 11

I coded the data into idea units before dividing them further into two levels, specific codes (the gist of each unit) and general codes (the purpose of the units) (see Appendix 7). The codes were later gathered in Microsoft Word files. To distinguish similarities and themes, I sorted the coded units by the categories identified earlier from the data.

Table 3.3: Examples of emerging themes from the analysis of interviews

<table>
<thead>
<tr>
<th>Interview accounts</th>
<th>Themes labelled</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Essentially learning English is enjoyable. Teachers incorporate games, singing songs, making artwork and creative handcrafts or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>English is enjoyable</td>
</tr>
</tbody>
</table>
mobiles. It can be fun and enjoyable for both teachers and students.”

“I think English is valuable and English is something new for my pupils. [...] They speak in their house in their native language but in school they learn something new which is English. Through song they learn English, through videos, interesting videos in YouTube. They also learn English in storybook. I think they enjoy learning something new.”

“English can help people to function better as a human being in different parts of the world. E.g. when you go to any country (especially English-speaking countries) you will need to have a good command of English in order for you to be able to function in the community properly.”

“I think English literacy is very important. For our daily life, as example, in our career development, if we are fluent in English, we can go into many field in our job scope such as high ranking officials and diplomats”

“Obviously, the English literacy instruction is important for examination, but examination is not the only way to assess students’ performance or development in learning the language. Too
much reliance on examination results are the major cause that leads to the issue or problem of university graduates with low English proficiency.”

The process of analysing the observation videos and the field notes was very similar to the analysis processes for the interviews mentioned above. I named the files with specific titles, specifying the participant's name, the type of data, and the date the data was recorded. For instance, (Nadia / Obs1 / 27Sep16) indicated that the data concerned the first observation video involving a teaching session conducted by Nadia (pseudonym) and was conducted on September 9, 2016. Subsequently, the video recordings and field notes were imported into NVivo 11 Qualitative Research Software to facilitate the process of analysis and to make reviewing the data easier. I then recognised a few guiding categories related to the research questions. Similar to the interview analysis processes, the data analysis for the observation videos and field notes was exploratory in nature and I continuously looked for other emerging themes that were also discussed and analysed. I coded the data into idea units before dividing them further into two levels, specific codes (the gist of each unit) and general codes (the purpose of the units).

After that, I sorted the data from the interviews, field notes, and observations based on the main themes or patterns (see Picture 3.2), while at all times connecting them to the research questions, to see the differences and similarities between the teachers’ attitudes about and utilisation of DT in literacy instruction. Each theme was at this stage associated with a specific interview, observation, and field notes section. However, after I finished labelling the themes related to different sections of the interviews, observations and field notes, I discovered that the themes from the three data sources were the same, or almost identical, for all three participants. Therefore, to avoid overlapping of the same theme, I have reported my findings by bringing together the three data sources according to the themes which were confirmed by the triangulation process just described (see Table also 3.4), teacher by teacher in chapters 5, 6 and 7.
Later, data from every teacher were compared and contrasted with all types of data, as well as with other participants. For analysis of individual participant variation, I provided an in-depth description for each teacher based on specific themes. When comparing between participants, I analysed the similar and different units and themes in detail. Throughout the study, I regularly checked my findings against the original data, in addition to communicating with the participants regularly to ensure that the interpretations I made in relation to the collected and analysed data were accurate.
### Table 3.4: Sample of triangulation process

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sample of interview data</th>
<th>Sample of field note data</th>
<th>Sample of observation data</th>
<th>Sample of lesson materials</th>
<th>Related research questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attract students’ attention</td>
<td>“Yes surely, as I said their focus will be somewhere else especially the boys, we cannot control everybody to look at me, to listen to what I said, but when we are using computer or LCD or camera, they will automatically focus on what we are doing as they don’t have that at home.” (Azman/Int 3/16Oct16)</td>
<td>“Students were very excited looking at Elsa’s pictures” (Nadia/Obs 1/6.8.16)</td>
<td>Minute 25:25 (Izzue/Obs5/03.10.16)</td>
<td>‘Deepavali you tube video’ (Izzue/Obs 5/03.10.16)</td>
<td>1, 2 and 4.</td>
</tr>
</tbody>
</table>
3.10 Summary of research methodology

The objectives of the study were: 1) to examine the nature of Malaysian teachers’ cognitions about digital technology and its use in English literacy instruction; 2) to examine the origins of teachers’ cognitions; 3) to examine how Malaysian teachers use digital technology for literacy instruction in the classroom; and 4) to examine how Malaysian teachers’ cognitions about digital technology are related to their use of digital technology in ESL literacy instruction. This study examined teachers’ cognitions about and uses of digital technology in English literacy instruction among three teachers in Malaysia. Working within the tradition of descriptive and exploratory qualitative research, this research design employed a multiple case-study approach. The teachers were surveyed, interviewed, and observed in order to study their cognitions about and uses of digital technology in English literacy instruction.
CHAPTER 4: PARTICIPANTS AND SETTINGS

As stated in Chapter 3, the study was conducted at three primary schools in the southernmost state of the Peninsular Malaysia, Johor. This chapter will describe the personal, educational and professional backgrounds of each participant, as well as provide information about the setting of the study.

4.1 First Participant: Nadia

This section contains a description of the personal and professional background of the research participant, Nadia. In addition, this section will also provide information about Nadia's cognition and practices in English literacy instruction in general, and her use of DT in her English literacy classes.

4.1.1 Nadia’s personal and educational background

Nadia is a 29-year old Malay female English teacher. At the time of data collection, she lived within a ten-minute drive of the school, but she is not native to the state. She was born in 1987 in Kuala Lumpur, the capital of Malaysia, but previously lived in various states due to her father’s job as an air force mechanic. Nadia also had to change schools several times to follow her father. Being Malay, she speaks the Malay language, but she sometimes uses English. Nadia informed me that she came from a family with a moderate economic background, and since childhood, she and her siblings have received encouragement from their parents to speak English. She attended Chinese kindergarten for two years (with English as the medium of instruction) before being enrolled in a public school. The main medium of instruction in her kindergarten was English.

Nadia’s interest in and deep appreciation for English appeared early in her childhood. She often watched films and read books in English. Her favourites were fairy tales and Aesop’s fables. When she got older, she became increasingly fond of reading novels, especially science fiction or fantasy novels like Harry Potter and Enid Blyton. Her father encouraged her to excel academically, tutoring her while she was
studying for the national examination, Primary School Assessment Test (UPSR). Nadia recalled:

He'd buy all sorts of exercise books and he'd go through each exercise with me. One of the exercises that I think had helped me a lot with especially with my pronunciation is what I call news reading session. Whenever we came across a passage, he would ask me to read the passage out loud like I was the news anchor. Then, he'd correct any mispronunciation I made. Then, he'd ask me to try to translate the whole thing according to what I understand. Then, he'd ask me to list words that I don't understand and had me flip through the dictionary to find its meaning. All of these were done at home, after school hour. After he came home from work. Sometimes I talk to myself so that I can hear what I say. It helps me to understand what I read better. It has become a habit.

(Nadia/Int4/08Nov16)

Nadia's interests and inclinations in English continued to grow as she matured, and she chose to become an English teacher. Despite majoring in Accounting, her passion for English led her to accept an offer to study on a twinning degree program (offered jointly by a teaching institution and a local university) in the field of Teaching English as a Second Language (TESL). She later changed institutions to study for a Bachelor of Education (TESL). In 2010, she graduated from the university and was posted as a teacher in 2011.

4.1.1.1 Nadia as an English teacher at Abdul Rahim Primary School (ARPS)

At the time of research, Nadia had been teaching for 6 years. She first started teaching at an all-boys primary school. After five years, she transferred to ARPS, which was surprising for her because she did not apply for it. Apparently, she was transferred because of her expertise, and ARPS at that moment needed her qualifications more than the previous school. She was appointed as the Head of English after a year based on her qualifications and has held that position ever since. As well as teaching students, she instructs teachers in the English language. She recalled:
It would help them more, I would say. Somehow, I think it will be a good platform for them to practice their English and help to improve. I mean, I have been helping some of my fellow teachers to do, er, prepare lessons, prepare er, materials, but it’s quite, I would say, it’s fun. We get to spend some time with friends, and, er, for me personally it was a good experience because I don’t get to speak English much.

(Nadia/Int1/27Jul16)

She encourages students and staff to speak in English, and converses mainly in English herself for fear that her English proficiency might deteriorate or worsen without practice. According to her, sometimes people around her stare in disgust or mock her when she tries to have conversations in English. However, she ignores it all because she is convinced that, as an English teacher, she should be a role model for her students.

She recalled:

Well, it depends on the person who sees it. Sometimes maybe we just, overthinking it, but sometimes it’s quite obvious from their facial expressions, how they send this like ‘oh, these people speak English’, and then how people keep on bashing people who speak English in FB, which is quite evident right, someone speaks English, good English, writes status in full English, good English, and then people start saying like “eh kenapa tak cakap Bahasa Melayu, kau kan orang Melayu” (Eh, why don’t you speak Malay? You are Malay, right?) and stuff. So that kind of mentality is still very strong in Malaysia, which is, something that hinders the progress of our children’s English proficiency level. Sometimes, we try to make them speak, really. I mean, back when I was a little girl, I watch cartoons in English, because that is something that would at least help me learn English better. I get to listen and then to imitate the things that I’ve heard, but here, nowadays, they have Astro, they have cartoons, and they can switch. The cartoon is supposed to speak English, I know Mickey Mouse speaks English, but suddenly, Mickey Mouse speaks Malay, you
just need to switch it. You just press a few buttons and then it stops speaking. So that would be the biggest challenge of teaching English in Malaysia.

(Nadia/Int1/27Jul16)

Her interest and confidence in teaching began during her early years at school. Nadia said that one additional factor that has motivated and inspired confidence in her is that she has been able to teach English well since her school days. While in elementary school, her English proficiency meant that she became a 'mini-teacher' in her class, assisting her English teacher and teaching her friends. Her passion for teaching continued to grow during secondary school, when Nadia and her friends had to study without guidance from teachers. Therefore, many of her friends would come to Nadia for tutoring. She also recounted that one student, who was three years older than her, sought her advice before the MUET examination.

### 4.1.2 Research setting: ARPS

ARPS is an all-girls public primary school in an economically underdeveloped district in a southern state of Peninsular Malaysia. The school was built on government land with an area of 5.5 acres and can accommodate around 300 students. During the research period, the school had 26 teachers, four of whom were English teachers. The school also had 14 administrators, consisting of the headmaster, senior assistants, heads of panels, and others. Contrary to the school system in other countries, where school administrators are not teachers, and have a range of tasks and a greater focus on leadership duties, administrators in the Malaysian education system still need to carry out their responsibilities as educators (i.e., teach, give tests, mark papers, etc.). However, due to the additional burden of administrative tasks, administrators are given fewer teaching responsibilities compared to other teachers (i.e., fewer classes and courses). The same situation applies to ARPS. Additionally, 12 non-academic staff members (i.e., laboratory assistant, computer technician, clerk, etc.) work at the school to help administrators and teachers with their daily tasks.

RPS had 214 students, aged between 5 and 12 years. All the students who attended lived with their parents. Therefore, most of the students lived nearby, as is
normal practice within the municipality. ARPS also has kindergarten and special education classes. Kindergarten classes are located in the same classroom block with the other classes, but these classrooms are equipped with a kitchen to make it easier for teachers to prepare food for their students. Facilities and interior decoration for the kindergarten classrooms are designed to serve the needs of the students aged 5 to 6 years. The allocation of classes in Grades 1 to 3 are random, while in Grades 4 to 6, students are placed in classes based on academic performance; students who excel will be put into the same class, while students who are somewhat weaker are placed elsewhere to accommodate their different academic needs.

Because ARPS is open to public enrolment, the pupils at ARPS come from various socio-economic backgrounds. Most pupils at ARPS are Malay, probably because most of the population living in the area near the school is Malay. As most Malays are Muslims, the culture at ARPS is heavily influenced by the Islamic lifestyle where most (if not all) female pupils and staff wear the hijab, in addition to carrying out activities that are mostly based on Islamic teachings. For example, they recite the prayers together before leaving to their respective classrooms each morning.

4.1.2.1 ARPS’s classroom environment and basic amenities

Because ARPS is a cluster of schools that receives adequate funding each year, the school amenities are quite sufficient, but this is not the case for the DT facilities. Although the allocation provided is considered normal for such schools, the provision of DT facilities is still insufficient to meet the needs of teachers and students. The facilities provided include offices for the teachers, senior assistants, and non-academic staff (i.e., clerks, teaching assistants etc.); a life skills laboratory; a science laboratory; a mathematics laboratory; one access room for teaching and learning using the media; a computer laboratory; self-access learning rooms; 34 normal classrooms; a counselling room for counselling and student discipline; an examination room to accommodate school examinations; a hall that can accommodate 800 students; a resource centre that houses a mini-museum; a surau (Muslim prayer building, separated from the main building) with two separate sections (for males and females); a teacher staffroom equipped with a pantry; a meeting room with a speaker system; a J-Qaf (Islamic education room); a canteen with two separate sections (an open-air
section for students and an air-conditioned room for teachers); a room for teaching aids; and two classrooms called the millennial classrooms. Other amenities include a stationery shop, a herb garden, two gazebos, a hockey field (which is also used for other sporting events), and an assembly square.

Classrooms at ARPS are resemble most classrooms in public schools throughout the country. Each classroom can accommodate around 30 to 35 pupils (although at ARPS, the number of students is around 20 to 25 per classroom). In addition, most of the time, students remain in their classrooms and teachers will come to them when it is time to teach their subject. In contrast to other countries where teachers teach every subject to a group of students, each teacher in Malaysia teaches only certain subjects. Exclusions apply only to subjects that require hardware or equipment such as science, life skills, computer education, Islamic education and mathematics, where students must move to the laboratories and special rooms that are appropriate for these subjects. Students go to the multipurpose field during physical education.

As of 2015, ARPS was selected to be the benchmark for the 21st Century Classrooms Program for the district. There are two classrooms at the school with different layouts, facilities and arrangements, in order to reflect student-centred learning techniques teamwork among students. The students’ tables in these classrooms are arranged in islands. In addition, there is a 'parking board' where students can leave messages via sticky notes for the teachers. On this board, students can anonymously share their opinions, suggest changes to the classroom, or express their feelings. Through my observation, students often used the parking board to express their appreciation and gratitude to teachers. The board is part of an initiative to ensure more student voices are heard and enable all parties to understand the thoughts and feelings of students. Additionally, they also use a system of red, yellow and green cards placed in front of the student desks, so that students can indicate their feelings during the lesson; a red card means less satisfied, a yellow card means quite satisfied, and a green card means very satisfied or happy.

During the lessons, students may be asked to show the appropriate coloured cards. This information allows the teachers to respond immediately to student concerns and is another attempt to ensure that the welfare of students is maintained, besides helping them to give their students the best possible attention. In addition, each student
is provided with a small whiteboard and a marker pen, which they use to answer questions asked by the teacher or to have their say in the classroom. That way, students no longer need to learn passively by answering questions and exercises in their book without any discussion. Using a small whiteboard facilitates student discussion during group activities, such as by enabling them to keep a record of the discussion or draw a mind map. I noticed this approach made students more active and eager to contribute opinions.

The 21st-century classrooms are also equipped with LCD projectors and projector screens that are not available in other classrooms. This allows teachers to use computers in the classroom without the need to bring students to the computer room. In addition, the class size is restricted to between 15 and 20 pupils only to allow the teachers to give more attention to each student. Other classrooms at ARPS are generally equipped with whiteboards at the front of the class, and a bulletin board at the front and back of the class. Generally, no DT aids are placed in regular classrooms. If teachers want to teach using DT, they need to bring students to the computer laboratory or the self-access learning rooms. However, there are power outlets in each classroom, allowing teachers to bring in portable LCD projectors, radios, netbooks and other DT aids for teaching and learning.

### 4.1.2.2 ARPS’s DT amenities

Overall, ARPS has suitable DT amenities for the use of the students and staffs. The general office occupied by the non-academician staffs and the headteacher at the school is equipped with four computers complete with internet connection, along with other computer peripherals such as printers, scanners, facsimile machines, a laminator, and copier machines. The teachers’ room is equipped with four computers, a printer-scanner and a laminator that teachers share. Wi-Fi is also available in some areas around the school, especially areas adjacent to public areas such as the assembly hall and the school cafeteria. Other special rooms, such as the counselling room, the heads of departments' room and the prefects' room also come with a computer equipped with internet access, a scanner and a printer. The meeting room at ARPS is equipped with speaker systems. However, the LCD projector and laptop are portable and needs to be installed whenever you want to use it, as the projector screen is already mounted to the
The school hall is also equipped with a large audio system and also uses a portable LCD projector. The LCD projector case is mounted on the ceiling of the hall, but the projector is not left there in order to prevent theft. ARPS’s resource room is used to store a variety of equipment and teaching aids, such as charts, books, files and so on, and is equipped with a complete desktop computer with an internet connection along with a printer. The school library is also equipped with a desktop computer for the use of the librarians, a printer-scanner, and a small speaker system, a Wi-Fi router to allow students to use the internet, a television, and a DVD player to broadcast educational programs. In addition, the self-access learning room at ARPS accommodates two desktop computers with internet access, a printer, a laminator, and a variety of educational DVDs. The examination room is also equipped with a desktop computer, internet connection and printer. For the purpose of Islamic education, the surau (Muslim prayer building) and J-Qaf also come with a desktop computer, a printer, a scanner, and a speaker system. The table below illustrates the DT amenities at ARPS:

Table 4.1: ARPS’s DT Amenities

<table>
<thead>
<tr>
<th>Venues</th>
<th>DT Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers’ room</td>
<td>4 desktop computers (with secured Internet connections), a printer, and a laminator.</td>
</tr>
<tr>
<td>Main administrative office</td>
<td>Printers, scanners, facsimile machines, a laminator and copier machines.</td>
</tr>
<tr>
<td>School compound</td>
<td>Large audio system and wireless Internet network.</td>
</tr>
<tr>
<td>Access room</td>
<td>10 desktop computers (with secured Internet connections), an LCD projector, a projector screen, an audio system, a printer, and a scanner.</td>
</tr>
<tr>
<td>Resource room</td>
<td>A desktop computer (with secured Internet connections), a printer and a scanner.</td>
</tr>
<tr>
<td>Science, Mathematics and Living Skills laboratories</td>
<td>A projector screen for each room.</td>
</tr>
<tr>
<td>Room Type</td>
<td>Equipment</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Counselling room</td>
<td>A desktop computer (with secured Internet connections), and a printer.</td>
</tr>
<tr>
<td>Examination room</td>
<td>A desktop computer (with secured Internet connections), a printer and a scanner.</td>
</tr>
<tr>
<td>School hall</td>
<td>An audio system, a portable LCD projector, and a projector screen.</td>
</tr>
<tr>
<td>School library</td>
<td>A desktop computer (with secured Internet connections), an audio system, a television, a DVD player, a Wi-Fi router, a printer, and a laminator.</td>
</tr>
<tr>
<td>Meeting room</td>
<td>A portable LCD projector and a projector screen.</td>
</tr>
<tr>
<td>Heads of Education room</td>
<td>A desktop computer (with secured Internet connections), a scanner and a printer for each room.</td>
</tr>
<tr>
<td>Computer laboratory</td>
<td>26 desktop computers (with secured Internet connections), 20 netbooks, a portable LCD projector, a projector screen, 2 printers, a scanner, an audio system, an over-head projector, and educational DVDs.</td>
</tr>
</tbody>
</table>

The DT available in the rooms listed in Table 4.1 are primarily for use in teaching and education, although administrative and management tasks can also be undertaken using this DT. Certain rooms are exclusively used in education: the computer laboratory, the access room and the self-access learning room. The computer laboratory at ARPS has 26 desktop computers equipped with secured internet connections, 20 netbooks, portable LCD projector, an audio system, a printer, and a scanner. During the study period, 24 desktop computers functioned properly, while 2 desktop computers were broken. There is a technician who works at the school whose role is to ensure that DT equipment at the school functions well, while the ICT teacher in charge schedules the use of the computer laboratory in addition to providing the necessary training to teachers on the use of ICT in teaching. Normally, maintenance and monitoring of the school's ICT tools are completed by the ICT technician, but some computers cannot be repaired due to lack of funding. In addition to the computer laboratory, another room that provides digital technology for teaching and learning is the access room, which has 12 desktop computers with secured internet connections,
a portable LCD projector, a projector screen, and a printer-scanner. The self-access learning room can also be used for training purposes, especially to assist students who are weak in reading. The room holds two desktop computers with secured internet connections, a printer, and a variety of educational DVDs. From my observations, I found that most computers in the school have a secured Internet connection, but the connection is quite unstable. This situation usually occurs in the early morning and at noon, and not only interferes with school administration, but also limits the ability of teachers to use digital technology in their teaching. It also directly interferes with teachers’ lesson plans and discourages them from using digital technology.

Among the three rooms that provide DT specifically for teaching and learning, the computer laboratory is most suitable for a large number of students due to the number of desktop computers. In addition, the desktop computers in this room are newer and work better than those in the access and self-access learning rooms. The computer laboratory is also comfortable, spacious and well equipped, making it the most sought-after setting for teachers to hold a class. However, since the number of teachers who want to use the computer laboratory exceeds capacity, each teacher must book in advance.

Overall, the DT amenities at ARPS are quite limited for meeting the needs of the staff and students at the school. Most of these facilities are maintained and supervised by the technician and the ICT teachers on duty. In addition, the funds allocated by the Ministry of Education to the school each year are enough to ensure that most of the damaged digital technology resources can be repaired immediately. However, the use of digital technology for teaching and learning is limited by an unstable internet connection.
4.2 Second participant: Izzue

This section describes the personal, educational and professional background of the second research participant, Izzue. This section considers Izzue's cognition of and practices in English literacy instruction in general, his cognition about and use of DT in his English literacy classrooms, and how his cognition of DT has developed and influenced his employment of DT in English literacy instruction.

4.2.1 Izzue’s personal and educational background

Izzue is a 30-year-old male Malay-Muslim teacher of English who is from the research area under investigation. After finishing his primary school education, he studied at an Islamic secondary school close to his family home, before moving to a boarding school in the same district. He later studied at a matriculation college, before receiving a scholarship from the Malaysian MOE to undergo a twinning programme for a Teaching English as a Second Language (TESL) degree. In relation to his exposure to the English language, he mentioned:

I was exposed to English hmm since my childhood and I entered a kindergarten that speak in English and form that I have hmm sufficient background to gain the knowledge of the language but the problem is I can’t, I tend to hmm converse in Malay more and even though I speak in English I always speak in manglish which is Malay version of English. […] I get into college I have more Chinese friends that enable me to speak in English more and I get involve in basketball and (…) Wushu class that has more Chinese than Malay and I can practise my English there but by talking to Chinese my English start to evolve to Chinese English. The sentence structure is quite odd they just focus on the communication part as long as they can understand they think that the language is sufficient enough and then until I visit my brother in Australia, I found that Australian is full of they know where to pronounce with, with stress and where to their intonation is very nice and I, from that point I start to converse in English using proper stress and intonation and I’m, I am quite grateful that I visit
Australia because I can experience the local people, the environment of native speaker there and I learn quite important skills which is stress and intonation there and from there I start to converse in English with proper stress and intonation.

(Izzue/SRInt/29Nov16)

He also added:

Both of my parents are teachers and my mother teach Bahasa Melayu (Malay Language) and my father is actually an English teacher. I do think that they influenced me in my proficient because my father sometimes will teach me English at home and I, sometime I, he will will talk to me by language, Bahasa Melayu (Malay Language) and English that actually give me exposure that some of us are didn’t have the opportunity to have the good environment of English at home even my brother can speak English very well. He also helped me in my English learning. I think I’m grateful to be in this family. I also, I was a librarian during my primary school so I tend to have the opportunity to read more English book and because I’m stuck in the library during recess time so to fill in my ample time, waiting for other pupils to come in, I accidentally read more book than others and I gain the nilam award for reading. Actually, I’m thank, I feel thankful to my teacher for selecting me to be a librarian even though during that time I was one of the laziest person to read, when I start with the books, I have no choice but I have to read.

(Izzue/SRInt/29Nov16)

4.2.1.1 Izzue as an English teacher at Sungai Jenang School (SJPS)

At the time of the research, Izzue had been teaching for more than six years at two different schools. Before being transferred to SJPS, he was a teacher at a rural primary school about 30 kilometres from SJPS. Izzue began teaching in 2009.

As mentioned earlier, Izzue was posted to a rural primary school in a palm estate area after completing his bachelor’s degree. That primary school, according to
Izzue, had very poor computer facilities because it flooded almost every two years, and so all the computers constantly broken. Essentially, teachers in the school did not have any computer facilities and relied solely on non-digital teaching aids.

4.2.2 Research setting: SJPS

SJPS is located in a rural, and it is smaller in size than SAPS and BLPS. The school accommodates a total of around 400 students. During the research period, the school had 312 students (aging between 5 to 12 years old) and 34 teachers (aging between 25-60 years old), four of whom were English teachers. In terms of the student and teacher demographics, the majority were Malay-Muslims (including Izzue). The rest were either Indian or Chinese. Most of the students at the school were from a low socio-economic background. The school is fully-funded by the national government.

4.2.2.1 SJPS’s basic amenities and classroom environment

Although SJPS is smaller than other schools in the area, the amenities meet the needs of the school. However, the DT amenities in the school are still inadequate, and various improvements are needed. These amenities include personal offices for the Head Mistress and Senior Assistants; a general office for the non-academic staff (i.e., clerks, teacher assistants etc.); laboratories for living skills, science and mathematics; an access room; a computer laboratory; self-access learning rooms; 24 normal classrooms; a counselling room for a counsellor and disciplinary teacher; an examination room for school, regional, and national examinations; a hall that can accommodate 600 students; a library; a surau (Muslim prayer hall); a teacher's room equipped with a pantry; a meeting room equipped with a speaker system; a J-Qaf (Islamic education room); a canteen with two separate sections (an open-air section for students and a separate room for teachers); and a room for teaching aids. Other amenities include a stationery shop, a football field (which is also used as a race track), and an assembly square.

Classrooms at SJPS are similar to those at other public schools in Malaysia. They can accommodate around 35 to 40 students, though most classes have only 25 to
30 students. In most classes, the teachers travel around the school and the students remain in the same room. However, for classes such as living skills, mathematics, science and Islamic education, students go to special rooms or laboratories to allow them to use equipment that is needed specifically for those subjects.

In terms of furniture, some classrooms have new furniture while other classrooms are still using old wooden furniture. This may be due to the limited allocation of funds for new furniture every year, in addition to the school's efforts not to waste the old furniture.

4.2.2.2 SJPS’s DT amenities

Overall, the DT at SJPS is adequate despite its status as a small rural primary school.

Wireless Internet is accessible in some areas around the school, especially near the general offices and common areas, such as the canteen, school compound, assembly hall and prayer hall. However, the wireless Internet connection is sometimes unstable and unreliable. For the purpose of Islamic education, the surau and J-Qaf house a desktop computer equipped with a secured Internet connection, a printer, a scanner, and a speaker system. Other than that, the school library is equipped with a desktop computer with a secured Internet connection for the use of the librarians, a bar-code scanner, a printer-scanner, a small speaker system, and a laminator. The examination room is equipped with a desktop computer with a secured Internet connection and printer to enter student marks.

Table 4.2: SJPS’s DT amenities

<table>
<thead>
<tr>
<th>Venues</th>
<th>DT Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main administrative office</td>
<td>5 desktop computers and 3 laptops complete with secured Internet connections, a big photocopy machine, 2 printer-scanners, a facsimile machine, an office audio system, a wireless Internet router, an automated attendance system, and a laminator.</td>
</tr>
<tr>
<td>Spaces</td>
<td>Equipment Provided</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Teachers’ room</td>
<td>2 desktop computers and 2 netbooks (with secured Internet connections), a printer-scanner, and a laminator.</td>
</tr>
<tr>
<td>School compound</td>
<td>Large audio system and wireless Internet network.</td>
</tr>
<tr>
<td>Resource room</td>
<td>A desktop computer (with a secured Internet connection), a printer and a scanner.</td>
</tr>
<tr>
<td>School library</td>
<td>2 desktop computers and 2 netbooks (with secured Internet connections), a barcode scanner, and a printer-scanner.</td>
</tr>
<tr>
<td>Meeting room</td>
<td>A portable LCD projector and a projector screen.</td>
</tr>
<tr>
<td>Access room</td>
<td>6 desktop computers (with secured Internet connections), a portable LCD projector, a projector screen, an audio system, a printer, a scanner, and a wireless Internet router.</td>
</tr>
<tr>
<td>Science, Mathematics and</td>
<td>A projector screen for each room.</td>
</tr>
<tr>
<td>Living Skills laboratory</td>
<td></td>
</tr>
<tr>
<td>Counselling room</td>
<td>A desktop computer (with a secured Internet connection), and a printer.</td>
</tr>
<tr>
<td>School hall</td>
<td>An audio system, a portable LCD projector, a projector screen, and a wireless Internet router.</td>
</tr>
<tr>
<td>Examination room</td>
<td>A desktop computer (with a secured Internet connection), a printer and a scanner.</td>
</tr>
<tr>
<td>Computer laboratory</td>
<td>21 desktop computers (with secured Internet connections), 41 netbooks, a portable LCD projector, a projector screen, a printer-scanner, an audio system, a wireless Internet router, and educational DVDs.</td>
</tr>
<tr>
<td>Heads of Education room</td>
<td>A desktop computer (with a secured Internet connection), a scanner and a printer for each room.</td>
</tr>
</tbody>
</table>

At SJPS, DT is actively used not only for the purpose of teaching and learning but also for administrative and clerical purposes. To use DT for instruction, teachers generally go to the computer laboratory. During the study period, only five desktop
computers functioned properly. The rest were broken. Because of this situation, teachers relied on the 41 new netbooks for most of the sessions. Normally at SJPS, any damage involving DT aids is managed by a computer technician and matters involving scheduling are managed by the ICT teacher. When asked about the broken desktop computers in the computer laboratory, Izzue explained that the process of repairing computer hardware in the school involves various stages that are tedious and take a long time. Further, because the repairs are often expensive, the school sometimes prioritises other things, since the yearly budget is limited. Therefore, many broken computers remain broken. Although there are other rooms such as the access and self-access learning rooms that contain DT, these rooms are rarely used. If teachers want to use these rooms, they need to bring netbooks or other equipment from the computer laboratory, as the equipment available is limited. In addition, SJPS also faces the same problem as many other primary schools in the area: an unstable Internet connection.

All in all, the DT amenities at SJPS are insufficient to meet the needs of the staff and students at the school. However, although teachers are somewhat dissatisfied with the often-unstable Internet connection, the problem generally does not prevent them from using DT in their teaching.
4.3 Third participant: Azman

This section describes the third research participant, Azman. As with the previous two participants, I will describe his personal and professional background, and consider his use of DT in the English literacy classroom.

4.3.1 Azman’s personal and educational background

Azman was a 29-year-old male Malay-Muslim teacher who had been teaching at Samudera Lintang Primary School (SLPS) for almost 6 years at the time of the study. He was not native to the area, but he was married to a local and had been teaching there since his degree, which helped him to understand the customs and culture of the area quite easily. Azman received his primary and secondary education at a public school in the northern state of Peninsular Malaysia. Although he was born and raised there, he did not speak with the dialect associated with that area, as he had spent half of his life living in Kuala Lumpur and the Southern states of Peninsular Malaysia. As soon as he completed his school education, he undertook his degree, Bachelor of Education in Teaching English as a Second Language (TESL), a twinning programme between a local teacher training institute in the Malaysian capital and a well-known local public university. For his degree, he received a scholarship from the Malaysian MOE and Azman completed his studies within 6 years. He mentioned:

I started my studying in Teachers Learning Institute in […] in Kuala Lumpur in Cheras. I have my first four years of study there for my degree, for my first degree. Then I went to […] for my degree, it’s a twinning program actually and that was for my study and now I’m teaching English for five years.

(Azman/Int1/10Oct16)

Azman developed his proficiency in English by watching English movies, reading English newspapers, and also by playing strategy games. In his youth, the only newspapers that his father would buy were English newspapers. Coming from a family
with a relatively high income, Azman’s parents encouraged and influenced him to improve his command of English:

I wasn’t a very good student in English. I wasn’t a bright student in English. I started from the very beginning, even in my (...) time in the Teacher’s Institute and University Malaya, I’m not the top student. I’m one of those students at the bottom therefore I strive. I climb up from zero, into learning the grammars and now I know how to teach these people as they have quite the same level as I started with English.

(Azman/Int1/10Oct16)

4.3.1.1 Azman as an English teacher at Samudera Lintang Primary School (SLPS)

Azman started his profession as an English teacher almost 6 years before the period of the study, although he claimed that his interest was initially more towards other subjects like Music and the Malay language. During the interview for his bachelor’s degree, the interviewer suggested that he pursue a degree in Teaching English as a Second Language (TESL) because the country at that time needed more qualified male English teachers, and Azman decided to follow that advice.

According to Azman, teaching English at SLPS is not an easy task, because most of the students in the area come from a low socioeconomic background, and they generally do not use English at all in their daily interactions. Therefore, Azman would often try to entice them to be more interested in communicating in English at school, so that they become much more confident and not afraid to use it. According to Azman:

Therefore, here at the very first of it, I let them have the confidence to speak in English. At least, ‘good morning’ at least ‘how are you?’ those simple questions so that they know English is not something foreign here in Malaysia.

(Azman/Int1/10Oct16)

Azman believed that it was important not to mix one’s professional and personal life. Whatever happens in the life of a teacher, for Azman, should not affect
the working performance. Azman’s goals and objectives as a teacher of English at SLPS were to ensure every student understood at least a basic amount of English. He aimed to make sure each student could speak and understand a conversation in English. He explained that he would be very pleased if his students succeeded in their examinations, but that his main goal was to ensure that his students were able to use English effectively in their daily lives.

When we discussed the atmosphere in his classroom, Azman said that he was a strict teacher and preferred his students to work in silence. If a student wanted to say something, they had to first seek his permission. Azman believed that effective teaching was based not only on the methods taught in teacher training institutes and universities, but also on consideration of the culture and background of the students. By understanding the students, he felt he would be able to shape teaching and learning methods to suit their needs and interests. Azman believed that if he did not take the time to consider his students, they would reject his teaching sessions, making it difficult for him to teach. To attract the attention of his students, he had turned one of the school’s computer laboratories into a language laboratory, specifically for English lessons. The laboratory was equipped with a variety of tools to facilitate the learning of languages in addition to having a few useful charts mounted to the wall, for grammar and vocabulary enrichment.

4.3.2 Research setting: SLPS

SLPS is a rural primary school, located on the outskirts of a small town, in a southern state of Peninsular Malaysia. The school was founded in 1948 on government land with an area of 5 acres and can accommodate around 250 people. During the research period, the school had 16 teachers, and only one of these was an English teacher. The school had 6 administrators, consisting of the Head Master, Senior Assistants, heads of panels, and others.

In addition, 5 non-academic staff (a laboratory assistant, a computer technician, clerk, etc.) worked in the school to help the administrators and teachers in their daily tasks. SLPS had 135 students at the time of the research, aged between 5 and 12 years. SLPS was classified as an under-enrolled school as the number of students was under 150 students. SLPS is a rural school located in the middle of an oil palm estate and is
surrounded by small villages. With regards to the socio-economic status of the students, most of them came from low-income groups, where their parents mostly worked as builders, farm workers, small traders and so on. Some students had to work after school to help the family finances. In addition, most students in SLPS did not have access to DT at home, and this gives a new dimension to the study because the students had very little knowledge of DT due to poverty. Students studying at SLPS mostly lived near the school, living at home as there were no boarding facilities. Most of the students and teachers were Malay-Muslims. Because of this, the culture at SLPS was very much influenced by Malay traditions and Islamic teachings.

4.3.2.1 SLPS’s basic amenities and classroom environment

Although SLPS is generally classified as a small rural primary school, the school amenities were surprisingly good, in the sense that the basic facilities were adequate to meet the needs of all school administrators, teachers, staff and pupils. However, in terms of DT equipment, there were still many shortcomings that could be improved. The amenities at SLPS included the Main Administrative Offices including offices for the Head Master and Senior Assistants and a general work area for the non-academic staff; a laboratory for Life Skills; a science laboratory; a mathematics laboratory; an access room; a computer laboratory; a self-access learning room; 34 normal classrooms; a counselling room for a counsellor and the disciplinary teacher; an examination room; an indoor hall that could accommodate approximately 200 students; a small library; a surau (Muslim prayer hall) with two separate sections (for men and women); a teacher’s room equipped with a small pantry; a meeting room equipped with a speaker system; a J-Qaf room (Islamic education room); a canteen (open air for both students and teachers); and a room for teaching aids. Other amenities included a stationery shop, a medium size field (which is also used as a race track and for sports), and an assembly square.

The general features of the classrooms at SLPS are fairly standard across public primary schools throughout the country. The classrooms are quite wide and can accommodate a total of about 30 to 35 students, though most classes at SLPS on average only have around 20 students. Students remain in their classrooms for all subjects, and teachers come to their classrooms to teach, except for subjects such as
Living Skills, Science, Islamic Education, Physical Education and Mathematics, or when students use the field or the J-Qaf room (Islamic Education room). At SLPS, the students go to the computer laboratory for their English classes. Being the only English teacher in the school, and the teacher in charge of DT in that school, Azman had decided to transform that room, which was once a storeroom, into a computer laboratory, and decided to use the room for all his classes, with the permission of the school administrators.

Since Azman held his classes in the computer laboratory, the layout in his classroom was quite different compared to other classrooms in the school. Although there were enough chairs and tables in the computer laboratory, he preferred his students to sit on the floor (in a carpeted area). In that area, usually the male students would sit in front of the female students, with everyone facing Azman, somewhat like a story-telling session. When the students were engaged in tasks or group assignments, they were free to move around or lay on the carpeted area, as they wished.

Most classrooms at SLPS were not equipped with any DT aids, and if teachers wished to use DT for their subjects, they would need to bring students to either the computer laboratory, the access room, or the self-access learning rooms. However, there were power outlets in each classroom, allowing teachers to bring in a portable LCD projector, radios, netbooks and other DT aids for teaching and learning.

### 4.3.2.2 SLPS’s DT amenities

As a school that are classified as ‘under-enrolled’, SLPS appeared to have sufficient basic facilities. However, the DT equipment at the school was still not sufficient for the needs of all students. Wireless Internet was available at several locations in the school but was quite unstable and sometimes did not work. The self-access learning room housed two desktop computers equipped with Internet connections, along with a printer, a laminator, and a variety of educational DVDs. In addition, the J-Qaf room used for Islamic Studies was equipped with an audio system, a printer-scanner, a desktop computer with a secured Internet connection, and a radio used for Nasyid training and performances (an Islamic musical performance). SLPS’s library was equipped with 4 desktop computers with Internet connections for use by the librarians and students, a laminator, a printer-scanner, a small audio system, and a wireless
Internet router to allow students to use the Internet. Finally, SLPS’s resource room accommodated a wide range of equipment such as educational DVDs, a visualizer, teaching aids, a television, and an LCD projector.

Table 4.3: SLPS’s DT amenities

<table>
<thead>
<tr>
<th>Venues</th>
<th>DT Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main administrative office</strong></td>
<td>5 desktop computers and a laptop complete with secured Internet connections, a big photocopy machine, 4 printers, 2 scanners, a facsimile machine, an office audio system, a wireless Internet router, an automated attendance system, and a laminator.</td>
</tr>
<tr>
<td><strong>Teachers’ room</strong></td>
<td>A desktop computer complete with a secured Internet connection, a printer-scanner and a laminator.</td>
</tr>
<tr>
<td><strong>Access room</strong></td>
<td>4 desktop computers and 4 netbooks with secured Internet connections, a projector screen, a portable LCD projector, and a printer-scanner.</td>
</tr>
<tr>
<td><strong>School compound</strong></td>
<td>Large audio system and wireless Internet network.</td>
</tr>
<tr>
<td><strong>Science, Mathematics and Living Skills laboratories</strong></td>
<td>A projector screen for each room.</td>
</tr>
<tr>
<td><strong>Resource room</strong></td>
<td>Educational DVDs, a visualizer, teaching aids, a television, and an LCD projector.</td>
</tr>
<tr>
<td><strong>Examination room</strong></td>
<td>A desktop computer (with a secured Internet connection), a printer and a scanner.</td>
</tr>
<tr>
<td><strong>Counselling room</strong></td>
<td>A desktop computer (with a secured Internet connection), and a printer.</td>
</tr>
<tr>
<td><strong>School library</strong></td>
<td>4 desktop computers equipped with Internet connections, a laminator, a printer-scanner, a small audio system, and a wireless Internet router.</td>
</tr>
<tr>
<td><strong>School hall</strong></td>
<td>An audio system, a portable LCD projector, and a projector screen.</td>
</tr>
</tbody>
</table>
### Heads of Education room
A desktop computer (with a secured Internet connection), a scanner and a printer for each room.

### Meeting room
A portable LCD projector, a projector screen, and an audio system.

### Computer laboratory
30 desktop computers equipped with secured Internet connections, 20 netbooks, a portable LCD projector, an audio system, a printer, and a scanner.

At SLPS, the locations intended specifically for DT in teaching and learning are the computer laboratory, the self-access learning room, and the access room. The computer laboratory at SLPS has 30 desktop computers equipped with secured Internet connections, 20 netbooks, a portable LCD projector, an audio system, a printer, and a scanner. During the observation period, 26 desktop computers functioned properly, while 4 were broken. Besides being used for the purpose of teaching and learning, the computer laboratory at SLPS was used as a music room for teachers and students; music and singing exercises often took place there because the laboratory was soundproofed. The access room also provided DT equipment for teaching and learning with 4 desktop computers and 4 netbooks with secured Internet connections, a projector screen, a portable LCD projector, and a printer-scanner. Another room reserved for DT teaching and learning was the self-access learning room, which contained a printer, a television, a DVD player, and a variety of educational DVDs provided by the MOE as well as ones bought by the school.

Comparing the three rooms specifically designed for the use of DT in teaching and learning, the most convenient setting was certainly the computer laboratory. Although most of the time students had to sit cross-legged on the carpeted area, the computer laboratory was still the most comfortable, providing sufficient DT facilities for students and teachers. In addition, the desktop computers in the computer laboratory were more modern and featured additional equipment such as headphones, microphones and a small audio system. All the netbooks in the laboratory were connected to the teacher’s laptop via wireless Internet, allowing the teacher to monitor students’ tasks and activities from his or her laptop, ensuring the students used their netbooks appropriately, and did not abuse the privilege by playing video games or browsing inappropriate websites. If the teachers wished to, they could also choose
examples of student work and transmit it to the big screen at the front of the class. The computer laboratory also had air conditioning, making it the most sought-after setting for teachers to hold a class. Since many teachers wanted to use the computer laboratory, there was a booking system in place. However, most of the time, Azman used the computer laboratory for all his classes.

All things considered, the DT amenities at SLPS were enough to meet the needs of the staff and students.
CHAPTER 5: NADIA

The following three chapters present findings relating to the three teachers’ cognitions. The main purpose of each of these chapters is to answer Research Questions 1, 2, 3 and 4 through in-depth consideration of individual teachers:

RQ1. How do Malaysian teachers use DT for ESL literacy instruction in the classroom?
   1.1 What are their overall ESL literacy instruction practices?
   1.2 How do they use DT within those practices?

RQ2. What is the nature of Malaysian teachers’ cognitions about (the use of) DT in ESL literacy instruction?
   2.1 What are their cognitions about ESL literacy instruction in general?
   2.2 What are their cognitions about the role of DT in English literacy instruction?

RQ3. Where do the teachers’ cognitions about the use of DT in ESL literacy instruction come from?
   3.1 Where do their cognitions about DT come from?
   3.2 Where do their cognitions about the use of DT in ESL literacy instruction come from?

RQ4. How are Malaysian teachers’ cognitions about DT related to their use of DT in ESL literacy instruction?

To answer these questions, I use data from the questionnaire, semi-structured interviews, and the simulated recall interviews. Each of Chapters 5, 6 and 7 is structured in the same way, presenting findings in relation to each of the research questions above in turn. Thus, this chapter will describe Nadia’s overall literacy instruction practices, and, within this her uses of technology (section 5.1), in order to present findings relating to Research Question 1: How do Malaysian teachers use DT for literacy instruction in the classroom?
This chapter also presents findings related to Nadia’s cognition about the use of DT in general and in English literacy instruction in particular (section 5.2, corresponding to RQ2), and then explores the roots and origins of her cognitions (section 5.3, corresponding to RQ3) before examining the relationship between her cognitions and her practice (section 5.4, corresponding to RQ3).

5.1 Nadia’s literacy instruction practices

As an experienced English teacher, Nadia had her own prominent cognitions with respect to literacy instruction in her classroom. Unsurprisingly, she showed a thorough understanding of the importance of learning literacy for the social and academic growth of all her students. In addition to emphasising the importance of education to ensure a more stable future, Nadia stated that she tried to inculcate a love for knowledge among her students, and that she tried to prepare her students for future life beyond exams. She believed in the importance of training students to be eager to improve themselves, that they would voluntarily learn without supervision or face-to-face instruction from teachers. Nadia generally planned extensively before every lesson, and according to her, aimed to deliver lessons that would be of interest to and challenging for her students.

5.1.1 Nadia’s lesson planning and preparations

According to Nadia, she was quite flexible in her teaching preparation. Sometimes her preparation was very well organised and took into account aspects that should be emphasised in the syllabus issued by the MOE, but there were also times when she liked to try new activities. Generally, Nadia referred to the syllabus before designing activities that were appropriate for her students. Although she typically planned a few days before the lesson, she admitted that sometimes she planned at the last minute. For her, designing a lesson was not difficult because she was quite experienced and familiar with the requirements of the syllabus. She added:
I prepare like either 5 to 10 minutes before a lesson or on the spot… Usually, I would preview, review the previous lessons. Talk about, just remind ourselves, me and the pupils what we have learned before, make sure. Actually, most of the time, I forgot what I taught them because it’s […] classes right? So I would ask them, so they would remember, so it’s a good exercise for them to remember what they’ve learnt and at the same time inform me of what they have learnt and then so that there and then, I get to start to prepare … figure out what’s the best lesson for the next, what’s best to teach them for the next lesson, yeah.

(Nadia/Int2/10Aug16)

Although Nadia recognised the importance of preparing students for the examination, she stated that every time she planned a lesson, her priority was student engagement. According to her, she frequently tries to select teaching practices that can attract students, both individually and collectively. For example, she noted that she collected interesting videos from YouTube or other resources that could be used as a 'hook' to attract students’ attention, as well as to start active discussions at the beginning of her learning sessions. Although she often tried to bring something new to her lessons, she incorporated the methods and materials used in the syllabus, such as the text book provided by the MOE, to ensure that students would be ready to face the examination as well as interested in the lessons. Nadia stated that she did not try to provide challenging and sophisticated lessons at all times, but instead, she would prioritise the appropriateness of the methods for the academic level and the developmental stage of her students. There were times when she had to use the most basic and simple method to form the beginning of an understanding of the topic. According to her:

For a literacy lesson, usually I would look at the text that we were going to learn beforehand. Have a short brief look at it and figure out some key words that could be difficult for the pupils and then would highlight that and during the lesson, if I have enough time, I would prepare some word cards or flash cards to help the pupils to understand the words better. Normally I would do that with the lower levels like Year 1 or Year 2 but I
seldom do that with Year 4 so I expect them to be able to know and if they have problems remembering or recalling what they have learnt before, I would prefer that they look through the dictionary.

(Nadia/Int2/10Aug16)

In this statement, Nadia described some of the aspects that influenced her in planning for a literacy class. In the above situation, she described one example of the ways that she used during reading activities, where she sometimes used non-DT materials such as flashcards, textbooks, and so on. Nadia also often used DT in her preparation. She said:

In terms of preparation, it requires less preparation because I don’t have to produce anything, much. Most of the materials that we use, that is used using technology are already there usually we just have to search in the Internet and then you find it then save it and then view it and then show it to the pupils. We don’t really have to create new materials. Materials are there but you know sometimes technology doesn’t always be on our side so as a precaution measure it’s best if I can print out all those materials and, and a have it at the side you know just in case the technology fails us.

(Nadia/Int2/10Aug16)

DT appears to make it easier for Nadia to prepare and provide materials appropriate for her learning sessions. According to her, there are many resources that can be obtained through DT suitable for use in the classroom, saving costs, time and energy and avoiding making materials from scratch. However, Nadia cautioned that the DT equipment might fail her and thus she prints her materials.

5.1.2 Nadia’s literacy instruction

Nadia varied the materials she used based on the needs and interests of her students. She said:
It’s up to the teacher to use whatever it is the material they think is good for the pupils. Because the teacher knows their pupils best. Some software may be good for this group of pupils, but it may not be good to some other pupils. Perhaps it’s too high level, or perhaps it’s too low it doesn’t give much challenge to the good ones, so, it really depends on the teacher to determine which kind of material or content that is most suitable to their pupils.

(Nadia/Int1/27Jul16)

In addition, she also tried to diversify her teaching methods, and she appeared sensitive to the reactions of students when she presented her lessons. If she found that students did not quite understand what she was trying to say, she would repeat more slowly, or using different methods, until she felt that her students were able to comprehend. She tried to understand the needs of each individual student and be approachable to them.

Nadia felt that her collection of teaching materials was quite adequate, whether digital or non-digital. This meant that she rarely needed to create new teaching aids when teaching. During the review period, I saw Nadia using basic teaching materials such as textbooks, workbooks, whiteboards, mah-jong papers (large white paper), printed handouts, magazine or newspaper clippings and photographs printed. I also saw Nadia use digital equipment technologies such as netbooks, radios, educational CDs, an LCD projector, Microsoft PowerPoint slideshows, Microsoft Word, a few educational Internet websites, educational software provided by the MOE, YouTube videos and much more.

Nadia had a variety of teaching methods that varied depending on the level of concentration, understanding, interest and skills of her students. For example, classes in the early morning were conducted rather differently in terms of approach compared to classes in the afternoon. According to her, her experience as a teacher meant that she understood the focus of the students based on their energy. She added that usually in the afternoon, her students would be quite tired and have poor concentration, so at a time like that, she would prefer activities that were more active and required more movement such as role play, acting games and so on.
During the study period, I found that Nadia often used student-centred activities, whereby she would encourage her students to brainstorm ideas or engage in pair or group discussions. In some observation sessions, Nadia encouraged her students to help one another to complete their tasks, requiring students who were more skilled or had a better understanding to help their friends who might need more explanation. It was observed that Nadia regularly asked her students to share their writing and ideas in front of the class. Nadia not only chose students who were adept at writing but often also encouraged students who were relatively weaker to participate. The students were not afraid to be involved actively in the classroom, even though Nadia tended to give immediate feedback.

Commonly, Nadia actively communicated with her students while they did their reading or writing. Similar methods were observed to encourage more productive interaction during pair or group discussions, and Nadia was ready to provide guidance on an ongoing basis during the teaching session. Moreover, she regularly walked around the classroom to monitor her students, while providing guidance and feedback individually. The communication between Nadia and her students sometimes involved intense interactions, where students were free to comment if she committed any errors during the lessons. I found that Nadia often gave words of encouragement to students who were struggling, while at the same time encouraging more advanced students to help their friends. I also found that Nadia accepted student suggestions and ideas if they were appropriate and proactive, and sometimes allowed her students to make changes and improvements to the activities in the classroom. However, this style was only practised when Nadia felt that the students were being respectful and positively contributing ideas. If any of her students misbehaved, Nadia became stern. She said:

I would come into the class more to military style, because my dad was a military. I would ask them to stand up straight, hands to the side, making sure that all eyes are on me and they are not fidgeting.

(Nadia/Int1/27Jul16)

Nadia tended to give immediate feedback during her lessons. Sometimes, she would mark books while the students were working. Being a flexible teacher, Nadia
also would organise assignments based on her students’ performance in previous assignments. Positive reinforcement and continuous feedback seemed to encourage the students to continually improve their skills and to correct their reading and writing errors. Through monitoring, I found that students became more comfortable and confident when they improved in their weaker areas. They also seemed confident when giving a presentation or during discussions.

Apart from the approaches that have been mentioned, Nadia also adopted tasks to teach literacy. She would provide several achievable tasks that must be completed by her students by applying what they have just learned before. Usually, Nadia would use this approach as a form of assessment or evaluation to test her students’ understanding of the topic they just learned, and those tasks would be solved individually, in pairs or in groups. Some examples of the common tasks that Nadia would give were writing assignments, group presentations, and so on.

When Nadia was explaining something new, or when she had to explain the contents thoroughly in order to be understood by all her students, she delivered instruction in a lecture-style rather than allowing them to discuss amongst themselves. At times, she would give demonstrative examples.

Nadia had good management skills and commonly ensured that her classes were under control. She could be quite assertive if students misbehaved, and was active in the classroom, often walking around the room while assisting students. Nadia was very sensitive to the needs of every student and she often used a different approach to get the attention of individual students. According to her:

Because different pupils, different group of pupils, they will have different needs. And then some techniques might cater to these pupils, but it might not help the rest, so I am still trying to figure it out. But so far, I think, I more to, I’m not teaching to pass a test, that’s my belief. Learning is an ongoing process, you don’t stop learning until UPSR […]. So, my objective, my principle is, as long as I see the pupils are improving, even the smallest way, that is a good enough achievement for me, because not every student can improve the way we want, sometimes it takes time. We have late bloomers, right. Sometimes it doesn’t matter how much you teach them, they just don’t get it, it’s not the time yet for them to get it. Maybe
they will get it in 3 years’ time, maybe they will say “oh ya my teacher
used to tell me this, now I understand.”

(Nadia/Int1/27Jul16)

The data from the observations also indicate that Nadia used both English and
Bahasa Malaysia interchangeably to ensure her students, especially those with lower
levels of English, understood her. Some of her students conversed in Bahasa Malaysia
amongst themselves, but when communicating with Nadia they largely spoke in
English. Nadia said:

I would try to, how to say that, erm, expose the children to as much English
as possible, but to a certain extent, because if you keep speaking English,
even the lowest level of English, word by word, […]The pupils are too
familiar with Malay, English is not even a second language, to some, to
most. Erm, it’s like a foreign language to them, they don’t know what ball
is, they don’t know what cat is. They know meow, but they don’t know
what cat is. They know cat, but they don’t know how to spell it, they always

(Nadia/Int1/27Jul16)

In one of the interviews, Nadia mentioned her frustration that she had to abide by the
guidelines set by the government and prepare her students for the Primary School
Achievement Test (UPSR) specifically, despite knowing that they would need English
throughout their future life. Nadia added that although she was free to choose
appropriate learning methods for use in the classroom, she still needed to follow the
syllabus and standards set by the MOE.

Examination preparation influenced the topics that Nadia selected for writing
and reading activities. For writing activities, Nadia would normally select a topic based
on topics in the national examination, for example, descriptive writing, summary
writing, letter writing or argumentative writing. Nadia found past questions on the
Internet to prepare her students for the format and style of the real examination
questions. In fact, the questions for the school-wide tests were designed and arranged
to resemble the national examination format. According to Nadia:
Because of the KPI, we have to achieve certain percentage of passes in the couple of years, because if we don’t achieve that, people will come and make trouble for us. Most of the teachers that I know, will just tend to pass the students even though the students shouldn’t have passed, to avoid further problems.

(Nadia/Int1/27Jul16)

Before the end of all lessons, Nadia evaluated and recapped the topics covered in the lesson again. Sometimes, she would ask a few students to recite their writings in front of the class, while she provided guidance and comments. She usually did as such to ensure that every student had completed their given exercises or tasks.

Although Nadia had been teaching for years, she admitted that she was still not sure of an ideal method that could best bring out her students’ highest potential. According to her:

I am still trying to figure it out actually. Because different pupils, […] they will have different needs. And then some techniques might cater to these pupils, but it might not help the rest, so I am still trying to figure it out. But so far […] I’m not teaching to pass a test, that’s my belief. […] So, my objective, my principle is, as long as I see the pupils are improving, even the smallest way, that is a good enough achievement for me, because not every student can improve the way we want, sometimes it takes time.

(Nadia/Int1/27Jul16)

Nadia was still looking for a suitable formula to optimise the potential of her students, who came from different socioeconomic backgrounds, proficiencies, interests, age and potential. Since English was not the primary language of most of her students, some of them did not receive much exposure at home. She also said that some of her students had self-esteem issues whereby they felt afraid or ashamed to speak in English as they did not want to be mocked. Therefore, Nadia often tried to communicate with her students as much as possible in English, while continuing to educate her students on
the importance of speaking in English, regardless of the mistakes they might make in the process.

5.1.3 Nadia’s use of DT in her instructions

Nadia used a variety of digital technology equipment in her instruction, and most of the hardware was supplied by the government or her school. Through my observations, I found that the DT equipment normally selected and used by Nadia in her literacy instruction was: a netbook supplied by the school; the Internet; and the portable LCD projector used for displaying slideshows, notes, writing or reading exercises and so on. However, if she managed to book the computer laboratory for her teaching sessions, she used the desktop computer and the mounted LCD projector. Nadia was seen not only relying on the DT equipment provided by the school, but also taking the initiative to purchase the DT equipment she needed for teaching purposes. She often downloaded videos from YouTube before her teaching sessions, and the videos were then used as an introduction to a topic, a description of the selected topic, and also to show real examples of the topics. Nadia typically chose not to stream the videos directly from the Internet because, according to her, sometimes the school Internet connection was very slow and could interfere with her teaching. The videos that were chosen usually consisted of popular cartoons, funny advertisements, viral video clips, jokes and music videos that would attract the attention of her students. Nadia felt that her students would usually give their full attention to videos like that, and she could feel the difference in terms of their participation in the classroom. When her students became excited and active in class, even the typically quiet and passive became more inclined to give their opinions. Nadia thus tried to choose YouTube videos to interest her students by taking into account their previous favourites and general tastes. With this attention to detail, she felt that she grew closer to each of them individually.

In addition to using videos, Nadia also used emails in teaching literacy, specifically requesting her students send their written work using email, to familiarise themselves with the computer. However, she acknowledged that not many students had access to appropriate equipment in their homes. According to her:
How they responded to my e-mails, basically it started off as a class task. Write an e-mail, I give them some sort of erm, like a closed passage, they have to fill it in and send it back to me. I taught them how to select words, change it from normal to bold, italics, underline, change the colour, in the e-mail.

(Nadia/Int1/27Jul16)

Nadia also used the WhatsApp application which was installed on the students’ smartphones to communicate. Nadia had created a WhatsApp group to enable discussions among the students after school hours, as well as acting as an alternative platform for Nadia to disseminate information. However, she mentioned that the Whatsapp group was only used to answer questions from students or when students urgently needed to know something related to the learning process, with parental supervisions. She said:

Well, that means only when they are conversing with me in that particular group and when they need to know something.

(Nadia/Int1/27Jul16)

At times, Nadia also used educational DVDs or CDs provided by the MOE and the school. Often, she used a CD to teach students to read and write. For example, I once observed her using an educational CD provided by the school to teach her students about phonics. She explained that by using the CD, her students could hear for themselves the correct pronunciation of native speakers. She added:

It’s a phonemic awareness, mostly. Phonology stuff, where they learn the sounds, the basic sounds of erm, the alphabets and how to blend the sounds to make up a word, and erm, so once you’re able to blend those sounds to make a word, then from there a word becomes phrases, phrases becomes sentences, you’ll be able to read the whole sentences, and hopefully the whole book, regardless of how long it is…

(Nadia/SRInt/19Sep16)
In addition, Nadia also often used DT for teaching preparation. She acknowledged that the Internet was a convenient source of resources and materials. Through the Internet, Nadia found information for her lessons, in addition to examples of assessment questions. She felt that the sources found on the Internet were sometimes more interesting, and indeed authentic, than what she would be able to produce on her own.

In addition to using DT to simplify her tasks, Nadia educated her students on how to use DT. For example, alongside more traditional methods of presentation such as using mah-jong papers, scrapbooks or the whiteboard, Nadia encouraged her students to use Microsoft PowerPoint slideshows:

I tried to teach them how to use the PowerPoint Presentation, but haven’t got the chance, only once I think I helped them too, it was during erm, ‘Program Anti Dadah’ (The Drug Prevention Program). Instead of doing scrapbooks where they have to paste and cut, I tried to introduce that.

(Nadia/Int1/27Jul16)

At times, Nadia preferred to use DT tools without telling her students to use them, to make it easier for her to manage her classroom and not worry that they would be distracted by DT tools. She would only allow her students to use DT tools for certain topics, and only with close supervision; she often walked around the classroom while her students were working to help them if they needed any guidance. Sometimes, she would allow her students to use the Internet to help them in their writing, such as using Google Translate for editing purposes, using an online dictionary to look for word meanings or using the Google search engine to find more ideas and content.
5.2 The nature of Nadia’s cognitions about (the use of) DT in English literacy instruction

The analysis shows that Nadia’s cognitions about DT directly affect her pedagogical approach in terms of her preparation, teaching style, expectations of students, assessments, and classroom management.

5.2.1 Nadia’s cognitions about literacy instruction in general

Nadia’s attitudes towards her English literacy instruction were grounded in the following concepts: English is enjoyable, i.e., engaging, fun, interesting; English is necessary, i.e., students need to master literacy in order to pass examinations, receive qualifications to enter higher education institutions, to access certain jobs, and for their social and general development; preparation for examination, i.e., English literacy is an important part of taking examinations; preparation for future life, i.e., English literacy provides good preparation for future life; and the importance of good reading and writing, i.e., writing and reading correctly and efficiently are essential for daily life.

5.2.1.1 English is enjoyable

Nadia exhibited a positive attitude towards the English language and respected the Malaysians who were fluent or who used English in daily communication. Through the analysis, one of the major themes that appeared was ‘English is enjoyable’. Nadia explained:

Essentially learning English is enjoyable. Teachers incorporate games, singing songs, making artwork and creative handcrafts or mobiles. It can be fun and enjoyable for both teachers and students. However, in recent years, most teachers […] can’t seem to be able to make the instruction as interesting, fun or enjoyable as we used to. Basically, there’s just too much time constraints in school.
Nadia believed that the subject of English was among the most interesting subjects in school and should be taught in an engaging way in order to attract students to the subject, although she acknowledged that this was quite difficult for some. Nadia added that teachers who teach English were often trained in a variety of different pedagogical approaches, learnt through training that was provided by the school and the Malaysian MOE. These attitudes were also evident in Nadia’s teaching methods, in which she often chose topics or methods that she felt would attract her students to the subject, beyond simply preparing for examinations.

5.2.1.2 English is necessary

Nadia strongly believed that English was very necessary as a skill because it is an international language, and also the second national language in Malaysia. In addition, Nadia believed that her students would need English to study at a higher level and also to get a job later in life. According to her:

A lot of employers have been complaining about the English competency of university graduates nowadays. They came into the interview sessions with remarkable results on their degree certs, but when asked questions in English, some couldn’t even reply in good English.

(Nadia/Int4/08Nov16)

Nadia thought that students should be provided with sufficient knowledge of English that they could successfully use it in their future lives. Nadia also felt that through the teaching of English, students were exposed to other life skills such as moral values, how to socialise and communicate effectively, and so on. Nadia believed that these skills would encourage the students to become well-rounded and polite individuals able to live harmoniously in society. With regards to her use of DT in the classroom, she thought that the students could also learn how to use the computer correctly, which would be useful in their daily lives. She added:
English can help people to function better as a human being in different parts of the world. E.g. when you go to any country (especially English-speaking countries) you will need to have a good command of English in order for you to be able to function in the community properly.

(Nadia/Int4/08Nov16)

5.2.1.3 Preparation for examination

Even though Nadia stated that her main objective in teaching was to ensure that every student was able to use English, as a civil servant required to meet the expectations of the Malaysian Government, she had to ensure that her students succeeded in their examinations. This was because, in reality, their academic achievements would be used in the future to determine their eligibility to enter higher education institutions, as well as the workforce. Her attitude towards English directly affected her teaching preparation and methods, wherein she often tried to prepare students who would sit the national examination more vigorously compared to Year 1 or Year 2 students.

Although Nadia definitely felt that the examination was important for the students, she argued that this was not the only way to assess student achievement:

Whenever one learns something new, one needs to assess one’s performance to see one’s development. So, naturally when you learn a language, you will be assessed as to how far you’ve understood the grammar rules and how to apply them in a sentence; or which word or jargon is best suited when talking about things related to medical issues. Obviously, the English literacy instruction is important for examination, but examination is not the only way to assess students’ performance or development in learning the language. Too much reliance on examination results are the major cause that leads to the issue or problem of university graduates with low English proficiency. They get good grades in their examinations, get perfect scores in their written assignments yet was unable to speak good English.
Despite this assertion, I found that Nadia’s teaching style was generally guided by the topics and formats outlined by the MOE. In other words, even though Nadia’s focus was on ensuring that her students mastered the English language, she also directly prepared them for their examinations. In addition, her experiences as an examiner for the national examination board was also put into use in the classroom, whereby she provided useful tips to her students on how to answer the examination questions effectively.

5.2.1.4 The Importance of Good Reading and Writing

Nadia felt that it was important for people to have good reading and writing skills. For her, being literate was very important not only for the purpose of exchanging information and daily communication, but also to enable a person to express emotions, feelings, and so on. She said:

Now, technology has improved and enables us to send messages across continents almost instantly! Emails, SMS, chat apps (WhatsApp, Telegram, Line, etc.) in order for one to promote oneself, one must be able to read and write properly in English so as to make sure that the message relayed is received the way it was intended to. It all has got to do with forms and functions. If you do use the wrong expressions or words at the wrong time or situations, then you might end up giving wrong a message or unwanted impression about yourself to others.

(Nadia/Int4/08Nov16)

5.2.2 Nadia’s cognitions about the role of DT in English literacy instruction

Nadia showed a somewhat complex attitude towards DT and its use in teaching literacy. She suggested that she did not receive adequate training on how to optimise
the full potential of DT in the classroom. She recognised the potential and capabilities of DT, but also touched on the technical skills needed. So, although she expressed enthusiasm about DT, she did not deny the setbacks that could arise from its use. When asked for a definition of DT, she stated that it was anything to do with the Internet. Her definition, which was somewhat simplistic and general, might have been influenced by her frequent use of the Internet to facilitate her work and personal matters.

5.2.2.1 Increase the quality of teaching and learning

Nadia proposed that DT had many advantages in teaching preparation, dependent on the individual using it. Nadia explained:

Yes. It’s up to the teacher to use whatever it is the material they think is good for the pupils. Because the teacher knows their pupils best. Some software may be good for this group of pupils, but it may not be good to some other pupils. Perhaps it’s too high level, or perhaps it’s too low, it doesn’t give much challenge to the good ones. So, it really depends on the teacher to determine which kind of material or content that is most suitable to their pupils.

(Nadia/Int1/27Jul16)

Although Nadia recognised the potential of DT to raise the quality of teaching and learning, she felt that what was more important was the teacher’s own teaching ability, rather than the type of technology they used. According to her, the human instincts of the teacher, as well as their knowledge and experience, were vital to really understand the needs of the students, and these properties could not be achieved by computer technology. Nadia also felt that the teachers are more prominent in determining the quality of the teaching sessions provided. Additionally, she stated that teachers should be interested and motivated to use DT even though the processes could be challenging for some. According to her, teachers should be confident in using it even if sometimes the use of DT created additional problems in their teaching sessions. She added:
It’s a lot of hassle, I have to… I can do stuff myself, I can actually set up things here and there, if only I have access to it. But sometimes, most of the time, I don’t have enough access to it, not as much as I want to.

(Nadia/Int1/27Jul16)

Nadia believed that teachers need to be confident and committed to the ability of DT, although its use sometimes requires more time and more preparations. Nadia believed that the use of DT can deliver the desired results if the teachers who use it have the necessary skills and have reliable equipment. She added:

If you use it the correct way. It all depends on how the teachers use the software or the materials. Even good materials, if you use it wrongly, it wouldn’t be successful. It won’t it won’t play its purpose. I mean, it all depends on how you manipulate the materials I think, yeah.

(Nadia/Int2/10Aug16)

She also felt that the use of DT should not necessarily be done all the time during the teaching of literacy, because according to her, some topics or skills were better taught through traditional methods. She explained:

It’s a matter of choice. I don’t use ICT in all of my lessons depends on the objectives of the lesson of the day. If the objective of the lesson is to do writing, then I would see no purpose in using ICT, I would prefer them to use pen and paper and actually I would have to show by writing at the front as well.

(Nadia/Int2/10Aug16)

5.2.2.2 Attract students’ attention

Although the Nadia’s perspectives of DT were quite complex, it was obvious that she generally felt positive towards the use of DT in literacy instruction. She noted that one
motivating factor for using DT in the classroom was to set an example to be followed by her students. She admitted that she used DT to gain students’ attention and respect for her, and thus motivate them to want to learn English:

It’s not necessary but it would be best, it would be good for the children to be able to experience that extra thing just to have something extra so that, not just for them to feel “Oh, the teacher is great!” […]. If you can have those students look up to you, in that sense, it’ll be easier to influence them to love English more. […] if you can trigger that that if you really plant that seed, you will just have to watch it grow.

(Nadia/Int2/10Aug16)

Nadia also thought that DT could make lessons more interesting for students. She said that with the use of DT, her students became more active and able to concentrate for longer.

5.2.2.3 Make lessons fun

Nadia found more enjoyment in her lessons when her students were also having fun and concentrating. She thought that this was important to facilitate a good learning environment and believed that DT helped to achieve this goal. However, Nadia also emphasised the importance of keeping things under control and had to make sure that her students did not become over excited or distracted. She mentioned:

Because the moment I incorporate the use of ICT, I get to have people’s engagement I will get almost a 100% people’s engagement because they would be focused on the Internet or on the monitor, on the TV or on the screen. But normally with the Year 4, with the second levels but the Year 1s and Year 2s, I would get them excited initially and when they get too excited, they tend to talk to themselves and instead of focusing on the lesson, […] Most of the time, I take time to, you know, bring back their
attention to the lesson so sometimes, it could be a hinder but most of the time, it helps to engage the people into the lesson, yeah.

(Nadia/Int2/10Aug16)

5.2.2.4 Promote active interactions

In addition to facilitating greater control in her teaching sessions, Nadia claimed that DT also made her students respond more positively and creatively. Her students showed higher levels of motivation, and were more willing to work with each other when the proposed activities involved the use of DT. She claimed:

I mean, to compare a lesson without ICT, it will be less exciting. The students will respond, but out of 20, probably 5. Those who are quite good in English, they would respond. But for those who are less good in English, who are not interested in English, they would be like “okay, whatever”, but when I incorporate ICT in the classroom, I see the excitement, the responses, it’s almost spread out throughout the whole classroom.

(Nadia/Int3/09Oct16)

The positive responses shown by her students, Nadia assumed, were because the use of DT was something that was common in their daily lives at home. Nadia felt that active interaction was good for the development of language skills among her students.

5.2.2.4 Increase motivation

When using DT, her students showed high levels of motivation and were keen to contribute their ideas. Such interactions also allowed students to learn from each other, and mutually correct their own errors. Nadia explained:

I see differences in how, in their excitement in the classroom. They are more motivated with the lesson, regardless of the topic. Because you know, the
topic can, I mean, it doesn’t matter what topic, let’s say fruits, and I choose to talk about mangoes, some pupils might not like mangoes, but just because I use or integrate ICT, even those who doesn’t like mango, will actually contribute, saying that they don’t like mango, expressing how much they do not like mango, and why they don’t like mango, and they would some sort of not to say argument, but some sort of discussion amongst them.

(Nadia/Int3/09Oct16)

5.2.2.5 Convenient to use

Another one of Nadia’s positive perceptions of the use of DT in literacy instruction revolved around the convenience of using the technology. Nadia said that the tools used the most during her literacy instruction were the desktop computer, the Internet, and the portable LCD projector. Generally, she used the Internet, whether for lesson preparation or during classes, displaying things at the front of the classroom using the LCD projector. This allowed her students to see her on-screen display. She added:

They can show materials, contents that comes from across the world. You can, you can show them animals that doesn’t exist in Malaysia, but another part of the world and they don’t even have to go there. So, in a way, you can show the world, to the pupils through the screen. So that I think is a really good experience for the children. […] Beyond what they know, beyond they can see and instil that interest that curiosity. So that they would want to explore.

(Nadia/Int2/10Aug16)

According to the data obtained, Nadia’s positive cognition of DT is in line with her attitudes towards literacy instruction, which is English is enjoyable (i.e., engaging, practical, easy to attract). She believed that the use of DT for teaching and learning English made lessons engaging (i.e., through interactive activities that broadened students’ horizons beyond the classroom); practical (i.e., learning how to use DT); and
a good way to gain students' attention (i.e., because students were interested in the DT methods).

Concerning the preparation for examinations, Nadia felt that DT benefitted the students in terms of providing them with high-quality resources before the examination, in an easy way. Nadia thought that the audio-visual elements and interactivity provided by the DT tools helped her reach her teaching goals. For example, she stated that she often used the LCD projectors, computers and Power Point slideshows to show students samples of previous questions.

5.2.2.6 Challenging and require extra preparations

Although Nadia had a very positive view of the potential of DT, particularly in ESL literacy instruction, she had several concerns with respect to the problems that often occurred, such as hardware failures, an unreliable Internet connection and so on. She also voiced her frustrations towards the weaknesses of certain parties or individuals who were supposed to look after the DT equipment in the school. Nadia felt disappointed by the damaged equipment, especially given that the process for repairing the equipment sometimes took a few months if not years. This had hindered teachers’ preparation and discouraged some of them from using DT in their teaching. Other technical problems such as virus attacks on computers were a common problem. In addition, the teachers were dependent on the technician (to ensure that the computer systems were in full working order). Sometimes the technician was absent or not available, causing last-minute problems for teachers. Nadia mentioned:

I may have to worry that sometimes technology can fail us. Like what happened today, in the case where suddenly one of the laptops are out of battery, and I have to come up with some other ways to prepare for that. I couldn’t have done it because the technicians were not there, so if the technicians are absent on that day, and I don’t know how to do stuff.

(Nadia/Int3/09Oct16)
In addition to these technical problems, Nadia also mentioned the additional pressures on teachers when they wanted to use DT. For example, teachers sometimes needed to make additional preparations before using the equipment. In many interview sessions, Nadia expressed her frustrations with the Internet connection in her school; it was very unreliable, and as a result most teachers could not comprehend using the DT facilities for teaching or any other purpose. To add to these frustrations, most teachers were required to use certain websites according to the MOE as part of their official responsibilities but were often unable to meet the benchmark set by the ministry due to the unreliable Internet connection. These issues caused some teachers to distrust DT due to the technical problems.

Nadia mentioned other problems that arose among her students when she used DT in her teaching. Although she admitted that most of her students were very excited to use DT, there were a few who became overexcited and distracted from doing the tasks assigned to them. Moreover, some of them had poor computer literacy, and Nadia sometimes took a long time to show these students the basic ways of using the computer. Some students forgot the passwords given to them, so they could not access the software. She mentioned:

Yes, a common problem. Children not knowing their passwords, not knowing their usernames, forgot their username, forgot to bring their username card. Actually, the ICT teacher has already provided them a card each, where on the card their usernames and their passwords are stated there.

(Nadia/SRInt/19Sep16)

5.3 The sources of Nadia’s cognitions about the use of DT in literacy instruction

Nadia's cognition about and practices of English literacy instruction to some extent related to her cognition about DT and influenced the way she used DT in literacy instruction. In the next section, I will explain in detail how Nadia used DT, in addition to elaborating on the DT training that Nadia had received, in order to understand where her cognition about DT came from.
5.3.1 The sources of Nadia’s cognitions about DT

Nadia stated that she had been exposed to the use of DT since childhood. She stated that:

First experience, I was in year 3. That was in 1995, year 2 or year 3, 94 or 95. My father brought back a computer.

(Nadia/Int1/27Jul16)

According to her, having a computer at home at that time was very rare in her community and only a few families have the privilege to own computers at home. She also pointed out that it was the beginning of his deep interest in learning DT skills, and her interest continued to grow until now. According to her:

That was, I would, I would thanks for my dad he brought, he brought a computer back to our home in 1995 back then it was a really, like some quite a posh thing, it’s not, it’s not normal to have computer at home. So, because my dad has given us the head start of having ICT at home and having that access, I think that’s what triggered my interest with ICT.

(Nadia/Int2/10Aug16)

She added:

He was in air force, but he specializes in the engine parts. So, he is the a, I would say mechanics for the jets. Jets, I think. […] I don’t remember which one. So, when you learn about the engines, so you have to do, I mean he was, he was sent overseas for a couple of months to learn about the engines and then come back and he was the instructor at that point, at that point of time he brought back the computer. So, he uses a lot of computers to teach his pupils, his students about the engine parts and what to do in in this kind of you know, how to maintain the engines.

(Nadia/Int2/10Aug16)
Since the computer software that she used at that time was quite basic, her DT usage was also restricted to limited functions. Initially, she stated that she only used her home computer to play computer games and also to use the encyclopaedia. According to her:

DOS, I think it was black. No wait, it’s not that, I think its Windows 95. There was a CD, he brought back a CD together with the computer […] So, there was a lot of things that we learned, I would say. Knowledge, encyclopaedia. We learned Zulu, how to count in Zulu, how to say things, some proverbs in Zulu, some different languages, and then see the paw prints of animals. Obviously, games, normal games like building blocks, jumping on frogs, basically arrow stuff.

(Nadia/Int2/10Aug16)

Early in the use of DT, Nadia only used computer hardware without Internet, and only started using the Internet at home in 2004:

Oh, when did I first get familiar with Internet? Erm, form 5, 2004. It was the dial-up. […] No, no internet connection not until 2004.

(Nadia/Int2/10Aug16)

According to Nadia, one of the early skills that she learned was the skill of using Microsoft Word, and she learned much from his father, especially the aspects that involved typing skills. According to her:

The first thing I learnt about ICT is how to use Microsoft Word. Normally when we type, I have the, I get, I’m still seeing this problem occurring around people even once, that I think I mean around my age, when you want to type capital letters as compared to small letters, sometimes you type all small letters and then you want to change to capital letters, they would hit caps lock and then they would have to type one letter and then hit the caps lock again and then type small letters. Actually you don’t have
to do that, you can use the shift button but not many people know that and I knew about that like quite some time, I mean my father taught me that, the shortcuts and about the cut and paste. It’s a small thing actually but it helps you make your work efficiently, type efficiently you know, you don’t have to keep on using the mouse because once you type and then you use your mouse it takes up some time and it’s comes less efficient. So sometimes it’s ok, sometimes I don’t, I don’t have much problems, sometimes I do especially when I want to learn about how to edit pictures, that’s a lot of trial and errors and I have to Google about it on the internet.

(Nadia/Int2/10Aug16)

She added:

I learned it from well some trials, some trial and errors. My dad used to teach us a lot because, I think it’s because in the nature of his work.

(Nadia/Int2/10Aug16)

After getting a home Internet connection in 2004, she used the technology mainly for the purpose of 'chatting', through an interaction site called mRIC (Internet Relay Chat). She mentioned:

At that time, the only reason why I would get into the Internet was to chat. Kampung Chat. But that was the time where MRIC, Kampung Chat was used, and I used Kampung Chat.

(Nadia/Int2/10Aug16)

In addition, Nadia also uses DT equipment to access social media websites. According to her:
I only started Friendster in 2008, when I was overseas. Oh no wait, a year before overseas, I think in 2007.

(Nadia/Int1/27Jul16)

Nadia was formally trained in the use of DT since school level, up until the university level. While at the teacher training institute, she received specific training on how to use DT for teaching purposes. According to her:

We were encouraged to use it and we have a specific course where I think the Intel people came in taught us how to use Words and PowerPoints to teach pupils to do lessons, yeah.

(Nadia/Int2/10Aug16)

Nadia's deep interest in the use of DT has continued until her adulthood. During the period of this study, Nadia was a very active DT user and was very dependent on these technologies, not only in her private life but also in her profession. She used DT to keep in touch with friends, colleagues, students and family members, as well as using DT in daily activities such as online shopping, to read the news, to find information, and so on. In terms of communication, she also used applications such as WhatsApp and Instant Messaging on her smartphone to receive information and announcements from her school administration. According to her:

Yes, they use WhatsApp as a platform to inform teachers of upcoming programs, events, or stuff that you need to do. We have a special WhatsApp group, official one, to erm, when letters came for certain teachers to bring go to course or something, they will upload the pictures of the letter into the group and inform the teachers that they have to attend.

(Nadia/Int1/27Jul16)

In addition, she was also an active user of social media sites including Facebook and Instagram, as well as adept at using the Internet for teaching purposes. Apart from that,
Nadia is also interested and skilled in graphic designing, and often uses her skills for design certificates for her students. According to her:

I need something, triggers my interest which is why I wanted to learn it. Like in schools, we, when I went to a you know give some awards to the students, the best award would be like a button, badge button or a certificate. A simplest one would be a certificate, right? So sometimes a normal certificate would look dull. Same look, same colour, same patterns but with colours, you know, if you bring in some bright colours, some designs it would look more interesting and then you know, hope hopefully the kids would look at it and say that “I want that!” so it would be seen as an award not just a piece of paper. So when I want to do that, to be able to make a really good and interesting certificate you would want to put a lot of designs in it, you want to out a lot of colours in it you have to be able to know how to edit pictures you know. Do this and do that, some graphics, some designing and that triggers my interest, so I need to it, triggered my interest and I learn it.

(Nadia/Int2/10Aug16)

5.3.2 The sources of Nadia’s cognitions about the use of DT in literacy instruction

Nadia stated that DT was helpful in preparing to teach. She used the Internet to find existing materials as well as for other purposes such as translating text, finding information, editing videos and audios, and so on. She also used computer software such as Microsoft Word and Microsoft Power Point to produce slideshows, notes and other graphics displays that she could use in the classroom. She felt that computers made her job easier and faster. She had a laptop complete with an Internet connection and a printer at home that she used for personal and work purposes. She said that she was confident and comfortable with her ability to use DT equipment and had been from a young age:
I would thank for my dad […] he brought a computer back to our home in 1995 back then it was a really, like some quite a posh thing, it’s not, it’s not normal to have computer at home. So, because my dad has given us the head start of having ICT at home and having that access, I think that’s what triggered my interest with ICT.

(Nadia/Int2/10Aug16)

Her early exposure to DT began with watching documentaries and playing video games on her father’s computer. Although she could use the computer from an early age, she only began to have an opportunity to use the Internet in 2004. According to her, her early learning experiences came from trial and error, as well as some coaching from her father. She mentioned:

The first thing I learnt about ICT is how to use Microsoft Word […] It’s a small thing actually, but it helps you make you work efficiently […] So sometimes it’s ok, sometimes I don’t, I don’t have much problems, sometimes I do especially when I want to learn about how to edit pictures, that’s a lot of trial and errors and I have to Google about it on the Internet.

(Nadia/Int2/10Aug16)

At college, she was taught how to use Microsoft Word and Microsoft Power Point to create lessons for students. In addition, she learnt how to design her own teaching materials by using specific software. In her seven-year career as a teacher, however, Nadia only attended two training sessions related to DT. This training focused on the use of a software called Frog VLE. In the second training session, she led the workshop for other teachers. From Nadia’s point of view, the training provided was inadequate, and many aspects needed to be improved in order to ensure that all teachers understood how to optimise the use of technology in teaching. According to her, usually, when she gets any educational software or CDs supplied by the MOE, she will practice on her own with reference to the manual provided. Nadia was quite adept at using the DT hardware and software supplied, to the extent that sometimes other
teachers contacted her to ask for guidance. Moreover, she was comfortable downloading software if she thought it would be useful for teaching. She explained:

I can create sites, I can create blogs, I know the how to-s, and [...] created sites on Frog VLE [...] I think I would like to learn about networking, indoor networking kind of stuff.

(Nadia/Int3/09Oct16)

While teaching, she most often used desktop computers, netbooks, LCD projectors, educational CDs and DVDs, software such as Microsoft Word and Microsoft Power Point, and the Internet to access educational websites, online exercises, and software/applications.

5.4 The relationship between Nadia’s cognitions and her use of DT in English literacy instruction

From the analysis of Nadia’s interview data, it is clear that Nadia's cognition and her personal and professional background directly and indirectly affected her cognitions and practices in the classroom.

In looking at the relationship between Nadia's cognitions and the use of DT in her literacy instruction, it was found that her practices were in line with guidance set by the MOE. Notably she prioritised ‘preparation for the examination’, which, despite her reservations about the significance of examinations, she focused on in her lessons because of her obligations under the direction of the ministry. This suggests that although Nadia did not believe that examinations determine the future success of the student, she still insisted that her students received sufficient preparation for national examinations. In these kinds of situation, her practice was not fully in line with her beliefs, but on the basis of responsibility, she stated that she understood the tasks she needed to do as a teacher, even though she had to compromise on things she did not fully agree with.

In addition, Nadia believed that ‘English is enjoyable’ and that DT ‘makes lessons fun’. This attitude was seen in her use of DT in the classroom. She used DT to enliven her teaching and learning sessions, by ensuring students understood the
syllabus in an appealing and impactful context. Nadia balanced the use of DT in parallel with her cognitions (i.e., ‘English is enjoyable’ and DT ‘makes lessons fun’).

Nadia's cognition and practices in the classroom were heavily influenced by her personal and professional background, as well as her experiences in using DT in education. The MOE’s expectations, as well as her concern for the needs of her students in the future, shaped her cognitions towards DT in the classroom. Not ignoring her principles in teaching, she was able to assimilate her cognition of literacy in general with her cognition regarding the use of DT in literacy teaching.

Nadia recognised and acknowledged the great potential that DT could bring to the classroom, but she was aware of the technical skills required to maximise the potential of the technology. She was also mindful of the setbacks and weaknesses of DT that arose from time to time, but nonetheless remained convinced that DT was a very important tool in the classroom, both for preparation purposes and for the teaching process itself. To ensure that the potential of DT was fully attained, Nadia believed that educators should demonstrate high commitment to and interest in DT. Nadia pointed out that sometimes more time was needed to prepare technically, which sometimes required more effort than traditional teaching techniques. She also felt that educators needed to have appropriate classroom management skills to ensure students used DT as planned to achieve the desired objectives.

However, Nadia acknowledged that DT did not improve every aspect of teaching. She still felt that some aspects of teaching still required more traditional methods. Appropriate use of DT, she argued, depended on the teaching objectives, the level of student ability, the time and space factors, student interests, and student discipline. On the whole, though, her attitude was positive, conveying the attraction, convenience, practicality, and capabilities of DT in saving time and energy. Her positive attitude towards DT in literacy instruction corroborated her cognitions about literacy instruction in general (i.e., English is enjoyable, English is important, preparation for future life and the importance of good reading and writing). Nadia emphasised the role of teachers in recognising the potential of DT, while also being aware of the limitations of DT. Additionally, Nadia gave credit to colleagues, family members, students, and many of her acquaintances for helping with the technical preparation. Using DT in the classroom helped Nadia bridged the gap between teacher and student, as well as facilitate the teaching process.
Nadia relied heavily on DT for work and personal purposes, and she often used it in the process of teaching preparation as well as the teaching process itself. The DT tools that she often used were ranged from relatively basic to sophisticated. Most hardware was generally provided by the MOE and the school. The DT tools were mainly used to undertake exercises, show notes, brainstorm activities, and deliver presentations. Nadia's greatest motivation for using DT in teaching was to fulfil the interests and needs of her students. She also recognised that it was a practical and effective way to improve the quality of her teaching, supporting her cognitions about teaching literacy (i.e. *English is enjoyable, preparation for the examination, and preparation for future life*). Nadia used DT to teach specific aspects and topics that she felt were suitable and appropriate, such as those requiring presentations, brainstorming, visual descriptions, audio support and so on. Although Nadia was fonder of being the only user of DT in her classroom instead of her students, she still sought opinions from colleagues, family members and students for tips and guidance to improve her teaching quality and ensure that the true potential of DT itself was maximised.

Although Nadia felt that she was limited in her use of DT in her teaching - hence feeling anxious about the expectations of the school and the MOE - she thought that she always tried her best with the available facilities. Based on her teaching experience and working for an examination board, as well as taking the time to understand the students' abilities and interests, and by understanding the needs of the ministry and school, Nadia capitalised as well as she could on the potentials of DT, and at the same time tried to ignore and minimise the negative factors that come with it.

Nadia generally responded positively to the use of DT in teaching, although she acknowledged the negative aspects arising from the use of such technology. To counter any negative feelings towards using DT, Nadia emphasised that teachers need to ignore the small inconveniences and think more of the advantages that the technology can bring, especially to their students. She also felt that teachers need to ask people around them to show them how to use technology and not just rely on their intuition.
CHAPTER 6: IZZUE

As we saw in Chapter 4.2 above, the second participant Izzue was a teacher in Sungai Jenang Primary School (SJPS). Izzue demonstrated enthusiasm for the capabilities of DT in his career, whether for lesson planning purposes or to facilitate his teaching in the classroom. This chapter presents findings relating to his literacy instruction practices and use of DT (6.1), his cognitions (6.2), their origins (6.3) and the relationship between these factors and his use of technology in literacy instruction (6.4).

6.1 Izzue’s overall literacy instruction practices

Izzue's teaching experience has, by his own admission, made him efficient in his preparation for lessons, as well as deciding appropriate methods for his sessions. He felt he has to become more skilled at using DT in order to achieve his teaching objectives or purposes. Izzue exhibited strong awareness concerning literacy, and he believed in the importance of enabling his students to master English literacy not only for the purpose of passing their examinations but also for their futures. However, he also displayed concerns about his literacy teaching, feeling that literacy was too complicated to be taught. According to Izzue, for some of his students, English literacy is a relatively foreign subject to them, as they are less exposed to the language at home, and this causes them to be afraid to learn it. Despite concerns about his teaching methods, Izzue believed that proper preparation can alleviate the problems and risks in his teaching sessions.

6.1.1 Izzue’s lessons planning and preparations

Izzue stated that he often created his own materials for teaching rather than relying on the materials provided by the school or the MOE. He also pointed out that he often used DT tools, especially a laptop and the Internet, to prepare his teaching materials as he claimed that these tools sped up and simplified the process. Although Izzue believed that it was very important for teachers to prepare in advance, he
acknowledged that at times he had to teach impromptu for reasons that could not be avoided. However, according to him, DT helped him to deal with those situations as he could simply access and download various activities from the Internet. He recalled:

My role is to prepare lesson plan for each day, for each class that I enter, beforehand. I have to prepare the lesson, to plan the lesson ahh to make sure that the lesson will be fruitful. […] I'll make sure the lesson plan is something useful even though they only learn about five sentences or even five words. I just make sure that they did something for one day.[…] So, I would ask them, so they would remember, so it’s a good exercise for them to remember what they’ve learnt and at the same time inform me of what they have learnt and then so that there and then, I get to start to prepare […] figure out what’s the best lesson for the next, what’s best to teach them for the next lesson.

(Izzue/Int1/07Aug16)

As Izzue mentioned, his lesson planning and preparations were greatly influenced by the age, level of achievement and needs of the students during the teaching and learning sessions. According to him, he would take note of what happened after the completion of a teaching and learning session, especially about the level of understanding of the students in the session, and he would then plan an approach that he felt was appropriate for use in the next session. If there were situations where he could not carry out the lesson that he planned, Izzue would use those lessons in future sessions. He said that his lesson plans followed the textbook and syllabus provided by the MOE and thus he needed to deliver them:

In terms of preparation, it requires less preparation because I don’t have to produce anything much. Most of the materials that we use, that is used using technology are already there. Usually we just have to search in the Internet and then you find it then save it and then view it and then show it to the pupils. We don’t really have to create new materials. Materials are there but you know sometimes technology doesn’t always be on our side.
so as a, as a precaution measure it’s best if I can print out all those materials and, and a have it at the side you know just in case the technology fails us.

(Izzue/SRInt/29Nov16)

His preparation was based on the needs of the students with the examinations in mind, and he made sure his materials matched the contents of the examinations. Hence, he would usually arrange the teaching materials according to the chapters, topics and themes that had been coordinated in the syllabus, as supplied by the MOE, before he developed further materials according to the students' abilities, their backgrounds as well as the time constraints:

For before, before I enter the classroom, I will consider the backgrounds of the pupils. Where they grew up, their environment and their prior knowledge and the duration of my teaching lesson. I would also consider, I would also consider the, how can I say… I would also consider the pupils’ level of proficiency. If the pupils are too weak, I will put them in in few islands where there will be one leader among them that has higher level of proficiency to lead them along the way, along the lesson. So, if they are prepared before the lesson, they will be able to follow the lesson by asking the leader if they have any problem. They don’t, don’t have to always raise up their hands to ask teacher if they don’t understand and interrupt the flow of the class, lesson.[…]The leader will assist them (…) their lesson and help them in a group work, to lead them and provide additional knowledge that maybe the weak pupils don’t know. This leader also, this leader also their friend so this is what we call buddy system.

(Izzue/Int2/19Sep16)

Izzue felt that understanding the students’ backgrounds could help keep them motivated to learn. He was very careful in preparing his teaching, in order not to touch any area of sensitivity among his students. He added:
In order for me to find resource for my teaching even when I’m choosing my teaching aid or I’m choosing the sample for any articles sample for essays, I will have to be alert to the condition of the pupils. Those pupils may among them come from single parent family, are divorce family, a very poor family, a family that the father the father doesn’t work, or they have problem in their family. So, in order to, in order for them to learn in peace and they have to be, we have to be more sensitive towards their emotion. If we find, if we want to find some resource or teaching aid, we have to be alert that the teaching aid won’t hurt them in any ways. […] Other than that, I also always avoid talking about salary of their parents because they come from various financial background. Some of them are living very well and some of them are poor families so in order for them to have their own confidence, self-confidence, I try to avoid talking about their parents’ salary.

(Izzue/Int3/29Nov16)

As well as focusing on students’ abilities, Izzue also considered the facilities or tools available to him that could be used in his lessons. He made sure that the content of the lesson was balanced and would cover appropriate aspects of language, such as reading, writing, listening, literature and grammar. He also emphasised the moral and behavioural aspects in his preparation, and he often combined learning language and moral values.

Izzue was proactive in preparing, generally looking for teaching aids from different sources. He said that he not only relied on teaching aids provided by both the school and the MOE but often used the Internet and other resources so that his teaching process was appropriate to the needs of his students. In addition to using traditional methods, Izzue embraced DT tools to help him prepare for teaching:

I normally get the ICT lesson by googling or searching through Teacher Tube or YouTube for song first. After I get the song and I get the lyrics, erm, I will try to relate or change the lyrics based on the topic because I am teaching, I am currently teaching Year 4, Year 2 and Year 5 pupils. They are still afraid of English subject, so I need something entertaining for them
to love English and for them to break the barrier, erm, in order for them to accept what I want to teach them in the lesson. Erm, by using ICT, we have a program, Frog VLE, where every pupil using have an account to access whatever I want them to discover. I can post it like an email, but it is a server. All of them will get the same thing. If they want to read at home, I can just, erm, post this and they can read at home, erm, during their ample time and they can, they will come to school ready for tomorrow’s lesson.

(Izzue/Int2/19Sep16)

Izzue taught several classes with different levels of English proficiency. He occasionally asked students with a high degree of proficiency to give guidance to their friends who were considerably weaker. He said:

I use this system because if we divide them based on their level of proficiencies, the higher achiever may find the task easy while the weaker pupils will do other things such as drawing, doodling among themselves, drawing cartoons because they don’t understand what they should do. So, this group of high achievers, if they are in the same island, they may guide them. They may explain. While they are explaining it, they actually practicing their speaking skills and they will remember better when they explain what they have learn to the weaker pupils.

(Izzue/Int3/29Nov16)

6.1.2 Izzue’s literacy instruction

From the point of view of Izzue’s teaching approach, he tried to find a balance between teacher-centeredness and student-centeredness. He considered the standardised syllabus provided by the MOE and the school authorities to track student achievement, as well as to ensure that students were prepared to face the national examinations. He stated:
I also like the pupils to go out of their classroom and experience something that they want to learn themselves. They should do more hands-on activities such as if they want to learn about recipe, they may involve in hands on activity […] So, they will remember, some of them have kinaesthetic memory where they have to do to remember, to do something to remember. Sometimes they find it hard to remember if they just read or they just hear. Some of them are, prefer to do it in actual activity to for them to remember better. So, before I do any lesson, I try to be more creative and try to prepare an interesting activity where they can get involve actively in in or out of the classroom.

(Izzue/Int3/29Nov16)

As a result of my observations in his classroom, I found that Izzue often encouraged his students to give their opinions and arguments. Although sometimes they made mistakes in group discussions, Izzue would correct them individually in order to avoid embarrassing them in front of their peers. His students were allowed to suggest the activities they preferred to do. However, Izzue only agreed with their suggestions if the recommendations were in line with the objectives of the learning session.

Aside from language elements, Izzue applied spiritual and religious aspects in his teaching. The application of moral values was observed as one of the objectives in each of his teaching sessions. Additionally, he also encouraged patriotism among his students. According to him, all the lessons related to morality and patriotism were part of the syllabus that he needed to teach to the students:

Teacher as public servant, we not only come to school and teach our pupils to impart knowledge we but also to in every lesson we should instil high moral values, we should encourage our pupils to do good things, we should ask them to be religious, to be patriotic - to build their spirit of patriotism, for them to be able to be a great leader in the future. Because we really need a great leader in the future for our nation. In our lesson plan, we also write down the moral value that we should impart in every lesson. It is necessary in Malaysia to at least one moral value for each lesson. They
gave us about allocation of 5 minutes to talk about patriotism and to talk about something good or to show them videos about restoring humanity.

(Izzue/Int3/29Nov16)

His teaching methods often varied according to the reaction and understanding of the students in the classroom. He continually monitored their levels of concentration and understanding by posing questions spontaneously during the session. He believed that the ability to be flexible in teaching is critical to ensure students stay focused and achieve their goals. Additionally, he thought it was easier to improve students’ mistakes gradually rather than to try to correct them all at once:

During the lesson I always observe my pupils’ behaviour, so it’s not to find their mistake but I have to make sure that they are in the lesson. If they are distracted, it is my job to get them back in, on their track. As an example, sometimes pupils get bored if we just read long passage. We ask them to read by themselves and some of them don’t even read. They will do something else. So, we should do other activities such as they take turn to read. So, the teacher will pick those who will read next so everyone will be alert. They will be ready at ready to continue their friend’s reading. This is one of the ways and other than that we can also we can also provide them with activity that may be executed in the time in the period given. If have one hour, I should pick the suitable activity that can fit in that duration.

(Izzue/Int3/29Nov16)

In order to keep his students focused and understanding what was being said, Izzue made quizzes from time to time. He would try to identify students who were behind in order to help them improve. Group activities were used to ensure that all his students were active in the classroom and to make sure that they were always motivated:

So, I also have to make sure that I can identify which pupils understand the lesson and which is not. How can I make sure that they understand? They
will always do a short quiz before the end of the lesson. Random pupils will answer the question, if they can’t answer the question their friend will help to give the answer and they will eventually know what they don’t know along the lesson. […] I also make sure that I give enough attention to everyone in the classroom not only the high achiever but also the weaker pupils. […] I don’t want them to feel invisible and they are, they are not needed in the lesson. The active pupils usually come forward to do activities in front but the passive pupils, we can ask them to join the activity by doing group work or pair activity and we can pair them with the active pupils.

(Izzue/Int3/29Nov16)

In literacy teaching, Izzue motivated his students by rewarding them if they achieved a target. According to him, his students showed a tendency to try hard and take steps to improve if they felt valued:

To get involved in the activity by using reward for success method. Where I will give them candies to, if they, they manage to complete the work that I gave to them. Even though the question is not too hard but at least they feel appreciated when they success to, they manage to finish the work and the higher achiever, they will get award, if they help to behave in the classroom.

(Izzue/Int3/29Nov16)

Izzue also believed that his students should be assessed on a regular basis, so they could remember what they had learnt. He thought that immediate feedback should be given as soon as students had completed the task or answered an assessment question so they could be made aware of their strengths and weaknesses. To motivate his students and advance their performance, he rewarded them for their enthusiasm and attempts to get the right answers. He elaborated:

At the end of the lesson, after the lesson, I always put up some short quiz or simple activity to, for me to look at the progression of the pupils
understanding. So, one of the techniques that I use is for, I ask them to draw a mind map about what they have learnt for today. If the mind map is empty, so I can, I it shows on their paper that they don’t understanding anything in the lesson. So, I have to do something, I have to maybe present the best mind map of the lesson and give them award for the best mind map. Best mind map award that shows that the pupils understand the lesson if they can draw a good mind map. So, if we share the mind map, so the low achiever also can benefit from the sample of the mind map and we can paste it at the back of the classroom.

(Izzue/Int3/29Nov16)

For students who were relatively weak in their English writing, Izzue made them copy example essays so they could emulate the compositions in their writing. He also instructed the students to memorise examples of compositions that they could use in their essays later. He explained:

English language literacy instruction, I think pupils, of course pupil have to learn how to read for them to be able to write, at first, for them to write we need to give them plenty of sample. For start, usually I will ask them to copy, to copy a lot of essays, a lot of sentences so they get to be familiar with the language, familiar with the sentence pattern and for start, they may be able to copy by word, word by word and by time they will have to copy sentence by sentence and next they have to copy paragraph by paragraph. They have to read, they have to memorise, and they have to then they write. After that, they don’t need to copy anymore, they will get the sentence structure right.

(Izzue/Int1/07Aug16)

In order to master English literacy, Izzue emphasised the importance of grammar competence, because he thought that to be able to write or speak fluently, his students must have a good understanding of grammar. He thus placed emphasis on grammar every time he prepared his students for their examinations. He said:
I love to teach them grammar and speaking. Because grammar is essential ahh for them to, for their exam and for them to write something formal in the future. They can always speak their way out but if they need to write, they need the grammar to be firm and they have to grab on grammar very well for them to write something official, something formal for their job, for their future. I do encourage them to talk a lot even though they don’t have good grammar ahh but ahh I do encourage them to get the grammar correct in their writing. Because both grammar and speaking are important [...].

(Izzue/Int1/07Aug16)

Communication in his literacy classroom involved a combination of English and Malay languages. He recognised that the weaker students would be unable to avoid using their native language. As a result, communication in the classroom became bilingual, and although Izzue tried to use English most of the time, he sometimes explained in the Malay language to the weaker students, although this was limited level. He said:

The normal situation in my classroom is just like, it’s not really formal. We are more like a community where we can share everything, but they have in English. Even though they cannot speak up in English, they will try to speak in broken language or ‘rojak’ (code-switch between Malay language and English). In Malaysia we called it ‘rojak’ where we combine English and Bahasa Melayu, Malay Language just to communicate with one another but I always encourage them to try and speak even though it is ‘rojak’ because the classroom is the only place where they can talk like that.

(Izzue/Int1/07Aug16)

Izzue encouraged all of his students to try, even if they were weaker in English and were scared to make mistakes in their grammar or word choice. He wanted them to feel comfortable communicating in English, as well as learning from mistakes. He added:
Yes, they are not comfortable, but they are trying for me. Actually, I can see that they are trying because I was hoping that they can speak in English but that is okay at first maybe they will speak for my sake but by time they will evolve, and they will speak for themselves. For now, half of the classroom can speak proper English sentence but for another half is just a listener. They act as a listener; they listen to their friends talking. They are afraid to utter even a single word because the rest can speak better than them. For these pupils, I usually use song because everybody can sing a song so nobody will be silent, nobody will be ashamed of, nobody will be afraid that their grammar is not correct cause they are just reading the script so they, after using the song, I asked them to sing in small group, so they can actually face people when they are singing, when they are saying something in English. That will make them comfortable to speak in English and after few sessions they are getting better, their English but they still need some encouragement.

(Izzue/Int1/07Aug16)

Izzue would typically teach at the front of the classroom, reflecting a teacher-centred approach. He preferred his students to work in silence, and only discuss or communicate with each other when permitted to ask or explain something or discuss a task with one another. According to him:

Okay normal situation in my classroom they will be quiet when the teacher try to explain something but they will start to make noise when they are, are given permission to discuss about something but actually I like to have them have an active learning because they need to talk to each other, they don’t have to listen all the time, they need to give out ideas, they need to share what they have, they need to try the vocabulary that stuck in their head. Either it is sufficient or not, in the discussion they will realise that the vocabulary is enough, or it is lacking some, some part and they can fix it if they know where they lack at.

(Izzue/Int1/07Aug16)
Izzue thought that learning would happen naturally if teachers provided a safe and comfortable environment for their students, where students could freely try and voice their opinions without being judged or ridiculed by their friends. He tried to ensure this environment as much as possible:

I believe teaching English is only effective if the pupils get the safe environment where they think that nobody will judge them for trying, for trying the language. If ahh they don’t have the proper surroundings, if teacher don’t advise their friend not to laugh at them, they will tend to be afraid. I think that is, the teacher’s role to create an environment where they are encouraged to have an active learning without being judged by others.

(Izzue/Int1/07Aug16)

Although Izzue sometimes takes control of his class and stated that most of the time, his class would be teacher-centred, he still believed that the work of a teacher is not just to deliver information and knowledge, but also to teach students how to find information independently. He added:

I think teacher should show how the way to learn, not just teach them. Teach them how the way for them to learn. Let’s say YouTube, how to use YouTube to gain knowledge, how to search for English song, suitable English song, maybe English song for kids, maybe keyword, teach the pupils how to reach the knowledge if you are not there.

(Izzue/Int1/07Aug16)

Although at times Izzue preferred his students to be quiet while he was teaching at the front, he believed that effective teaching had to involve active student involvement. Therefore, during his teaching session, Izzue often allocated time to allow his students to ask questions and actively discuss. Izzue elaborated:
For me, a perfect literacy lesson is where the pupils get involved in the lesson actively not passively and just receiving whatever we want them to hear. But I want, at the beginning of the lesson I will try to impart as many knowledges as they can [...] I will let them, hanging, so they will ask question in the middle of the lesson. So, when they ask question, erm, I ask them to seek for the answer themselves and at the end of the lesson, we will discuss and get the answer that they want. Sometimes the answer may not come from me, sometimes the answer may come from their friends [...] the point where I know, they are really in the erm, in the lesson. Their mind is in the classroom and not elsewhere. They are not doing something else because their friends can help them to get the answers that they don’t know, peer sharing, they are supporting each other.

(Izzue/Int2/19Sep16)

He also added:

In any classroom, the most important thing is classroom management. We have to, hmm, we have to keep our eyes on the pupils [...] they will hmm concentrate more on our lesson hmm it is not because of the slideshow but it is more about getting teachers attention, if they get the enough attention while using power point slideshow they will hmm they will get involve in the activity and teacher may also pick the pupils that seem to be doing something else in the classroom to do the activities in front. We can ask them to write on the whiteboard hmm to get them engage in the lesson.

(Izzue/SRInt/29Nov16)

Additionally, Izzue emphasised his structuring of lesson to ensure that he could deliver the entire syllabus before the examination. According to him, a single learning and teaching session should not be too crowded or with too many diverse activities because it could create confusion among students. Hence, he often made sure that the content that he delivered was acceptable and understandable by the students. He would also try
to teach the syllabus in stages throughout the year. To illustrate, he mentioned:

Most of the time I will accomplish, I will achieve the objectives of the lesson. But sometimes there will be, there will be unexpected event where, where I did not manage to finish my lesson on time because we have other chores to do like, erm, mini quiz or midterm examinations, we have a lot of tests and examination in our school system where it sometimes take our time to finish our lesson. [...] Sometimes I want them to learn how to make sentences but because of time restriction, I have to skip few, few minor topics like grammar or reading session, they just focus on writing. Erm, for me, reading session is also very important for rural area pupils because they don’t really have much vocabulary in their head. They need to read before they write, or they need to hear before they speak. Erm, and something like this, time restriction that always make the pupils having hard time to learn.

(Izzue/Int2/19Sep16)

Izzue explained that most of his students often needed repeated explanations before they understood what was being taught. Hence, Izzue needed to be patient and use different strategies to ensure that what he tried to convey was well understood by his students. He used facial expressions and body language in his explanations, as well as verbal instruction. He added:

While they are reading we can identify, which part that they find it difficult to pronounce and they find it hmm they, they can show by their facial expression that they’re not familiar with certain words so I will emphasise more on the weak part of sentences and I will edit the sentence on the spot to make sure that I am explaining something that they don’t know instead of repeating the thing that they already hmm have in their mind and they already understand.

(Izzue/SRInt/29Nov16)

Izzue also stated that he tried to get to know his students' interests, age and skills before
deciding on the methods and tools he could use when teaching English literacy. For example, he often used YouTube as his students were quite familiar with the website, and this made it easy for Izzue to incorporate YouTube into his lessons. He explained:

I use the same technology because, like I use YouTube because it is very practical and the pupils themselves also is very familiar with YouTube. I don’t want to get them into application where they can’t find the application when they are at home. I want the pupils to be in their safety zone hmm and they don’t need to, they don’t need to figure out how the application works they just focus to the content provided by the YouTube.

(Izzue/SRInt/29Nov16)

Although he believed in the ability of DT to improve the quality of teaching and learning, Izzue stated that he frequently tried to balance the use of DT tools with the use of non-ICT teaching materials (i.e., mind maps, word cards, language games, card games, etc.) in his classroom. This diversity, according to him, was necessary because some aspects of language learning are better taught through a more traditional approach. In addition, he wanted to cultivate his students' creativity from different perspectives, and not just in terms of using DT in learning. To illustrate, he described:

I always introduce them with mind map to simplify what they have learned even simplify what I want them to learn in key point. So, they may remember the mind map if they want to remember if they want to memorise the lesson, they don’t need to memorise the whole text they just have to have the photographic image in their mind about the main point of the lesson as an example about saving, saving the sea. […] We can use from fictional way of teaching or we can be creative for me I will love to bring in some reality to the classroom such as recycle item, empty box to make a magic box and I put sentence strip and they can pass around the box and do something activity like that and I can bring in a few colourful ball for them to play games and there are a lot of game that can played as language games and pupils love to play while learning. Usually I use card game for
them to learn how to build compound sentences by using card games they actually arrange the word by arranging the cards and they can find their friend that has the card and they have to communicate in order to gain the card and complete the sentence.

(Izzue/SRInt/29Nov16)

Activities such as singing and playing games made his students feel calm and less afraid to learn English literacy, and Izzue acknowledged that this meant the students would learn more effectively. Although they often attempted to translate English words into the Malay language, Izzue felt that this was normal and that it was one of the steps in the learning process for his students, especially those who were rather weak.

6.1.3 Izzue’s use of DT in his instructions

Izzue demonstrated high competence in using DT, whether for lesson planning purposes or to facilitate his teaching in the classroom. According to him, he had been using DT equipment since he began teaching and has continued ever since. Despite being posted in a rural area with limited DT capabilities, he continued to adopt the use of technology on the grounds of recognising the many advantages he could gain from the sophistication of DT. He elaborated:

I begin to use ICT in English literacy instruction at the beginning of my teaching career in 2010. At that time, I was teaching in a rural school where students can hardly access the Internet and they can hardly even access any media. They don’t even have a television at home. They come from a very poor family where the only media they can get access to the radio. So, when I introduced them to the YouTube, they find it very interesting, and because it is something new for them. […] They were amazed at how easy they can get access to the English songs and the information are in the Google. […] Now I’m teaching in a new school where we have more access to computer and Internet and the pupils, unfortunately, they get already used to the computer that they don’t feel as amazed as the pupils
in the rural area. [...] Those who don’t have the access are more eager to use it while those who get access will take it lightly.

(Izzue/Int2/19Sep16)

While his students' exposure to DT had not been high, Izzue tried to make sure they were aware of the potential of DT to improve their learning performance. In the early stages, he used DT to attract and intrigue his students by using YouTube videos, video games and so on, and according to him, his efforts had shown positive results, although there were also times when his students were somewhat distracted from the real objective of the lessons:

Yes, my current use of ICT is different because the pupils’ perception of ICT is different. In my beginning, I began to use ICT, my pupils are from rural area. They were amazed even if I show them videos from YouTube, but now I’m in a school where they can easily access the Internet, they found that YouTube is something boring. [...] I think it is a challenge for me to make the lesson interesting when they are used to use the computer to play games and do other stuff instead of learning. They don’t look at the computer as a medium for them to learn but they look at the computer as a medium to play. Erm, sometimes I found that ICT is a bit of a distraction to teach the pupils that mingles with ICT too much.

(Izzue/Int2/19Sep16)

He used DT primarily as a means to introduce a topic, besides using it to attract his students to the content. He stated that he usually encouraged his students to interact with each other, whether utilising DT (i.e., using a website called Frog VLE, or by using e-mail) or face-to-face. He stated:

Actually, I only use ICT for introduction and just to make the pupils love the topic and the rest I will let them do group activities which they can communicate with each other. Ahh! They can even communicate with each
other using Frog VLE. They can chat with each other and send emails to one another.

(Izzue/Int2/19Sep16)

He stated that encouraging his students to use DT was a challenge because some were not familiar with the tools. It also made them panic and become distracted every time they were told to use DT to complete a task. He elaborated:

The pupils, with their limited level of development, some of them find it difficult to use ICT because some term used in the Internet is a new term for them. They don’t know the word ‘attach’; they don’t know the word… When something pops up, they don’t know what to do. […] Their lack of vocabulary also is a problem for them to discover new things or accomplishing their task in using ICT. They always ask for keywords for them to search information. They don’t know how the Google algorithm works like teachers do.

(Izzue/Int2/19Sep16)

According to Izzue, he was more proficient in using DT in literacy teaching than when he first started teaching. He also added that the DT he used now was more advanced than in the past. For example, students no longer needed to rely on notebooks or computers for their assignments, as they could access various databases and websites such as Frog VLE that enabled them to create and save all their tasks online. He added:

I think my current knowledge of ICT in English literacy instruction is more developed than when I initially begin using it. At the beginning of my teaching, there were no, share or revise the lesson using ICT. They only have their notebook, they only have their exercise books for them to write notes, jot notes, and sometimes they miss the book, they cannot find it, so they cannot revise the lesson from the previous months. Now, we have Frog VLE, they can always revise it anytime they want, because everything is uploaded in the server and it will remain there.

(Izzue/Int2/19Sep16)
According to Izzue, his use of DT was in line with his skills as he was proficient in using the tools. For instance, his skills in editing pictures could be used to make teaching aids easily. He elaborated:

I choose to use ICT technology in my lesson because I can say that I am good at photo editing, so I can use my expertise in photo editing to make my own teaching aids. [...] So, if I want to teach them to describe picnic, I can add more things or more subject in the picture for make them easier to describe or make them to tell the stories precisely and give them more ideas of how to developing their writing skills. Sometimes young learners need more visual aids. [...] Now, we have Frog VLE, they can always revise it anytime they want, because everything is uploaded in the server and it will remain there.

(Izzue/Int2/19Sep16)

Izzue often tried to ensure that his learning session was exciting and entertaining to attract his students. He liked to use videos and songs downloaded from YouTube or Teacher Tube before planning activities. He made sure his students used the website provided by the MOE, Frog VLE, to do certain tasks so that he could monitor his students’ progress even from outside the classroom. He added:

I normally get the ICT lesson by googling or searching through Teacher Tube or YouTube for song first. After I get the song and I get the lyrics, I will try to relate or change the lyrics based on the topic because I am teaching, I am currently teaching Year 4, Year 2 and Year 5 pupils. They are still afraid of English subject, so I need something entertaining for them to love English and for them to break the barrier in order for them to accept what I want to teach them in the lesson. By using ICT, we have a program, Frog VLE, where every pupil using have an account to access whatever I want them to discover. I can post it like an email, but it is a server. All of them will get the same thing. If they want to read at home, I can just post this and they can read at home, during their ample time and they can, they will come to school ready for tomorrow lesson.
He also admitted that he utilised DT in every lesson because for him, it was easier and more impactful. He elaborated:

I use DT in my classroom in every lesson. I use ICT to impart knowledge easier and for them to remember in a longer term. Usually I use ICT in the introduction and the, and the closure. At first, I will introduce them to the song to get them into the topic, to get them relaxed, to get them focused into what I want them to learn, and then I impart some knowledge, and they will do some group exercises and at the closure, I get them back to the song where they find it, they can relate the song that they don’t know at the beginning, at the end they will know why I let them hear the song.

Izzue used DT to test his students’ understanding through online quizzes and exercises. DT also made it easier for him to observe the performance of his students and highlight to them their strengths and weaknesses from time to time. Sometimes, planned activities were disrupted because there were students who were not familiar with DT, but Izzue stated that he often made backup plans to overcome such obstacles:

During the lesson, I always use video for my introduction and I also use a few applications to make short quiz where they can answer and the, when they finish answering the quiz, there will be chart provided that shows their mark so everyone will know their mark. […] Other than that, DT also give me problems sometimes when I see during the lesson when LCD suddenly did not, doesn’t work, I have to prepare with backup plan. I will have to improvise my lesson and always be ready at all times. For after, the lesson the pupils have experience to use FrogVLE, even after the lesson they may get back and they may revise using the FrogVLE. They may just enter the website, put in their username and password and they may learn by themselves and send me
emails or send me, ask me something in the forum room that provided in the FrogVLE. From that, I can see their progress to those who study at home and those who not will meet me in the next lesson.

(Izzue/Int3/29Nov16)

Furthermore:

That taught me a lesson that a teacher must have, must always have a backup plan or must be very creative to evolve, to evolve, to change the English, the lesson style according to the pupils on that day because pupils may be the same on paper, their name are may be the same but they are not the same person into your classroom every day, you have to change according to their behaviour. […] That is where you, you ahh improvise your lesson and that’s what I did from using ICT I just use my handphone and just show them the video, the lesson on the topic on that day and survive and they enjoy the lesson. That’s the most important thing.

(Izzue/Int1/07Aug16)

According to Izzue, the use of DT to perform activities (i.e., using songs and singing activities) gave his students more confidence and made them show great interest in learning. He explained:

They love, […] the lesson when I use DT because they love to watch they video, […] they love to sing the song, they love to watch the video clips and they find it interactive. They gain a lot of, they gain a lot of confidence in speaking in English by singing. Singing English song.

(Izzue/Int3/29Nov16)

DT methods made his students more active in the classroom and often led to them more freely and confidently giving their opinions and receiving feedback. Izzue believed DT
could benefit students who were often passive or shy in the classroom:

Their response is quite different in the sense that they always watch […] their teacher presenting something in front, and they will understand by looking at my facial expression but when they are, they will not talk when I’m teaching but if they watch video their reaction is different. They will keep giving their opinion to their friend about the video they will keep commenting while watching the video because they tend to respect their teacher but when the video, they feel like they can talk. It’s ok. I don’t scold them for talking while watching because I want them to talk, I want them to interact.

(Izzue/Int3/29Nov16)

Learning English literacy using DT also indirectly prepared his students with DT skills that they might need in the future. He said:

So, when they use computer, they use DT, they always find new words that use English as the medium of communication. So, they find ‘enter’, they find ‘space’, they find ‘start’, they find a lot of word a lot of words that can help them in the future. They, even though they, at first, they may be confusing for them but they’re learning.

(Izzue/Int3/29Nov16)

Izzue stated that DT made it easy for him to teach because the materials he acquired through the Internet were more relevant and attractive, and he did not have to waste time making his own materials. DT also allowed his students to study independently at home. Additionally, using websites like YouTube, Izzue could explore topics virtually, such as studying the face of the moon through videos. Izzue said the use of DT allowed him to show a greater dimension to his students. Although they live in rural areas, Izzue says that DT facilities allow him to show the world to his students. He added that using a website like YouTube also helped his students learn the right pronunciations and sentence structures, and this facilitated his work as he was able to show the various examples available on the Internet. He described:
I choose YouTube as my, usually I use YouTube as my introduction because YouTube is very user friendly. I find YouTube is very useful for everybody. [...] Other than that, YouTube also make the impossible [...] I can bring it into my classroom such as I can bring my pupils to the moon, it is, it sounds impossible but by using YouTube videos pupils can explore the moon surface and they don’t need to do something dangerous to just to experience it themselves. Video subtitles in YouTube also help my pupils to get the pronunciation of the native speaker better because they can listen while read the subtitles even if without the subtitle they can also gain something that they don’t actually they don’t realise that they’re learning about the sentence structure by listening to YouTube.

(Izzue/SRInt/29Nov16)

Izzue often used Microsoft Power Point to save time in the classroom. Since he had only a limited time per lesson, he did not have enough time to write information on the whiteboard as well as undertaking all the planned activities. Therefore, he displayed his notes using Microsoft PowerPoint rather than writing on the board. The slideshows that he made could also be used repeatedly and could be distributed to students easily either in the form electronically or printed out:

I choose to use Microsoft Power Point slideshow because I have very limited time [...] I can use my ample time to type at home and use it my pupils time while waiting for me to write in front. Furthermore, for primary pupils they find it hard to read cursive writing so I me myself takes time to write long sentences in front so it will be waste of time. Furthermore, I can also print, it is also printable for the pupils that, for the weaker pupils they tend to read slowly so it takes time. So, I will provide them with the printable slideshow for them to read by themselves at home. [...] I can use for other class, other classroom I just have to do a minor editing and I can use it for, for other pupils and it will also save my time in preparing my lesson.
In addition, Izzue discussed the mistakes that his students often made by anonymously showing errors in front of the class. This allowed his students to learn from each other’s mistakes. He described:

I use Power Point slideshow to teach them literacy, to read and to write by projecting the text on the monitor on the whiteboard so they can write, I can also correct the pronunciation immediately by pointing at the text in front. They can see it clearly where to read. If they read in their paper, they may be looking somewhere else and they get they, they took the time to find which sentence that I am teaching. By using projector, I can zoom out the specific sentences that I am elaborating at that time, so pupils know that that is the sentence that I’m talking about. [...] this is one way we can use projector to teach them about writing and if they get it wrong, I ask them to try again and the, the other pupil will also learn from their friends mistake and they will remember as they learn from others mistake and not just by their mistake.

By allowing his students to use DT, Izzue felt it could prove to them that they could study independently. The tasks they did not manage to complete in the classroom could be done at home anytime. According to him:

Pupils at this age they always eager to find something more. Sometimes we teacher actually learn from our pupils through their discovery. We may not find what they can find, we don’t underestimate our pupils and I give them chance to prove that they can actually learn by themselves and by using the netbook they are actually practising how to use the computer and they may apply it at home if they have something, they have problem in handling the netbook they may ask me in the classroom and they can continue using the netbook using their own computer at home without that problem anymore.
6.2 The nature of Izzue’s cognitions about (the use of) DT in English literacy instruction

The analysis shows that Izzue’s cognition affected his pedagogical methods directly, specifically his preparation, teaching style, expectations of students, assessments, and classroom management.

6.2.1 Izzue’s cognitions about literacy instruction in general

The cognition that Izzue had towards his English literacy instruction, in general, was based on the following concepts: English is enjoyable, i.e., engaging, practical, attractive for students; English is necessary, i.e., students need to master literacy in order to sit important examinations, to enter higher education institutions, to get relevant jobs, and for their social and general development; preparation for examinations, i.e., English literacy is an important aspect of taking the examinations; and difficult to teach, i.e. Izzue faced a number of challenges when he taught English literacy.

6.2.1.1 English is enjoyable

Just like Nadia, Izzue felt that the process of teaching and learning English literacy should be enjoyable and interesting. His notion that English is enjoyable came from his own interest in the subject. He believed that if students enjoyed learning English literacy, they would learn more effectively and thus be better prepared in the future. The use of DT tools such as the Internet, computers and audio and visual devices, he said, helped make learning sessions more interesting, and were a direct factor in the increased motivation of students. He added:

I think English is valuable and English is something new for my pupils. [...] They speak in their house in their native language but in school they learn something new which is English. Through song they learn English,
through videos, interesting videos in YouTube. They also learn English in
storybook. I think they enjoy learning something new.

(Izzue/Int4/09Sep16)

Izzue thought that learning English literacy was enjoyable because of the challenges
arising from learning a new language. Since English was a second language for most
of his students, many of them were keen to master the language in order to maximise
future benefits. When they were able to use English in daily activities, such as browsing
English websites, watching English movies and so on, they came to value the
importance of learning the language, as Izzue described:

Speaking in one language is quite boring for them, but English make them
feel more challenging. They’re having fun. They feel very proud if they
can memorise the song. […] I also encourage them to, go through YouTube
and find something interesting videos that they can watch in English.

(Izzue/Int4/09Sep16)

6.2.1.2 English is necessary

In a similar way to Nadia, Izzue believed that competency in English would enable the
students to meet the needs of the examination system in Malaysia, as well as daily
communications in Malaysia. This is because English is the second national language
in Malaysia and English proficiency is necessary in many careers. In addition, Izzue
thought that English competency was very important because the language is widely
spoken on the Internet. According to him:

I think English literacy is very important. For our daily life, as example, in
our career development, if we are fluent in English, we can go into many
field in our job scope such as high ranking officials and diplomats […] if
we want to travel to many places, you need English to communicate
because most regions they use English as their first language or if not, they
will use it as their second language. [...] If you are capable to write and speak in English well, then you will be in a wider mark. [...] You will be important in your company, if you are able to speak in English and you are able to write really well. [...] As we can see, English is considered as global lingua franca, where it is the first language for majority of population in several countries such as United States, United Kingdom, Australia, Canada or Ireland and many more.

(Izzue/Int4/09Sep16)

He also added:

It is also important for us to, to be literate in English to enable us to gain information [...] if you want to Google something or if you want to know something, you can go to YouTube.

(Izzue/Int4/09Sep16)

Moreover, as Malaysia is a multi-racial country, one needs to learn English to communicate with those who do not speak Malaysian. Thus, Izzue argued that knowledge of English grammar would benefit his students not only at local levels of communication but also on a global scale. He described:

I’m staying in Malaysia where we live in a multi-racial country, multi-racial population [...] But, if you want to communicate, it is better for us to use English. [...] It is also considered as business language. Meaning if you don’t have English there will be no business. If we can only speak our native language, Bahasa Melayu (Malay Language) or Chinese then you cannot go global, in a wider market. [...] English language also influences other areas’ development, such as medical field, business field and many more.

(Izzue/Int4/09Sep16)
6.2.1.3 Preparation for examinations

Izzue believed that preparing his students for the major examinations was one of his core objectives in teaching English. He acknowledged that his teaching techniques and goals focused specifically on preparing for answering examination questions. He described:

I taught my students to be literate in English by focusing on reading and writing because in Malaysia, finally, they learn English purposely for exam oriented. They learn to answer questions in writing. So, they ought to learn how to read, they have to understand English.

(Izzue/Int4/09Sep16)

However, Izzue did not feel that achieving a high grade was the only priority for his students. He was also concerned with a general mastery of the language and explained that students needed to love the language and feel comfortable using it in order to move forward in their lives. He elaborated:

I think for primary school, grades are not really important it just a bonus. The target, the main objective is to make the interesting, the pupils interested in the language itself. […] I’m putting so much hope, so much hope for the pupils to keep on loving English and make it as a culture that everyone must have sufficient English for themselves.

(Izzue/Int1/07Aug16)

Although Izzue wanted to see more emphasis on fostering enjoyment of the subject among his students rather than a singular focus on examination grades, he could not deny the reality that his students needed to be prepared to answer the examination questions well enough to secure their futures. He explained:
Their examination, they have two papers for English, which is comprehension paper and writing paper. In comprehension paper, they have to be able to read and get information of the essay before they can, before they answer the question. [...] If they cannot read and understand the passage, it is impossible for them to answer the question. The second paper is writing, [...] Basically they, they write formal letter, informal letter, report, notes and many other forms of writing in their second paper which is writing in English. First, I focus on vocabulary, cause without vocabulary they cannot answer most questions.

(Izzue/Int4/09Sep16)

6.2.1.4 Difficult to teach

According to Izzue, English literacy is something that is difficult to teach, since English was a second or third language for most of his students, and they rarely used it at home. To illustrate, Izzue elaborated:

For English teachers, it is very difficult for us to teach English literacy to our local pupil. Our local pupil uses English as their second or their third, even their third language. The first language, maybe Malay. They speak at home, that is their native language.

(Izzue/Int4/09Sep16)

Nonetheless, Izzue believed it was very possible to teach English literacy, so long as he could attract the attention and interest of his students. He said:

But it is not impossible, it is not easy. [...] But it is possible if we keep on trying, uh, to provide them with suitable environment [...] We have to engage with them in English language. They need to listen; they need to read more for them to be familiar with the language.

(Izzue/Int4/09Sep16)
6.2.2 Izzue’s cognitions about the role of DT in English literacy instruction

Of the three participants, Izzue used DT the least in his teaching sessions, despite being very familiar and competent with the technology. He recognised the great potential of DT to increase the quality of teaching and learning, ongoingly updated and to enable people to reach beyond boundaries. However, he also discussed the limitations of using DT, stating that DT could be challenging and requires extra preparation.

6.2.2.1 Increase the quality of teaching and learning

Although Izzue stated that there are many advantages to using DT, he acknowledged that one needs to have sufficient knowledge and skill. According to him, a teacher should always try to use DT in a way that was relevant to the students’ learning. He explained:

I think someone who uses ICT in English literacy instructions is someone who must be willing to spend his time and effort to do something more for the pupils. Using ICT doesn’t mean that you are lazy or you’re always trying to cut corners in your lesson.

(Izzue/Int2/19Sep16)

Izzue thought that DT tools enabled teachers to teach more efficiently and to a higher quality. According to him:

You can access to so many things just by sitting in front of the computer, surfing the Internet instead of you go to the library and spend hours just to gain knowledge. I think it is more effective and saving your time using ICT rather than go to the library, for now, because the computer is a limitless library.

(Izzue/Int2/19Sep16)

As this extract shows, he believed that the higher quality teaching originated from the ability to access resources from around the world. DT also, according to him, enabled
remote communication, allowing teachers to communicate with one another and share ideas. He added:

You can also gain knowledge from your friends through the Internet by sharing whatever new knowledge that you have learned. It’s not like you only learn by yourself through the Internet, but you actually learn whatever another person knows just by sitting in front of your computer. By that, I don’t see why you don’t use ICT because, erm, if there’s anything that can help you in teaching, I think it’s ICT.

(Izzue/Int2/19Sep16)

Additionally, Izzue recognised the benefits of DT use among students, in that the tools allowed students to review what they had learned in a flexible fashion. For example, he highlighted the website provided by the MOE as an illustration of how students could revise what they had learned anytime and anywhere, if they had access to the Internet. He said:

DT or ICT can assist me in accomplishing my vision by the existence of Frog VLE. I can actually upload the song that I use in the lesson in the Frog VLE so that they can refresh their memory when they want to revise their lesson later.[…] When they are revising the topic later, erm, they will remember the key point because they create their own song. I hope the song make them, make their effort easier to memorise because they enjoy the song while memorising the key words for every topic.

(Izzue/Int2/19Sep16)

6.2.2.2  *Challenging and requiring extra preparations*

Although Izzue expressed a positive outlook on the use of DT in literacy teaching, he also voiced some negative perceptions about the use of such technology. The first
negative aspect that he mentioned was the limited number of DT tools, and because of this, teachers did not always have access to the resources they needed. He explained:

We only have one computer lab and for one week we can only access once, one lesson out of five lessons that we have. One lesson, only one lesson can use the ICT. So, we have to use it wisely and effectively for one lesson only.

(Izzue/Int2/19Sep16)

Izzue often noted that sometimes his teaching plans were disrupted as a result of technical problems, such as a weak Internet connection. If he wanted to use the Internet, the class had to relocate to specific areas of the school because of a weak Internet network that did not cover the whole school. This factor related to other problems, such as time constraints and student disciplinary problems, which directly demotivated teachers to use DT facilities. According to him:

But other than that, we can only use computer that the teacher brings to the classroom or we can only use handphone just to help the pupils engage with the topic. But other than that, we restricted from using ICT because the Internet connection only available around the computer lab, not all around the school compound.

(Izzue/Int2/19Sep16)

Izzue suggested that using DT tools sometimes caused additional problems, due to the preparation that was needed in advance of the lesson, or due to problems that arose while using the technology. He claimed that sometimes he chose traditional methods to save time and to make his work simpler. According to him:

There is always time that ICT will assist and there are times that ICT will hinder me from achieving my vision. ICT will be able to assist my vision when I have time erm, to get the material, the suitable materials ready. If I try to fit in something that is not suitable for the lesson, it will take time
for the pupils to relate whatever materials that I use to the topic. […] There is time when ICT is needed and there is time when ICT is not needed.

(Izzue/Int2/19Sep16)

Although he did not expect the facilities provided to always be in perfect condition, he found such challenges demotivating:

Sometimes technology backfire our effort […] Sometime the computer breaks down […] I have to compete with another teacher to get in to use the computer lab. […] So, we are always in in we always have to make a backup plan if you want to use technology because it is not always cooperating well with us and also it may, it concerns me when pupils don’t know how to operate the computer.

(Izzue/Int3/29Nov16)

6.2.2.3 Ongoingly updated

DT offered many new materials for Izzue’s teaching purposes. The materials available were updated regularly, and thus his teaching materials could keep up to date with trends, demands, and current needs. This factor directly ensured that students were always interested in the topics because they could discuss current issues while studying literacy. Izzue explained:

I use ICT to gain more, update my current knowledge, because whatever in the Internet, is updated time by time. So, I don’t want to be stagnant and just use whatever I learn in my teaching training, teacher training program years ago to teach my pupils. I have to know whatever, latest information that we can get from the Internet now. So, I think my own use of ICT in English literacy instruction.

(Izzue/Int2/19Sep16)
6.2.2.4 Reaching beyond boundaries

Izzue explained that many things were difficult to teach or explain. With DT tools, he was able to show students a variety of new information from around the world. To illustrate, he described:

I think that using ICT in English literacy instruction is like stargate, where my pupils are able to access anywhere, they want to go, they want to know. If they want to know about the sea creatures, they can go deep into the sea by just using the computer and Internet access. If they feel that they don’t have the limit to learn, they will find that they need to learn more because there are too much things to learn.

(Izzue/Int2/19Sep16)

From the perspective of literacy learning, DT meant that students could hear English pronunciations while learning how to read, a useful factor ensuring that they were exposed to the correct pronunciations from the beginning. He added:

I think […] they do benefit from the use of DT in English literacy for, because the use of DT may provide them with plenty of samples of English language that they can’t get at, at home because they are not living in the English background family. So, when they use computer, they use DT, they always find new words that use English as the medium of communication.

(Izzue/Int3/29Nov16)

6.3 The sources of Izzue’s cognitions about the use of DT in literacy instruction

In the next section, I will describe the root of Izzue's cognitions about DT in general as well as the root of Izzue's cognitions about the use of DT in literacy instruction.
6.3.1 The sources of Izzue’s cognitions about DT

Izzue was exposed to DT from a young age. Since both of his parents were teachers, his family could afford to own a home computer, widely used by his parents for the purpose of teaching preparation, preparation of examination papers and so on. Initially, he only used the computer to play video games, but later, he developed other interests such as creating scrapbooks and browsing the Internet. He explained:

My first experience using ICT when I was in still in primary school where […] I always go to the library to get access to the computer and I was assigned to do a ‘buku skrap’ (scrap book) […] I have to use the computer in the library because at that time we don’t even have computer to type at home. And then after we have a computer at home, I started to enjoy using ICT by playing games, with my brother and type something for my mother. […] My mother is a teacher, so I always type the question paper for my mother using the computer.

(Izzue/Int1/07Aug16)

Izzue acknowledged that his exposure to computer technology greatly shaped his way of thinking and behaviour toward the adoption and use of DT later in life, and in his life as a teacher. According to him, during his schooling years, he used computers for learning as well as for preparing presentations using Power Point slideshows. His familiarity with DT fed into his teaching; he often encouraged his students to maximise the use of DT to help their learning. Because he had significantly benefited from the use of DT when he studied at school, he was confident that his students would gain the same benefit from using the technology. To illustrate, he elaborated:

I think my early schooling experience has really impact my current teaching because I know what is, what helped me to learn in my early school experience. As an example, in my early schooling I have to make my own slide show where my father teaches me how to make a Power Point presentation to present in front of the classroom. So, I try to, to teach my pupils how to use the Power Point presentation, but now they, they can
easily access the Internet not like my early schooling time. They can make the slideshow easier. Actually, the online dictionary really saves their time in making their presentation because they don’t need to flip the thick dictionary anymore. […] Because it will save much of their time in finding the knowledge that they want.

(Izzue/Int2/19Sep16)

After becoming a teacher, Izzue's daily activities heavily involved DT, including searching for information, and communicating with his acquaintances. As a proprietor of a photography studio, he also used computers to edit pictures and videos, as well as other audio applications. He described:

I use ICT at home. I use Microsoft Office, Microsoft Excel, Adobe Photoshop and online, online application in my phone to help me get information from the YouTube and now got Teacher Tube and emails. They are very important to exchange information with my friends. It’s easier using WhatsApp and we can exchange information faster, rather than our previous lesson experience.

(Izzue/Int1/07Aug16)

In his day-to-day activities, Izzue also used the Internet to pay utility bills, check emails, read the news, and many other tasks. He used the Internet to do his work as a teacher from home without having to go to school regularly. He elaborated:

I use computer about once in three hours, because I have to regularly check my emails ahh if there's any update or newsletter and I also pay bills with using the computer. Other than that, for now in school we have to key in data, key in the marks of the children, the marks of our kids. […] Using ahh website at home, we can fill the marks at home using the Internet, so I make use of the Internet at home like and do everything at home.

(Izzue/Int1/07Aug16)
6.3.2 The sources of Izzue’s cognitions about the use of DT in literacy instruction

Among the many factors that influenced Izzue’s use of DT in teaching, a key factor was the great potential of the technology to find information. As Izzue realised that his students were able to find information easily and quickly, he felt that he always needed to update his knowledge and skills according to the needs and the trends of the time, so that what he taught would always be relevant. He claimed:

I always find out about ICT on my own because I believe that we are teachers and we have the fountain of knowledge for our pupils. […] I have to go through YouTube if I don’t know something. […] I have to know how to edit the picture, and how to cut the picture using Photoshop and all that I learn from YouTube. I even ask my friend to teach me how to use Frog VLE at the beginning because it is something new in Malaysia.

(Izzue/Int2/19Sep16)

Izzue also noted that as he had been familiar with DT since childhood, he was comfortable using it and was not fazed by technical problems. He did not deny that there were teachers who were afraid to use the technology because they did not know how to respond to technical difficulties, but for him, this was not a problem due to his extensive experience using the technology. He elaborated:

Every teacher will go through a course where they can learn how to use ICT in teaching, preparing their lessons, but the teacher may get how to use the ICT because they have been exposed to this technology for years compared to the pupils. […] It’s natural for me to use ICT because I have been using for years. From the MIRC where we can chat with each other and we can do programming using coding, at the early stage I always chat in the chat room, where we need to know how to code, to program something. Now it is even easier because there are a lot of application where we don’t even need to know how to code things. So, actually,
whatever we have now is much simpler, so I have no problem in exploring ICT usage and use it in my lesson. Erm, if I don’t know something, I can just find it in YouTube, or ask my friends that work in ICT line. Erm, if I have problem in Internet connection, I can ask them to fix this, I can find the solution through YouTube or I can ask other teachers who has the expertise in ICT usage. Other than that, I also use WhatsApp application to ask from teachers’ group in the WhatsApp. In the WhatsApp group, I ask, “how do you guys use ICT?” And they will share everything they know, or they will introduce the latest application that may help. And I just try it by myself during my ample time and get used to it before I introduce it to my pupils. I am very fortunate because my father is also good in using computer to get information, so I get a lot of guidance from my family as well. My family is very ICT literate, they know how to use ICT because they have experience in using ICT in lesson too, because my family mostly are teachers. So, they also share during family gathering about how they teach their kids using songs and using computer to make scrapbook or using computer to, to access information from the Internet.

(Izzue/Int2/19Sep16)

Izzue’s confidence in using DT contributed to his belief that DT facilitated his daily affairs. In addition to being a teacher, he was also a professional photographer, and therefore he regularly utilised his DT skills to take and edit pictures and videos. He also used the skills in his teaching preparation, and to make his lessons more interesting. He elaborated:

I choose to use ICT technology in my lesson because I can say that I am good at photo editing, so I can use my expertise in photo editing to make my own teaching aids. Let’s say if I can’t find the photo suitable for my lesson, I can just cut and paste and create new photos out of 5 pictures to match the topic that I want to teach. […] I provide them with pictures, kids love pictures because they find it hard to understand by just looking at the mere words and sentences all day long.
In terms of training, Izzue had received extensive training on how to use DT when he was at teacher training college and at university, where he was exposed to various applications, websites, blogs and educational tools that could be used for teaching preparation and in classes. In addition to being trained to use the available websites and blogs, he was also trained to build avatars, create movies, edit songs and many other techniques, and all these skills shaped his confidence in the use of DT to assist him in teaching. He described:

We were trained to use ICT during our English training in our teacher training institution, something like visual learning, virtual learning, where we have a classroom in a virtual world and every pupil will enter the classroom and they can learn at home. Everybody will be in the virtual classroom, but they don’t need to literally go to the class. Like, there will be teacher and there will be pupils but no actual classroom. […] We were trained to make our own avatar, and everyone can make their own. They can choose how they want to look like so the teacher will know that how know the pupils better through their avatars. […] We also learn how to make movies, how to use movie maker, and how to cut songs, where we only take the part that we need in our lesson to shorten the song. […] We also learn how to upload the product into the web. We used to use BlogSpot as our medium to gather our final products, so everyone can take a look.

Even after qualifying as a teacher, Izzue continued to receive training on DT from time to time from the MOE, the school, as well as from his colleagues. Co-workers who had received digital training would often organise in-house training for other teachers, and this would provide exposure to the newest technology available to teachers, as well as alert them to the skills that they would need to acquire. Izzue added:
Usually only few teachers will go to professional development training course where they will come back to school to teach us what they have learned in the course. For me, they only teach us the basic things, not something great, something so advance that we don’t even know how to do it. […] But we as teachers, we have to develop the skills and we have to learn more by ourselves to complete or make the, the technique complete. If we know something and we discover it erm, we discover new ourselves, we can just volunteer to teach others, that’s what we call peer coaching.

(Izzue/Int2/19Sep16)

Izzue was able to use DT to suit his teaching needs. For example, the website Frog VLE supplied by the MOE allowed him to edit pre-existing materials according to his teaching objectives. However, if any problems arose, he could resolve issues alongside other teachers, because they all used the same website. In other words, the technology was standardised for teachers, and making it easier for them to help each other:

I do use whatever I learn in the training on ICT course in my classroom, […] All my colleagues will try the technique first before they share to the others. If they found any problem, they will fix it first and tell the problem that they found in the training, so we don’t need to experiment everything during the lesson, because the lesson period is very limited. […] This is where I see the in-house training, is very important, because we don’t need to go through all the problems in the classroom. If they find any problem like, there are some link that cannot be directly pasted into the Frog VLE, they will find the coding that enable them to use the link perfectly in the Frog VLE because Frog VLE is not compatible with all programs.

(Izzue/Int2/19Sep16)

Although Izzue believed in the convenience of using DT, he also recognised the problems that could arise, either from a technical point of view, or considering practical limitations such as time constraints. Through his experience using the technology, he
did not give up easily when problems occurred, as compared to other teachers who were less familiar with DT. He elaborated:

A teacher must have, must always have a backup plan or must be very creative to evolve, to change the English, the lesson style according to the pupils on that day because pupils may be the same on paper, their name may be the same but they are not the same person [...] You have to change according to their behaviour. Sometimes they are very energetic and sometimes they are very, very tired, they are very quiet, they don’t want to involve in the active lesson. That is where you improvise your lesson and that’s what I did from using ICT I just use my handphone and just show them the video, the lesson on the topic on that day and survive and they enjoy the lesson. That’s the most important thing.

(Izzue/Int1/07Aug16)

6.4 The relationship between Izzue’s cognitions and his use of DT in English literacy instruction

Izzue's cognition about the importance of DT, in addition to his professional and personal backgrounds, directly and indirectly influenced his teaching methods. Additionally, the Malaysian education system that put much emphasis on the importance of national examinations had also shaped Izzue's cognitions and practices in his profession as an educator. Because he was aware of the importance of literacy in the national examinations, he measured the effectiveness of his teaching methods based on the level of academic achievement of his students in the examinations. At the time of the research study, he did not consider himself successful because his students' grades had not yet reached the level that he anticipated, but he recognised that he was teaching in a rural area and was thus aware that he should not be too ambitious.

Personal background and profession Izzue also influenced his cognition about the use of DT tools, as well as his method of teaching literacy to his students. His early exposure to and reliance on technology had given a high level of understanding of the role and effectiveness of DT, and these factors raised his awareness of the potential of
Izzue's positive perceptions made him feel that DT was convenient, effective, relevant, exciting, and also important in his everyday affairs and career. He stated that his students were more focused, motivated and alert when he used DT in teaching, as well as showing significant improvements in their literacy skills after using technology. These positive results reinforced Izzue's view of the attractiveness, convenience, and effectiveness of DT tools.

However, Izzue was aware of the limitations of DT in literacy teaching, and this attitude was influenced by the uncertainties that arose whenever he used the technology. His school did not allow students free rein over the computer facilities, one of the factors that caused him some discomfort. Additionally, he felt quite uncomfortable competing with other teachers to use the computer facilities, and on top of that, he was sometimes disappointed with the poor condition of the DT tools. These situations were exacerbated by the inability of some of his students to behave while using the DT tools during his sessions; they were occasionally distracted and tried to play video games, watch unrelated videos or browse social media accounts. Izzue recognised that many of his students did not have DT tools at home, explaining why they became overwhelmed at the opportunity to use the technology.

In addition, Izzue also lamented the lack of training given to teachers on the best ways to use DT tools. Although he was rather proficient in the use of such technology, he felt that all teachers needed to gain more exposure and receive guidance on how to use the facilities optimally, and not just the basics. According to him, a lack of training created negative perceptions among teachers as they often faced problems while trying to use DT tools. These negative attitudes often become worse when teachers were unsure how to supervise students using DT, resulting in other disciplinary problems. These difficulties, according to Izzue, made teachers and students less appreciative of the available DT tools, and thus caused some to treat the equipment poorly. Because of this, Izzue stated that the computers were frequently damaged due to improper usage and failure to comply with procedures.

Despite having conflicting feelings about using DT, Izzue exhibited significant expertise and reliance on technology for teaching preparation as well as to assist his teaching in the classroom. When preparing, Izzue accessed references and teaching aids that were available on the Internet, in line with his students' levels and interests. He mentioned that DT for this purpose saved time as well as helped him achieve certain
goals in his teaching sessions. In terms of the use of DT tools in teaching sessions, Izzue was seen to actively use technology to provide an introduction to a topic, such as by showing videos, websites and graphics. This reflected his belief that DT made it easier to attract students' attention and make them focus on the content. However, Izzue admitted that at times he was reluctant to use DT because of the requirement to reserve the computer rooms beforehand. He acknowledged that this was inevitable due to the limited facilities, and because of this, he needed to be creative in his use of other DT tools that sometimes included his own personal hardware. According to Izzue, when he had the opportunity to use the computer laboratory for his teaching, he maximised the use of DT by delivering information at the front of the classroom using slide shows and an LCD projector, as well as allowing his students to use computers and the Internet in their tasks. Because there were a limited number of functioning computers, students needed to use them in pairs or groups. Izzue would monitor, assist, and teach his students how to use the computer, to ensure that they used the tools correctly and avoided wasting time. Although most of his students did not have sophisticated DT tools in their homes, they had relatively good computer skills because they studied technology in dedicated ICT lessons.

Generally, though Izzue exhibited high levels of skill and confidence in the use of DT, and took full advantage of his students' DT proficiency, he had concerns regarding student misbehaviour when using DT. Izzue was conflicted because he did not like to lose control of his class while trying to use DT, nor to allow them to damage the facilities, but he understood the advantages of using such technology in improving the performance of his students, especially if they could learn how to use it effectively. He was thus hesitant to use DT tools because of the difficulties and problems that he would potentially have to face. At times, Izzue felt that it was prudent that his school prohibited students from using DT tools without the strict supervision of teachers. However, Izzue also felt that his school rules relating to the use of DT were quite contradictory, wherein even though the school encouraged teachers to use DT in teaching preparation and while teaching, the school tightly restricted student usage of the technology. These factors at times resulted in the students behaving rebelliously whenever they were asked to complete tasks using DT. Izzue worried that the students were not able to access all the benefits of using DT to improve their skills and thought that the restrictions placed on the students by the school made students more rebellious.
but also made it difficult for Izzue to encourage his students to optimise the potential of DT in improving their academic performance.

Izzue balanced his negative and positive views on the use of DT in his teaching. He mentioned that he tried to compromise on the negative aspects of using DT by thinking of the advantages of the technology in assisting him and his students. Although Izzue had a high level of knowledge about DT as a result of his learning and past experiences, he faced a number of dilemmas due to technical problems when he tried to use the DT tools at school, as well as issues related to school procedures. In addition, student discipline problems were a worry, as students often abused the DT facilities provided. Some of them tried to cheat when completing their assigned tasks using DT. This went against Izzue’s original objective to encourage them to use DT to improve their proficiencies and literacy, rather than to deceive.

The constraints imposed by the school on students were the result of administrative factors and the financial status of the school. Fundamentally, the school wanted to ensure that the school assets would last a long time and were not misused by students. But indirectly, these factors had a negative impact on student motivation and ultimately discouraged them from using the DT tools. Izzue felt that the situation would only change if the school had stronger financial resources to provide sufficient DT facilities for all. Izzue used his initiative to provide his own DT tools in lessons without relying on the facilities provided by the MOE and his school. He had also learned how to use the latest hardware and software from his fellow colleagues, family members and certain agencies, without waiting for the training provided by the MOE.
CHAPTER 7: AZMAN

As we saw in Chapter 4.3 above, Azman was a teacher in Samudera Lintang Primary School (SLPS). As an active user of DT for more than 20 years, and having used DT throughout his teaching career, Azman acknowledged that he relied heavily on DT, especially the Internet, laptops, and audio-visual technology for teaching preparation and during lessons. This chapter presents findings relating to his literacy instruction practices and use of DT (7.1), his cognitions (7.2), their origins (7.3) and the relationship between them and his use of technology in literacy instruction (7.4).

7.1 Azman’s overall literacy instruction practices

Azman exhibited positive attitude towards English literacy. He was very aware of the importance of English literacy for the social and personal development of his students. Although Azman sometimes did not exhibit high expectations for his students (given their socioeconomic backgrounds), he was convinced of the importance of exposing his students to the best learning sessions. Therefore, he believed that structured preparation was essential for creating productive learning sessions, as well as monitoring the progress of his students individually.

7.1.1 Azman’s lesson planning and preparations

In preparing for teaching, usually Azman would determine the lesson’s goals based on the curriculum set by the MOE and the school, as well as considering his students' levels of proficiency. He believed that it was crucial for his students to be prepared to face national examinations. He said:

For English Literacy for me after the KPM converted the KBSR into KSSR for literacy, I fully used the textbook as all the standards to be covered are written, are well written in the textbook so I just follow the textbook which all the listening all the skills the listening, reading, writing and grammar.
Azman also noted that in order to provide activities appropriate to differing degrees of student proficiency, he could not be overly structured or rigid, and sometimes needed to be flexible and change according to the situation. He aimed to be prepared to handle any situation in the classroom. He mentioned:

Usually I prepared a day before but for some, for sometimes or some occasions, I need to change it either that morning, that very morning before I start my class or if I have the time, the night before. So that I could prepare all that I need for my students.

Azman also stated that he tended not to be too ambitious in preparing activities for his students. What was important was that his students showed improvement even if the activities were not as sophisticated as the MOE had suggested. Azman explained that he would always refer to the reflections he had made on previous lessons before planning further lessons so that he remained sensitive to the issues arising from each lesson. Azman also admitted that his literacy lesson preparation was planned for completing his students in the face of essential exams, and the skills taught mostly according to the syllabus provided by the MOE. Sometimes he needs to make his lessons easier when teaching students that are still weak. He also often tried to engage his students by using DT tools but acknowledged that initial preparation needed to be carried out so that his lessons ran smoothly. According to Azman:

Usually I will inform the students or the pupils to come earlier the next morning if I’m planning to use the ICT as what I did today the Frog VLE and so on. They will come earlier cause there they will be wasting of time preparing all the netbook and so on.
Azman’s literacy instruction

Azman taught English literacy based on textbooks and the syllabus set by the MOE. He said:

For English literacy for me after the KPM converted the KBSR into KSSR for literacy, I fully used the textbook as all the standards to be covered are written, are well written in the textbook so I just follow the textbook which all the listening all the skills the listening, reading, writing and grammar.

(Azman/Int2/11Oct16)

However, his teaching methods were varied, according to the needs, interest and abilities of his students:

Perfect English literacy for me I think the best part of literacy is when the student can get what they supposed to get for that day what is plan for them. For example, some student we can’t use totally of fully English. Some might need translation direct translation using Bahasa Malaysia or something there is similar to that so that they could understand why is going on in the class even if we use full English without the student understand – understanding what the teacher is talking about then for me it is useless.

(Azman/Int2/11Oct16)

Although the data show that Azman usually prepared for teaching and taught his students in line with the national curriculum, Azman felt that preparing for the exam was not the most important goal. He argued:

For my job, every year my target, my target, my own target, I would love to have all my pupil to at least have the gist of English. To have at least know what to do, what to speak, what to hear. All the skills and I’m not a kind a teacher that always strive for ‘A’. […] It’s something that, a bonus
for me but if not, as long as they could get the English as part of their life then it’s ok for me. I would love to have; I would love them to have fun with English.

(Azman/Int1/10Oct16)

He stated that he sometimes used Bahasa Malaysia in his literacy teaching especially when teaching low-proficiency students. He justified this by saying:

To me, yeah, because normally I use, think about 50% English and another 50% Bahasa Melayu (Malay language) just to make sure they understand what is going on. Because this is primary school, yes, we need to introduce the language them but I don’t think we need to introduce too much until I would say is mind block so they would not reject English at the very beginning.

(Azman/Int2/11Oct16)

Although the analysis shows Azman often allowed his students to create activities independently, he believed his teaching should be teacher centred. According to him:

To me, for English as a second language I think it will be more teacher-centred because most student here not as what we have in town schools as Kuala Lumpur, Putrajaya and so on. Most here don't have the privilege to learn English they have; they don't have any basic knowledge of English. Therefore, to do student-centred is something that we let, some people left behind. So, teacher centred I think clearer for this kind of subject.

(Azman/SRInt/16Oct16)

Azman thought that the most important part of English literacy was mastering reading skills:

My concern I usually focus more on their reading and their understanding because to me I believe that if they can read, if they can understand what
is, what it is about then they won’t have problem in listening, in speaking
and in writing.

(Azman/Int3/16Oct16)

On the same note, he also mentioned:

First, I would start with let the students to enjoy reading. I will talk about
the picture first or they will talk about the picture first so that they will
know what to expect from the story then, its either they will read it together
or half of the class will read or narrate, the other half I will let them to act
out the play or the story so that it would be, I would say uh 3D storytelling,
they can see what is happening and it also helping weak students to
understand the story.

(Azman/Int3/16Oct16)

To teach reading skills to his students, he sought to understand the students' background and interests before planning. By understanding his students' socioeconomic status, their parents' work, their preferences and other information about their backgrounds, he felt he could make better decisions while preparing for teaching, ensuring that the content, teaching methods, methods of assessment, and so on, were in line with the needs of his students. He also found that his students were more appreciative and focused if his learning sessions were appropriate to their personality and identity. He added:

It’s not something easy as the socioeconomic of pupil here, their parents,
the villagers, they don’t use English at home, and they are rarely watch
English movies. [...] Then I’ll try to have them speak at least one or two
word that they have previously learned but for some other time, it might
not be reading. For some, sometimes I use, I used to silent myself to keep
me quiet and just let them read all the instructions from my slide or Power
Point. So that they won’t, they would not really, how to say, they don’t
really need me.

(Azman/Int1/10Oct16)
Among the problems that he usually encountered, a key issue was familiarising his students with communicating only in English. Since they did not use English at home, most of his students felt awkward, and were sometimes shy to speak the language. Many of his students were afraid to try for fear they would make a mistake and be ridiculed by their friends. Addressing this topic, Azman said:

I think, the most problem is the student will not reply to you in English. I did so many things, try to make them speak English but some, some would do it great but some other will keep themselves quiet so to make them use the language as a speaking language something not easy.

(Azman/Int1/10Oct16)

At times, Azman stated that he chose to teach skills in literacy separately. For example, if he were teaching his students to read, he would instruct them to focus on reading skills only and no other skills like speaking or writing. He argued that this was more effective for his students as they were not yet proficient in using different skills at once:

For reading, yes, because this one the one that you saw before, it was my intention and I created that technique to use only without speaking so that they will really into reading, and I don’t have to say anything to them. For reading, yes, I believe that is the best way so that they will focus on reading only that day. For listening, I need to improve more.

(Azman/Int3/16Oct16)

When teaching his students, the skill of writing, Azman stated that some parents of the students would not buy dictionaries for their children, which caused some problems. This was one of the factors that delayed students' acquisition of vocabulary. When he allowed his students to use Google Translate on their computers, he felt they did not learn much. He described:
For reading, nothing much but for writing they can’t really write until they understand the word and the problem, the most problem in my school is, even the parents did not buy the dictionary for the student so everything they need to know, they will ask and whenever I let them use the computer, they will use Google Translate right away so they, they don’t learn English, they just translate it automatically so it’s not helping.

(Azman/Int3/16Oct16)

7.1.3 Azman’s use of DT in his instructions

Azman had a positive attitude towards DT in English literacy learning, although at times he also admitted having a negative perception of the effectiveness of using DT tools. His early exposure to DT, his skills in the use of DT and his desire to seek out new techniques in teaching English literacy had, he said, naturally resulted in the active use of DT in the classroom. According to him:

I love the webpage. British Council webpage is really fun and attractive for the student and is easy for teachers. […] Yeah little a bit cause now I started use my own webpage, my own blog for students. for teaching I started to use webpages which is bigger than (…) as the Internet the connection for Internet today are better than 2 years back when most of the time we don’t have the connection but now there still some slight of problem slight problem[…]now even the MOE provided the school with VLE frog and so on.

(Azman/Int2/11Oct16)

Azman used DT to prepare lessons, during lessons and to communicate with various parties including students. He recalled:
I had it once when I use the camera to record their acting and then the other day, we watched the acting and by that time we try to answer the question. [...] The use of ICT at least the difference between using the camera and without using the camera, whenever students did not understand or did not get the answer, I can replay what is happening on the video.

(Azman/Int3/16Oct16)

Azman stated that he had been actively using DT for teaching preparation, including searching for reference materials, searching for assessment materials, and using educational websites to download videos that could be used. The use of videos, for instance, helped him to provide explanations or examples to the students more efficiently and comprehensively. He said:

For me [...] I use for videos just to let them hear the way of language English speaking so that they don’t really into English with Bahasa Melayu (Malay language) slang so once they listen to good English, they will know good and bad English. So, most of the time I use videos for introduction or add on in their learning.

(Azman/Int2/11Oct16)

As an active user of DT for more than 20 years and having used DT in his teaching since the beginning of his profession, Azman acknowledged that he relied heavily on DT, especially the convenience of the Internet, laptops, and audio-visual technology for teaching preparation and processes. He mentioned:

It’s from the very beginning because I was posted 5 years ago and by that time, we already into it. We already the government the MOE is already into ICT for teaching so yes, I need to start it from the beginning. [...] Not really as far as I concern as far as I know nothing much change as is only 5 years of teaching so it’s still the same.

(Azman/Int2/11Oct16)
He did, however, note that sometimes what was planned could not be fully implemented due to the lack of facilities. Although he explained that the school always tried to provide adequate facilities for the use of teachers and students, their financial constraints sometimes limited their capabilities. According to Azman:

As you can see […] is not a big school even the money here, the funds here are very limited. […] Major role for time being as we don’t have enough equipment. We just have to share and from time to time if today their friend got the chance or privilege to use the netbook the next day the other pair or the other friend will use it, so they need to share.

(Azman/Int2/11Oct16)

Azman noted that he actively used the official website provided by the MOE for the purpose of learning English, namely Frog VLE. Azman explained that every teacher was obliged to use the website, as a step towards promoting the use of DT among teachers and students. He said:

VLE Frog is part of the government or MOE technique […] so that they come up with the use of Frog VLE for each student and actually we will need to fulfil some percentage for every week so that the student using will use the Frog VLE either for learning or anything. So that’s why I need them to update all their information or all their knowledge in the Frog VLE so that it won’t be that boring using the Frog VLE. […] For frog VLE, the MOE given the authority fully to the teachers to use it at any way will give goods to the students.

(Azman/SRInt/16Oct16)

The Frog VLE program, he said, provided more training for students in the areas of reading and writing, where students could showcase their poems, essays, journals, or any literary work or videos. In addition to literacy skills, Azman stated that the website trained students to have computer skills necessary for later life. He stated:
I didn’t teach them anything about spacing, anything about or to change the colour of the words but they need to do it on their own. When I let them to that, they will use their thinking skills at least to do the things so whenever they finish editing or publishing their item or the any sentences it would for me it’s okay or its good already.

(Azman/SRInt/16Oct16)

In addition to letting his students to learn how to use the computer correctly on their own, Azman was seen during my observations to use Frog VLE to assist his students with their writing exercises. He found that the method not only enhanced student motivation to write but also helped Azman record their work. He explained:

I let them use the computer Frog VLE to do the right thing so they don't write it down in their book and the next day they will forget everything. So, it's part of way to teach boring subject or boring grammar items to the pupils. […] I intentionally gave that long story. For me it's long to them to type it onto their pages, onto their wall. Just to let them have the time or to let them practice on their typing skill.

(Azman/SRInt/16Oct16)

Azman also mentioned that some weaker students showed positive developments and more interest in the subject after using Frog VLE. According to him:

As you can see even though the weak students or the weaker student in the class without knowing any words in English, they can use computer well to use the VLE Frog so by using it at least they will know some word like ‘start’, ‘save’. Those word will be learned automatically without their, without their noticing it.

(Azman/SRInt/16Oct16)

Although Azman admitted that Frog VLE had helped him in his teaching, he thought that improvements could be made to the website to make it more effective. He added:
As I created the website for school, they love it because of the colour and as well as they are using the (...) on the web, but it’s quiet, for me it’s quite difficult for them. It’s not that easy, using Facebook and so on will be easier than using Frog VLE, we should change that, and I am thinking of creating my own social media for my students.

(Azman/Int3/16Oct16)

Azman frequently used the Internet to download example examination questions or past examination questions to prepare students for the examinations. In addition, Azman stated that he used the Internet to generate ideas for teaching, through examples of videos or online seminars from educational sites. The Internet allowed Azman, in his opinion, to share experiences, inspiration, ideas, advice, guidance, references and teaching aids with teachers from all over the world. He tried to ensure that the DT tools he used were relevant to his students’ daily lives, in order to enhance student interest in learning. He said:

To me yes. […] The student is familiar with their parents’ smartphones and so on at home. They are familiar with games so for some words that they don’t understand, I will relate with those games, movies songs […] So that we I can show that they are using English everyday just that they do not really into it. They don’t really think they are using English they are just playing game, but it is English actually.

(Azman/Int2/11Oct16)

Regarding the use of DT for teaching sessions, the data show that Azman used LCD projectors, his smartphone, his laptop, computers in computer laboratories, Microsoft Word, Power Point slideshows, PDF notes and netbooks. However, he said he was less interested in using netbooks provided by the MOE. According to him:

That's why I said I don't really like to use the netbook because for the computer as you can, the 20 computers in my labs all of that computer have been configured. I have installed everything in that computer easier for me to work with and for the netbook actually we just, we recently received that
so still many things are not there and whenever that happen, I need to change again it will come. It will be teacher-centred when I will be the one doing everything, and the student will just be part of it. Normally I will use the computer is better than using the netbook but for the time being I still waiting for the repair and I have no choice, but I really prefer computer.

(Azman/SRInt/16Oct16)

The results of the observations showed that Azman liked to use websites such those provided by the British Council in teaching. He suggested:

For that, I had the training directly from British Council. They came to my teachers training institute and 3 students were elected and I was one of them. Yah. We had that training directly from British Council.

(Azman/SRInt/16Oct16)

Using such a website, Azman found that he could teach skills like reading and writing in a more interesting way. In addition, he believed that such websites saved time as they provide various activities ready to be used. He added:

I think you are talking about the Big Book. When I use the animated big book, actually I don't use it all years. Just for 2 months, once a month. I'll created the big book just to make them, just to encourage them to read. As what I give, I usually change all the name into the name in our culture, in our community so that it will be closer to the students and that will let them have the overview of their writing examination in UPSR, they can be, the perspective can be different but their answer is the same.

(Azman/SRInt/16Oct16)
In addition, Azman stated that he used websites like Story Maker to help him teach writing to his students. Based on his experience, such websites were effective in attracting students and often received positive responses. He added:

From my own view and my experience when we use that kind of Story Maker on the web, those technology help me to let the students to at least finish doing their work. The traditional way I will always receive blank books or students who didn't finish their work but when always come to ICT something they love, something they are interested in they will finish it that day or the next day.

(Azman/SRInt/16Oct16)

In addition to using DT to teach, the data show that Azman actively encouraged his students to use DT independently to find information and references. According to Azman:

I let them use the Google Image to search the information so that they won’t wait for me. So that they won't always think about my perspective. When I say 'apple', they can see when they search 'apple' there are lots of apples on the net. Not just what been shown by me. So, from that, I really hope their minded will be wider and they will be open to others’ perspective.

(Azman/SRInt/16Oct16)

When asked whether he could prevent the students from abusing the use of Internet, he replied:

For the computer I can block that. For those webpages they open or they view and I think it’s not necessary or it’s not helping then I block the website so all computer in the school will never get into in anymore.[…] Yea, previously for the computer, for those 20 computer actually is connected to the main computer at the front for teacher’s computer so I can see, I can view everything they do on their computer […]They are start
playing games, they are start watching something not necessary for them as kids on the web and I need to block that […].

(Azman/SRInt/16Oct16)

Despite showing a positive attitude towards the use of DT in the teaching of English literacy, Azman stated that sometimes it would not go as planned. He felt that DT tools in teaching brought many new challenges:

Most of the problem are with the Internet. […] But most of the time when we have planned our lesson when we come to that day, that morning, the Internet either cannot be used or cannot be connect then all we’ve plan will go, just like that and we waste our time for that day for the whole hour just figuring out what happen, what’s wrong and at the end, the only things they will provider will reply to you is “We cannot do anything. You need to wait until it’s ok.” So, I think providing the ICT is one thing but here I think in Malaysia in this school, in our school system in our KPM, I don’t think the maintenance is that important as providing the item. So, most of the time we have outdated computers, outdated connection of Internet which cannot support even though now.

(Azman/Int1/10Oct16)

In addition, Azman observed that he needed to share the DT facilities in the school with other teachers, meaning the activities he could do with his students were limited. He added:

For me, not really a problem as whenever the teachers need to use the computer or an ICT like the LCD, the netbook they need only to tell me or let me know and I will provide them with what they need and also for special room like the science lab, libraries, the hall also I’ve set up a permanent LCDs and computers so that they can use it anytime they want.

(Azman/Int1/10Oct16)
7.2 The nature of Azman’s cognitions about (the use of) DT in English literacy instruction

The analysis shows that Azman’s cognition affects his pedagogical methods directly, specifically relating to his preparation, teaching style, expectations of students, assessments, and classroom management.

7.2.1 Azman’s cognitions about literacy instruction in general

The cognition that Azman had about his English literacy instruction, in general, were the concepts of English is enjoyable, i.e., engaging, practical, easy to attract; English is necessary, i.e., students need to master literacy to sit for important examinations, for qualification to enter higher education institutions, to get relevant jobs, and for their social and general development in general; preparation for examination, i.e., English literacy is an important aspect of taking the examinations; and easy to teach, i.e. Azman finds it easy to teach English literacy.

The attitude that Azman had towards his English literacy instruction, in general, was based on the following concepts: English is enjoyable, i.e., engaging, practical, attractive for students; English is necessary, i.e., students need to master literacy in order to sit important examinations, to enter higher education institutions, to get relevant jobs, and for their social and general development; preparation for examinations, i.e., English literacy is an important aspect of taking the examinations; and easy to teach, i.e. Azman found it easy to teach English literacy.

7.2.1.1 English is enjoyable

Just like Nadia and Izzue, Azman noted that the teaching and learning process of English literacy should be enjoyable. However, he acknowledged that the excessive emphasis on examinations could make the process less fun. He argued that the primary objective in English literacy teaching should be to empower students to converse well in English and not merely to answer examination questions. He clarified:
Teaching English is fun unless there is other stress. Other things that stress us up. We are not really teaching; we are more on testing their language. Here in school, we are not teaching English as a communication tool but not as something that our people need for the examination or their coming test.

(Azman/Int4/12Sep18)

Azman believed that making English literacy learning sessions fun would encourage students to master a second language. He thought that students should put as much effort into learning their second language as their first. He mentioned:

The importance of English is not only based on teaching it but for teachers we need to make sure that our people love and have fun while learning English. Which is in some context here cannot be done well because our own curriculum that do not really show that English as second language in Malaysia. Based on all the examination, on the test based on all the books that we use in Malaysia, may think or may treat English as our first language as it same as what we did with Bahasa Melayu (Malay Language).

(Azman/Int4/12Sep18)

7.2.1.2 English is necessary

Azman felt that if students appreciated learning English and took it seriously, they would better understand the real value of English in their lives. Although Azman often emphasised the importance of English literacy for general use, he did not deny the importance of mastering the language in order to move to higher education institutions. He added:

As for me, English is important as a, for my own personal experience. When we went to further our study to any university, colleges, importance of English can be seen clearly there. Where, mostly all books that we use are in English.
According to Azman, the mastery of English literacy would enable students to communicate with the global community and opening up more opportunities for them in terms of socio-economic statuses or career paths. The ability to communicate in English as well as the international language of instruction also, according to Azman, would allow his students to communicate with foreigners. He said:

As we know, Malaysian now is world widely known by others. Not only by Malaysians […] So sometimes we still need English to communicate with others, foreigners maybe to reach to Malaysia. Therefore, it is good to at least us to have the basic of language to speak or at least promote our own country.

In addition, Azman noted the importance of mastering English literacy in daily life, as most day-to-day activities, especially those involving social media and the Internet, require English. He added:

As the mass media or the social media becoming very widely used, very important part of our life already. […] Most of the things, most of the information are in English or can be translated to English compared to Bahasa Malaysia (Malay language) and yet even the translation […] is not complete […] Therefore, they still need […] English. So that they could really understand what is in front of them. They can still validate the information so that it is something can be used, something that they can access the use of the information whether it is true or not.

7.2.1.3 Preparing for examinations

Although Azman believed that his students should have fun while studying English literacy, he did not ignore the reality of the education system in Malaysia which
emphasises preparing students for national examinations. Hence, Azman believed took examination preparation seriously, ensuring his students achieved an optimum level of English literacy before taking formal assessments. He stated:

It’s back to the basic. Even though the government came out with the new KSSR and new way of teaching English with the 21st century teaching of English and other subject but the main focus for the UPSR, for the examination, for the general examination still on reading and writing so it is the most important skill the students should grab.

(Azman/Int3/16Oct16)

Additionally, just like Nadia and Izzue, Azman prepared his students for the examinations through rigorous teaching methods with an emphasis on ongoing training in the application of English literacy. His focus was primarily on the elements tested in national examinations. He elaborated:

In Malaysia even though we have divided all the skills or all the literacies in English into four, […] reading, writing and listening and speaking but we focus more on writing and reading. Focusing more on the comprehension, not much we can do for fun learning compared to listening and speaking. But still we need to do that as their final result.

(Azman/Int4/12Sep18)

Recognising the limitations of focusing too much on examination preparation, Azman was aware of the importance for his students to obtain high results in order to ensure a better future. He would have felt more comfortable if he was given the flexibility to choose the contents and materials for his teaching sessions, but he had to comply with the syllabus and materials supplied by the MOE. He stated:

Examination is somehow important. We still need examination. […] But, for primary school when the examination is a bit strict. Which is not testing what they supposed to testing. The validity is questionable. So, we can’t
do much in the lesson. We can’t do much in the learning of English compared to preparing them to answer what the question is ask for.

(Azman/Int4/12Sep18)

7.2.1.4 Easy to teach

Unlike Izzue, who felt that the teaching of English literacy was a difficult process, Azman thought that it was quite easy. He mentioned:

For me teaching English literacy is easy.

(Azman/Int4/12Sep18)

He thought this because of the availability of DT. DT tools greatly facilitated his work in terms of teaching preparation, teaching processes and the student assessment process, as the materials he needed were available either on the Internet or supplied by the school or MOE on compact disks and hard drives. He explained:

For most it is because of the technology. Our globalisation nowadays where the television, where the internet, computer and even their games that they play are widely use English. Therefore, most of the word, most of the easy word are already been, been informed. Already been learn by the peoples on their own. Therefore, even in rural place, rural school, the pupils already have their own previous, prior knowledge towards English.

(Azman/Int4/12Sep18)

7.2.2 Azman’s cognitions about the role of DT in English literacy instruction

Azman recognised the great potential of DT to attract students’ attention and make lessons fun. He also expressed conflicting perceptions about the use of DT, stating that there are times when DT is challenging and requires extra preparation and is not a necessity.
7.2.2.1 Attract students’ attention

For Azman, DT helped his students focus and be motivated in his lessons. Since most of his students did not have access to DT tools at home, any opportunities to use the technology motivated them to learn. He illustrated:

Yes surely, as I said their focus will be somewhere else especially the boys, we cannot control everybody to look at me, to listen to what I said, but when we are using computer or LCD or camera, they will automatically focus on what we are doing as they don’t have that at home.

(Azman/Int3/16Oct16)

He felt that his teaching sessions were more effective when he used DT tools than when he used traditional methods. By factoring in his students’ interests, Azman recognised the great potential of DT in retaining student focus and motivating them in the long run. He also stated that his teaching sessions were livelier and more colourful, and students often responded more positively if DT tools were used. He added:

When we use Power Point even I use simple word as in ‘Good Morning’, ‘How are you today?’, they will be attracted more than I just saying the word out from using traditional way asking ‘how are you?’ than reading ‘how are you’ from Power Point, the feedback is different, there will be, it will encourage them at least to answer the question.

(Azman/Int3/16Oct16)

Another advantage of using DT, according to Azman, was its ability to encourage weaker students, or those with no desire to learn, to be interested in learning. Azman acknowledged that some of his students considered English a 'killer subject' and were afraid to learn it. However, with the involvement of DT in teaching and learning sessions, these students had shown a tendency to try. To illustrate, he described:

As you can see even though the weak students or the weaker student in the
class without knowing any words in English, they can use computer well, to use the VLE Frog so by using it at least they will know some word like ‘Start’, ‘Save’. Those words will be learned automatically without their, without their noticing it.

(Azman/SRInt/16Oct16)

7.2.2.2 Making lessons fun

As Izzue also identified, DT made teaching and learning sessions more fun, as well as helping to attract student focus. Azman did not have to worry about creating teaching aids as many exciting activities are readily available on the Internet or through the use of other DT tools. This was very different to traditional teaching methods, where Azman would spend a lot of time and energy preparing teaching materials. He explained:

Most of them I love the webpage. British Council webpage is really fun and attractive for the student and is easy for teachers.

(Azman/Int2/11Oct16)

He also added:

I think to create interest into students, ICT would be the best friend for teachers.

(Azman/Int2/11Oct16)

Izzue stated that it was easy to make sure his students completed tasks when using DT, as they were more willing to try. To illustrate, he described:

The simple word “wah” would be there as usual and most of them will be, I would say the students will get more excited by using the technology rather just talk and talk or acting out the thing. Even though it quite, it takes
time, […] compared to the traditional way of teaching but somehow it will make them focus more than the traditional teaching.

(Azman/Int3/16Oct16)

According to Izzue, the use of educational websites such as Frog VLE also allowed him to teach more ‘boring’ elements or subjects in an interesting and effective manner. He described:

I let them use the computer Frog VLE to do the right thing so they don’t write it down in their book and the next day they will forget everything. So, it's part of way to teach boring subject or boring grammar items to the pupils.

(Azman/SRInt/16Oct16)

7.2.2.3 Challenging and requires extra preparation

Despite acknowledging the advantages of using DT in the classroom, Azman could not escape episodes of frustration and disappointment when using the technology. He found that sometimes his lessons could not run as planned due to technical problems at school, even though he had sufficient DT skills and planned meticulously in advance. He elaborated:

Somehow not every day we can use technology without any problem, any errors as what happened previously as I plan to do, to use the LCD or computer went off or broke down so I have to change the teaching into traditional way and again that spoil the students’ mood because I usually will tell them earlier that we are going to use computer the next lesson or the next week then they been prepared, they have been waiting for that and once the DT cannot be used it’s not only distracted, the students will be demoralised.

(Azman/Int3/16Oct16)
Azman admitted that some of the DT facilities provided by the school were sometimes problematic. The biggest problem, according to Azman, was that the Internet connection was always weak and unreliable, which created problems for teachers since they were advised to use certain websites provided by the MOE for their teaching and learning processes. Additionally, the computers provided by the MOE were poorly maintained and not updated regularly. Any repair or maintenance processes took a very long time, causing equipment shortages. To illustrate: Azman explained:

Most of the problem are with the Internet. Now we are using ‘Yes’ provided by YTL cooperation or YTL. Cooperation. It’s not, not so bad. But most of the time when we have planned our lesson when we come to that day, that morning, the Internet either cannot be used or cannot be connect then all we’ve planned will go, just like that and we waste our time for that day for the whole hour just figuring out what happen […] So, I think providing the ICT is one thing but here I think in Malaysia in this school, in our school system in our KPM (MOE), I don’t think the maintenance is that important as providing the item. So, most of the time we have outdated computers, outdated connection of Internet which cannot support.

(Azman/Int1/10Oct16)

These technical problems could be demoralising not only to teachers but also to students. When a technical problem occurred during lessons, Azman was less prepared to continue the session. Because of these frequent technical problems, Azman stated that he had taken his own initiative by purchasing his own DT tools for use in the classroom, and thus not needing to depend on the facilities provided by the school or MOE. According to him:

I had prepared spare LCD, computers and even I use my own laptop. It is easier as I can confirm that my laptop can be used anytime, when I need it. And for the LCD I have three backup LCDs so that whenever the one that I’m using now can’t be used then I can change to the new one without wasting more time.
7.2.2.4 Not a necessity

While Azman recognised that DT tools were convenient, engaging and effective in the teaching and learning process, he recognised that teaching could still happen using traditional, non-DT methods. According to him:

The best way of teaching doesn’t mean using ICT. As long as their objective reached the objective can be imparted correctly, perfectly, it should be good. As when we are doing grammar, when we are doing writing, I would not assume to use ICT as they can also use the Google Translate and so on which will not be helping the student. To me it’s disadvantage because the student will lack the use of dictionary.

According to Azman, the appropriateness of DT tools depends on the teacher’s objectives. In his reflection, he noted that some teachers, especially older teachers, deliberately chose not to rely on DT and still produced effective teaching sessions. Hence, Azman recognised that the decision to use DT in teaching depended on the training and education a teacher had received. He described:

To me it depends. I’m a friend of senior teachers where they don’t believe in ICT […] just to make sure the student is attracted to the language, yes, I use ICT and for those teachers they prefer the old ways as they’re expert with that ways of teaching and I believe different teachers different style won’t make much changes or differences in using ICT or not is up to the needs of the student.
7.3 The sources of Azman’s cognitions about the use of DT in literacy instruction

Azman's cognitions towards English literacy instruction related to his beliefs about DT and influenced the way he used DT in literacy instruction. In the next section, I will explain how Azman used DT, in addition to elaborating on the training and education related to DT that Azman had received, in order to understand where his cognitions about DT came from.

7.3.1 The sources of Azman’s cognitions about DT

Azman exhibited the highest levels of confidence among the three participants in using DT. According to him, his confidence originated in childhood, where he received exposure to DT through his family’s home computer. According to him, most homes at that time did not have computers, and he was among the first of his peers to have access to a computer at home. He added:

In life, I started to use the computer in my primary school. I think 11 years old, I’ve started to use computer. By that time, I think not so many people have the chances […] to use computer but to me, I have it at home and until now I’m using computer for many other reasons. Not only to teach but for others like making videos, composing songs and so on.

(Azman/Int1/10Oct16)

As Azman's family was able to have a home computer, Azman had also been trained to use computer software at his age. The initial exercise and exposures, he said, made him keen to continue to learn more advanced skills. Because of this, he was competent using DT. He added:

My parents have the privilege to have computer by that time somewhere in 1990s. I already have computer but then to use the computer, I did go to ICT class or computer class by that time in using simple software, micro
software [...] I have been helping my teachers with the use of ICT and computer as for some part or for some reason I have been a little bit advance than the teachers. So, I think yeah that’s really encourage me to use ICT. [...] by the time I was even my secondary school [...] I used to set PA system, decoding and so on. Yes, one of my teachers taught me that and I love to do that that that that really make me want to learn more about ICT.

(Azman/Int2/11Oct16)

Like Izzue, Azman also had a part-time job outside his teaching, and his work was very much related to the use of multimedia technology such as making videos, editing songs and so on. His work directly reinforced his trust and dependence on the use and capability of DT, and naturally, he applied these skills in his teaching. He described:

Actually, during my holidays, I have my part time job [...] I’m doing multimedia things like the corporate videos, like I said, composing songs. My audio studio, I’m doing that kind of jobs and therefore here, in this school I have such good chances to use those experience and skills with my student.

(Azman/Int1/10Oct16)

He also became a source of reference for other teachers both in his own school and others in the region, and this made him more confident with his skills and more motivated to enhance his DT skills. Furthermore, these skills gave him the opportunity to earn more money. According to him:

For nearby school, they ask for my help actually because I had experience in this PA system. I did that job, so they ask me how to get cheaper price, cheaper equipment so at least they don’t need to use the portable because most school nearby still use the portable speaker for their assembly. […] It’s not really about money because I think the biggest school have more money than what we have, than what we had here, but they don’t have the skill.
Azman's dependence on DT, according to him, began in childhood, where his activities were planned with DT in mind. According to him, every time he intended to do something, he would consider the applications or tools he could use to save time and energy. He elaborated:

In general, I’m using my laptop all the time. The first I do when I go home is to turn on my laptop. Then I have my smartphone, my Note 3 still greatly help me in my works whenever I go. Even without my laptop, I still can do my job with my Samsung Note 3 and I also have smart TV for watching videos and so on [...] I have my own microphone, I have my own [...] cables for PA system, my headphone or cordless microphone for me, for each time I need it for my speech or my motivational consultancy. [...] And also, my camera my DSLR camera yes, I do learn I do read I do ask people how to get better photos.

Azman felt that his passion for DT made him more proficient than his colleagues. He kept up to date with the latest technologies and tried to have the latest gadgets or tools to facilitate his everyday affairs. According to him:

I love ICT. I love doing things that common people don’t so that I will be, it’s not about a little bit higher than them it’s just I will be group into intellectual people. I can use things that most teachers or all the teachers or former teacher don’t really use.

7.3.2 The sources of Azman’s cognitions about the use of DT in literacy instruction

Among the factors that influenced Azman's approach to the use of DT in literacy instruction was the training and education he received while in a teacher training
institute and university. He was trained to use DT tools for teaching preparation, as well as ways to teach using the tools. He elaborated:

For me, mostly from my educational background because in our studies time in IPG or in UM we did, we’ve been exposed to much in, with those technologies. The computer, the Adobe Photoshop, with the smart boards even though those are still rumours or I would say myth when we come to real life, we come to school, those thing wasn’t there. […] We’ve been exposed to that, we know how to use smart board, but we can’t use it here. […] Even during our time, I think it’s about 2 or 3 semesters when we have completely totally used the ICT when even the course is ICT program for teaching ICT for teaching software, for teaching web mastering by that time so that we can use. As I said before we’ve learnt to use smart board, we’ve learnt to use Adobe Photoshop, we’ve learnt to use edit videos, songs minus one for the sake of teaching.

(Azman/Int1/10Oct16)

He had also received training from outside parties such as the British Council and so on. The training was not given to all teachers, and the chosen teachers were usually required to repeat the training to other teachers. He elaborated:

For English education, yes. I had once under British Council which I will carry out afterward the use of their website, their webpage and also from British Council’s little a bit on how to look for good webpage and how to use those in teaching.

(Azman/Int2/11Oct16)

Azman’s attitudes were also formed through his interaction with his friends. Many of his close friends were well versed in the use of DT, and this factor allowed Azman to discuss DT with them. He described:
From colleague yes even in my studies in MPIK in teacher’s training institute, I have 2 friends Hakim I would say and Amai. Those are very good in ICT. For Hakim is very good in connection or Internet connection. For Amai, he’s good in developing videos, song and pictures so I did learn some from them.

(Azman/Int2/11Oct16)

Besides, his use of DT in literacy instruction was also influenced by policies set by the MOE, which encouraged teachers to use technology while teaching. Although Azman stated that he was comfortable with teaching DT tools, he certainly did not get much exposure on a more traditional way of teaching because he had been using DT since his first day of instruction. He mentioned:

Is in from the very beginning because I was posted 5 years ago and by that time, we already into it. We already the government the MOE is already into ICT for teaching.

(Azman/Int2/11Oct16)

7.4 The relationship between Azman’s cognitions and his use of DT in English literacy instruction

The collected data show that Azman's cognitions towards the use of DT for literacy instruction was heavily influenced and shaped by his personal background and career. Although he did not intend to become an English teacher, after he had started his studies at the teacher training institute, he began to develop his personality and identity as an English teacher, and according to him, at that moment his interest began to sprout to become an educator. His early exposure to English language, as well as his interest in English, shaped his belief that 'English is enjoyable' and 'English is necessary', and his experience in the importance of literacy directly formed his attitude that English literacy is important for 'preparation for examinations'.

As he personally appreciated the importance of knowing English in his own life, he hoped that he would be able to instil the same feelings in his students, especially mastery of English literacy, for which he thought was the most important aspect of
English proficiency. He encouraged his students to communicate in English in the classroom even if they made mistakes. He believed that this was the best way for his students to improve their English communication skills. He also hoped that his students could learn from each other to improve their English literacy skills. His approach was influenced by his own experience of learning English literacy, a subject with which he struggled. By understanding the struggles experienced by his students, he tried to engage his students’ interests and often asked them for insights on the learning methods they preferred. Furthermore, Azman's past experiences had directly shaped his use of DT for literacy instruction. His experience using DT from a young age (learning English literacy by using DT, learning from friends, learning from mistakes, and more) had increased his confidence and helped him plan the best strategy on how to use DT to best suit the level of his students.

Azman showed contradictory perceptions about the use of DT in literacy teaching. Most of the time he seemed confident and enjoyed using technology during his instruction, but at times he appeared to struggle with problems arising from the use of DT. With high knowledge and skills in the maintenance and use of DT tools, Azman was confident in using DT to prepare lessons, record students' progress, assist teaching sessions, and simplify the student assessment process. In the context of literacy instruction, he believed that DT was very relevant, useful, engaging, and motivating for the students, besides offering a variety of advantages over traditional teaching techniques. However, he did not lose sight of the weaknesses and problems that could arise when using DT in teaching processes. DT could, at times, distract his students from tasks, and disciplinary problems would arise, making it more difficult for Azman to meet his teaching objectives. He also felt that DT was only suitable for certain aspects of teaching English literacy, with a few elements in English literacy better taught without DT. Nonetheless, as a result of his extensive experience using technology, his initiative to study independently, learn from colleagues, and also undergo specialised training from recognised training centres, Azman tried to overcome the weaknesses and problems that arose from the use of DT in his teaching.

The data showed that Azman used a variety of DT tools (i.e., desktop computers, the Internet, LCD projectors, online databases, printers and scanners) to fulfil different assignments and complete various tasks like lesson preparation, teaching, assessing the students, and keeping records. Most of these tools were
provided by the Malaysian MOE and school authorities. However, he did not want to be too dependent on the tools supplied (because of frequent damage or technical problems), and so he often used his personal laptop and smartphone in his classroom because they were more reliable and easier to handle. Azman used DT in literacy teaching to introduce topics, watch related videos, brainstorm, present literacy exercises, allow students to find information on the Internet, show notes, and show samples of essays. He also used DT in more complex ways, such as coding, website building, photo editing, video making, sound mixing, building interactive animations, letting the students update their blogs, online interactions, online educational games and quizzes and keeping notes on databases.

Azman's practices and notions regarding the use of DT were connected with his core perceptions of English literacy. To promote the concept that English literacy is essential in 'preparation for examinations', Azman used DT to 'increase the quality of teaching and learning'. Using technology, Azman downloaded sample and past examination papers to ensure that his students were familiar with the format and came to learn how to answer the questions correctly within the prescribed time period. Azman acquired many tips on examination preparation from the Internet. With the ability of DT to 'reach beyond boundaries' and 'ongoingly updated', Azman was able to ensure that his English literacy lessons, although 'difficult to teach', were 'enjoyable'. He was able to teach them about topics that they could not physically explore (i.e., the past, the seafloor, etc.), and attract his students’ attention (i.e., through exciting videos and pictures, funny animations, and entertaining sounds and songs). Although his laptop and the Internet were the most frequently used DT tools for sourcing materials during preparation, he acknowledged that he sometimes needed to edit materials downloaded from the Internet to suit the interests and abilities of his students.

Azman believed that his school’s attitude towards the use of DT did not allow his students to explore the potential and real advantages of DT. The school limited the use of DT among students, and Azman felt that this was one reason why students became overexcited and struggled to concentrate when they had the opportunity to use DT tools. However, as the teacher in charge of maintaining the DT facilities at the school, he felt that such rules were necessary to ensure that the DT facilities remained in working order and could be used by all teachers and students. Although the computer facilities at the school were limited due to the school’s rural nature and
relatively small student population, Azman felt that the facilities available were sufficient. Azman took responsibility for maintaining the computer facilities, but he felt that he received extra duties relating to DT because other teachers were not skilled in managing the DT tools. He noted that teachers were not adequately trained, especially concerning the use of DT for literacy instruction. Therefore, many teachers depended too much on him whenever they wanted to use DT in teaching.

In addition to using DT in his class, Azman wanted his students to use technology to increase their performance independently. The school’s policies restricted the use of DT tools among students to prevent damage, but Azman accepted the benefits of letting students use DT independently to improve. However, he was sometimes frustrated when students did not appreciate or tried to take advantage of the DT facilities available. Instead of completing the assigned tasks, they sometimes checked social media websites, played video games, or watched unrelated videos. Such situations made Azman sometimes felt reluctant to allow his students to use DT tools. On the other hand, Azman understood that some of his students had poor computer skills, and thus had to alter his teaching plans accordingly.

Like Nadia and Izzue, who were often the sources of reference for other teachers in their schools, Azman was appointed officially to manage the use of DT tools among the teachers in his school. His DT skills caused Azman to have reasonably high expectations for his students, though he noticed that some were quite weak in their own technology skills. He often provided challenging tasks for them so that they could learn from their mistakes. Azman was quite strict in the classroom to ensure that his students worked hard even on difficult topics.
CHAPTER 8: DISCUSSION

This study set out to examine the nature and significance of Malaysian teachers’ attitudes about and uses of DT in literacy instruction, while additionally considering the cultural and social-economic context. Specifically, the study aimed to address the following research questions:

1. How do Malaysian teachers use DT for ESL literacy instruction in the classroom?
   1.1 What are their overall ESL literacy instruction practices?
   1.2 How do they use DT within those practices?

2. What is the nature of Malaysian teachers’ cognitions about (the use of) DT in ESL literacy instruction?
   2.1 What are their cognitions about ESL literacy instruction in general?
   2.2 What are their cognitions about the role of DT in ESL literacy instruction?

3. Where do the teachers’ cognitions about the use of DT in ESL literacy instruction come from?
   3.1 Where do their cognitions about DT in general come from?
   3.2 Where do their cognitions about the use of DT in ESL literacy instruction come from?

4. How are Malaysian teachers’ cognitions about DT related to their use of DT in ESL literacy instruction?

In the first section below, I answer these questions in turn (8.1) and then relate these findings to the wider literature, showing how the study fulfils the need to investigate DT in literacy instruction in rural areas (8.2). I move on to consider methodological contributions (8.3), the influence of teachers’ cognitions on their instructional practices (8.4), the impact of contextual factors on cognitions and practices (8.5) and teachers’ cognitions and use of DT in literacy instruction (8.6).
8.1 Addressing the research questions

The teachers’ cognitions about and utilisation of DT in literacy instruction were found to be different from one another, as teachers switched between wanting and not wanting to use DT in their teaching. Some participants saw the advantages of using DT in their instruction, while others struggled with their cognitions about DT, as well as social constraints in their environment and circumstances. These social and psychological factors were very much related to their professional and personal backgrounds, including: their prior experience of using DT, as well as the training and education they had received; the school environment within which they were located; their practices in English teaching and literacy; and their collective or individual concerns about English education and literacy teaching.

In this chapter, I will summarise their cognitions about and actual use of DT in literacy instruction, as well as how their cognition affected or related to the use of DT in their literacy instruction. I will also explain the relevance of social and psychological factors in the use of DT, and how these social and psychological factors relate to and influence the use of DT in literacy teaching.

8.1.1 Research Question 1: How do Malaysian teachers use DT for ESL literacy instruction in the classroom?

Although the teachers showed mixed views on the use of DT in English literacy instruction, they proceeded to use DT continuously both in their personal lives and in their work. Their cognitions towards DT directly and indirectly influenced their ways of using technology, as well as their level of belief in the potential of such technologies to help them and their students. The problems and constraints that arose when they used DT were factors that determined how often they used DT in teaching. The three teachers used their experience and knowledge, along with the formal training they had received, the support of colleagues, and the support of the environment to determine their practices and preferences when using DT in the teaching of English literacy. With exposure to DT from a young age, they demonstrated confidence in handling such technology, and minimal dependence on others to help them. The teachers exhibited proficiency in using various DT tools provided by their schools and the MOE (e.g.,
LCD projectors, netbooks, desktop computers, the Internet and scanners) or tools that they purchased themselves (e.g., laptop, camera and mobile phone).

While the three teachers had different educational and personal backgrounds, and exposure to DT, they had the same opinion regarding the usefulness of DT in teaching preparations. All three demonstrated a high reliance on the materials and resources they could acquire using DT tools, and they recognised that they tended to use DT because they felt that traditional sources such as textbooks and reference books provided by the school and MOE were inadequate. The teachers also thought that the Internet was a fast and easy source of reference materials, past examination questions, sample exercises, teaching aids, teaching tips, educational videos and many other exciting resources that could be used for teaching. They also downloaded a variety of lesson plans and ideas created and shared by other educators, which they applied in their English literacy classrooms. DT allowed the teachers to share teaching materials and resources with colleagues and teachers from different places.

In their teaching preparation, the three teachers either used desktop computers supplied by the school or their laptop to help them find materials on the Internet. Sometimes the teachers used materials without changing them, but other times they edited the materials to match their students’ levels of proficiency, understanding, age, interests and needs.

Although the teachers relied heavily on the use of DT and acknowledged its usefulness in helping them to prepare for teaching, they also pointed out that sometimes using DT in their classrooms required more preparation than if they were using a traditional approach. This was because they needed to spend time looking for the right materials on the Internet, ensuring that the content was suitable for their students, confirming the availability of the facilities, considering the necessary technical preparation, and establishing a backup plan in the event of technical difficulties. Overall, despite the many advantages of using DT to help them prepare for teaching, the teachers accepted the possibility that sometimes they would face more difficulties.

For the purpose of teaching English literacy, the teachers exhibited skills in their ability to use various DT tools and different approaches. The tools they often used were laptops, netbooks, desktop computers, LCD projectors, printers, scanners, and the Internet. These tools were used for basic purposes such as to deliver notes, create
assessments, undertake tasks and so on. The teachers also used DT tools for more complex purposes like contacting students via e-mail, communicating on blogs and educational websites, coding and building websites, editing videos and pictures, creating animations and more. Students submitted work via e-mail and uploaded their assignments on the website provided by the MOE.

The three teachers actively used the website provided by the MOE called ‘Frog VLE’. The site was maintained by the ministry, and it enabled students to create their own blogs, design avatars, store their notes and assignments and communicate with each other. By using these blogs, the teachers monitored their students online, and they ensured that every student had access to the notes and training questions that they needed. Through the website, the teachers could encourage their students to share assignments with their friends, to enable them to learn from each other. In addition to allowing the teachers to monitor their students’ progress more easily, the website stored students’ assignments and notes in the database, and these records were used to analyse the progress of the students and plan activities accordingly. As the website also allowed students to upload videos and pictures, the teachers learned about the interests of their students from the content the students shared. On top of that, the multimodal learning system helped the teachers to attract the attention of all students, as students were given the freedom to customise their blog sites with various avatars, sounds, links, videos, pictures and more, according to their preferences and interests.

Compared to the two other teachers, Nadia gave her students the freedom to customise their blogs with backgrounds, decorations, and content that reflected their interests and personalities. Nevertheless, Nadia monitored her students closely and ensured that they only used material that was beneficial to them, while at the same time giving them ideas about how to fill their blogs. Izzue took a different approach and ensured that his students focused first on the notes and exercises that they could store on their blogs, before thinking about the decorations and graphics that they could display. For Izzue, he ensured his students filled out their blogs with educational content so that the blogs would be a source of reference for them in the future. As most of his students were fairly weak in their DT skills, Izzue spent a lot of time ensuring that his students understood how to use the system, as well as ensuring that the English literacy learning processes were ongoing.
The teachers resourcefully used educational websites on the Internet to teach English literacy (for instance, to find exercise questions, notes, instructional videos, writing samples, educational games/puzzles/activities, lesson plans and so on). Azman, for one, used a number of websites such as the British Council, which provided activities that could be done online while the learning process was underway. The three teachers also paired DT tools with traditional teaching tools such as reference books, textbooks, whiteboards and so on. All three teachers stated that they did not receive adequate training on the use of DT for teaching purposes. Nonetheless, they still showed considerable skills in their use of DT tools in the classroom. They used various DT tools in line with their shared notions of 'English is enjoyable', 'English is necessary' and 'preparations for examinations' by using DT to make their learning sessions more fun and focused on the preparation of their students’ examinations and the future in general. In addition to using educational websites to find materials for teaching and prepare their students for examinations, the teachers also used Microsoft Word, Power Point and PDF notes that they distributed to students, uploaded to Frog VLE, or displayed using the LCD projectors during their teaching sessions. They also use DVDs and CDs supplied by the school and the MOE to assist them in teaching.

All three teachers allowed their students to use DT tools such as netbooks, desktop computers and the Internet to carry out their tasks, as well as to try to learn independently. For example, students could use an online dictionary and thesaurus, YouTube videos, grammar and spelling checkers, educational websites, Google Translate and so on to help them in the writing process, but all three teachers would continuously monitor the use of DT tools by their students to ensure that they did not abuse the facilities.

The teachers also used the Internet for brainstorming and discussion purposes before any assignments or tasks involving writing, generating ideas and suggestions as well as displaying sample essays, example sentences, interesting English expressions, related videos, various writing techniques and so on. They also sometimes presented common student mistakes, to ensure that students did not repeat the same mistakes and also to provide correct or alternative answers. The use of DT tools also enabled the teachers to make their learning sessions more interactive and multimodal compared to traditional methods.
From a technical point of view, Izzue and Azman were less dependent on support from technical assistants in their schools as they could usually solve problems themselves. They were often approached by other teachers in their schools if any problems arose with DT. Nadia, on the other hand, required technical assistance in the event of any issues or hardware damage, as she was less knowledgeable about the maintenance and repair of DT tools. When using DT, Azman was more teacher-centred at times, preferring to be the only person who handled and used DT tools in the classroom, while his students were asked to focus on what he was saying. Izzue and Nadia took a more balanced approach, allowing their students to use DT tools to carry out their tasks and presentations, although sometimes they used the same method as Azman. Nevertheless, the methods used by Izzue and Nadia often raised some issues, namely that students required longer to complete a task due to a lack of DT skills. Therefore, Izzue and Nadia had to assist their students, as well as deal with other problems such as students who forgot their passwords, were distracted by things not related to the lessons and so on. On top of that, Izzue and Nadia faced the challenge of ensuring the students were not abusing the DT facilities.

The teachers stated that there were students who were caught browsing websites or inappropriate content, such as video game websites and pornographic images. According to the teachers, this should not have been possible because the school’s facilities had been programmed to prevent such content being accessed. Although the teachers constantly monitored the activities and the use of DT tools among their students, the number of students in the classroom made this challenging. The teachers expressed disappointment over some websites displaying immoral content such as videos containing violent or obscene images, as well as sites that provided inaccurate facts and so on. In addition, the teachers stated that there were students who frequently plagiarised writing or content from certain websites and used them to complete their assignments. However, the teachers were aware that some of them had yet to understand the concept of plagiarism and they continued to educate their students on the subject.

Despite these difficulties, the teachers still used DT tools because they thought that the problems could be minimised or prevented if their students were educated on how to use DT tools ethically and appropriately. However, they reported that they sometimes reduced their use of DT, or even chose to use traditional methods such as
textbooks and exercise books. While admitting that DT helped them prepare for teaching and assisted them in the classroom, they also needed to undertake additional preparation and be aware of the possibility of technical problems, problems related to school policies and regulations, and problems related to student discipline. The teachers reported that they sometimes chose not to use DT when they did not have sufficient time to prepare, or when they thought that their students would be more distracted with DT.

Students sometimes became overexcited and distracted when using DT because they did not have many opportunities to access the tools either at home or at school. Some students came from low-income families and had few or no DT tools in their homes. Also, some schools had rules regarding student use of DT, and this was one of the factors that meant the students sometimes abused the facilities or showed less discipline when they had the opportunity to use DT tools in the classroom.

To develop knowledge about DT, the teachers often referred to their colleagues, but usually they had to learn the skills they needed independently, because the training received, if any, was inadequate. The teachers showed immense curiosity in terms of developing their DT skills because they often used DT in their daily lives, not just when teaching. Typically, they would use the trial and error method to understand DT tools, and they might refer to an instruction manual or YouTube videos. Their own skills and experience made it easier for them to understand what they were learning. However, according to them, they still hoped that the MOE of Malaysia would provide adequate and continuous training so that all teachers were proficient using DT in their teaching.

8.1.2 Research Question 2: What is the nature of Malaysian teachers’ cognitions about (the use of) DT in ESL literacy instruction?

In this study, psychological and social factors shaped and determined how teachers perceived the use of DT in literacy instruction. These factors included their professional and personal backgrounds, experience and skills using DT, training related to DT, and support in the use of DT. However, there were also contextual factors which directly influenced their cognitions towards and use of DT in the classroom. These involved rules and policies imposed by the schools on the use of DT,
as well as the availability of facilities and technical support provided. Other influencing factors include students' views of DT, students' skills in using DT, and their attitude and behaviour while using DT in learning. Overall, these psychological, social and contextual factors both directly and indirectly formed the teachers' perceptions about the uses of DT and the ways in which they used DT in teaching.

All the teachers involved in this study demonstrated different levels of exposure to, and education about, DT. Izzue and Nadia had used DT since adolescence, while Azman was exposed to DT much earlier. Nadia stated that she had received ICT training at secondary school, and the three teachers stated that they relied heavily on DT when studying at university. In addition, the three teachers also reported that they had discovered a number of ways to use DT by exploring and trying tools independently based on their interests. Although Nadia and Izzue reported that they received more training using DT compared to Izzue, the three exhibited high technical skills when using DT in daily activities and in their professional lives. All three also reported that they received in-house training when they trained as teachers, although they acknowledged that this was very rare. Nadia and Azman also noted that they were often asked to provide training to other teachers in their schools or schools in their districts based on their DT skills.

In daily life, the three participants were highly dependent on the use of DT, particularly the Internet, for activities such as information or shopping, communication, entertainment purposes and increasing revenue sources. All three had their own DT hardware, and they also had access to various DT facilities provided by the school and the MOE. Their technical skills meant that they were able to generate additional income through their abilities. Izzue had skills in photography and film-making, and he had his own wedding photography studio, as well as having an online furniture business, while Azman generated part-time income by repairing computer hardware, carrying out photographic services and ran a business setting up public address (PA) systems for events. In addition, they also expressed an interest in owning the latest DT gadgets and hardware (i.e., laptop computers, digital cameras, smartphones, etc.) and they were very active on social networking websites and mobile applications.

The three teachers taught in different contexts (i.e., different student backgrounds and school environments), but they showed similarities concerning their
use of DT in teaching English literacy. Additionally, the three of them encountered the same bureaucratic problems within their schools which made it challenging to use DT, and at times created issues with inadequate facilities. In terms of the English proficiency of their students, only Nadia's students exhibited fairly good competency, while Izzue and Azman's students displayed moderate and low abilities in English literacy. The three teachers were naturally different both in terms of their careers and personalities. They had different attitudes to the methods they used to become more effective teachers. Their practices and preferences in teaching also showed some variation, both in terms of their practices teaching English literacy and in their use of DT tools in the classroom. Despite these differences, they shared some of the same views about DT and its use in helping in the teaching and learning processes. The beliefs and cognitions came from both aspects, positive and negative, in which they believed the advantages and abilities contributed by DT tools, but also recognised the shortcomings and problems arising from the use of such technology.

In conclusion, the three teachers had both positive and negative attitudes towards the use of DT in literacy instruction in their classrooms, and they exhibited both excitement and frustration when using DT in the process of teaching preparation and for teaching purposes. They also demonstrated a high level of confidence in the power of DT to help them and their students in the classroom and believed that DT offered a number of things relevant to the teaching and learning process of English literacy. However, the three were also aware of problems that sometimes made it difficult for them to achieve their teaching objectives and control the behaviour of students if they chose to use DT.

8.1.2.1 Malaysian Teachers' Positive Notions of DT

All participants believed in the capabilities and advantages of DT in the teaching and learning processes. They used the Internet as a primary source of information and lesson materials, as well as relying on computers and laptops in the classroom. Using computers and the Internet, they recognised that they could brainstorm ideas, keep records, provide materials, search information, store data, provide assessments, communicate, and transfer their lessons more easily. The three teachers also felt that DT made it easier and more practical to prepare lessons. They not only thought that
they could find information faster than traditional methods, they sometimes sourced existing teaching materials and downloaded them from the Internet. They believed that DT was a practical tool because most of their students, especially Nadia’s students, demonstrated competent use of DT, and were able to use it to learn independently through online learning resources, as well as being able to perform tasks using DT tools. The three teachers acknowledged their students' interests, using various websites and online applications such as Facebook, YouTube, Google Images, Google Translate and others to find interesting and relevant information, communicate, and help students learn English literacy inside and outside the classroom. Their positive perceptions of DT were reflected in their appreciation of other teachers who used DT in their teaching. The participants thought that those teachers who use DT are more creative, up to date in terms of skills and knowledge, and better able to engage students.

Also, the three teachers believed that DT could motivate their students to learn English literacy. They felt that it was easier to make a teaching session more interesting with DT by providing a variety of activities such as online quizzes, videos, interactive educational websites, blogs, educational games, exciting songs and pictures, social networking platforms and so on. They also admitted that their students became more alert if they were using DT, as well as showing better participation and commitment while doing tasks, compared to when they used traditional teaching methods. Student assignments were also more exciting and detailed, especially from students with proficient DT skills. The teachers believed that their students were more interested in using DT because the technology was a part of their daily lives and made them feel that they were doing something relevant and appropriate. According to the teachers, while many of the students lacked access to DT tools at home, most of them showed positive reactions whenever they could use DT in their learning.

In addition, the three teachers believed that DT was particularly useful in teaching English literacy and felt that technology could help them teach more effectively. They pointed out that their teaching sessions that involved the use of DT usually received more attention from their students, as well as claimed that the academic performance of their students significantly became better. Their students were more productive, especially in completing the tasks given, and the teachers felt that those factors were due to the convenience provided by DT. The teachers mentioned that sources such as the Internet made teaching and learning sessions easier,
and students no longer needed to waste time searching for information from books. In addition, information obtained from the Internet was also allegedly more exciting and easier to understand by students, which directly made them more motivated to learn English literacy. In addition, their students provided better response in the English literacy classrooms whenever DT was used, and it played a significant role in facilitating the teachers to achieve their learning outcomes. The use of DT also corresponded to the cognitions of the three teachers who felt that 'English is enjoyable' because of the use of the technology, as their students were said to be having more fun, besides feeling that their learning was easier and relevant. The teachers also felt that DT directly or indirectly made their students love learning English literacy, because of the element of fun they could feel when learning.

The usefulness and relevance of DT in the process of teaching and learning supported the notion that 'English is necessary', as put forth by all three participants. The teachers believed that 'English is necessary' not only because it is the second language in Malaysia, but because English is the primary language used worldwide, and thus is essential for their students in terms of their learning needs, careers, and just as an asset in their future lives. DT provided an opportunity for students to practice English literacy.

Additionally, the teachers felt that DT could help improve English literacy proficiency in light of national examinations. The teachers expressed their appreciation for the convenience of DT, which helped them prepare quizzes and examination questions, search for sample questions, search for past examination questions, and other functions.

All of them believed that 'English is enjoyable', and their use of DT reflected this. The use of DT, according to them, increased the quality of teaching and learning and made English literacy teaching and learning more enjoyable. Izzue, for example, thought that DT made teaching English literacy, which he thought somewhat challenging, a lot easier. The three teachers relished the diversity and quality of teaching materials they could access on the Internet, and the attractiveness of these materials facilitated them in motivating their students in English literacy classes, while at the same time lessened disciplinary problems. Interesting websites on the Internet, according to the three teachers, provided a variety of activities that facilitated teachers' tasks in delivering an understanding of some aspects of English literacy, as well as
giving assessments to prepare students for examinations. The teachers stated that their students could emulate speech styles and correct pronunciations from audio sources, and they could access this from anywhere and at any time. Moreover, the three teachers reported that their students became more active and willing to participate in discussions if DT was used and exhibited higher levels of confidence when presenting their work.

Overall, the teachers demonstrated positive perceptions of DT centring on DT’s attractiveness, convenience, usefulness, effectiveness, and diversity in helping them teach English literacy. The wealth of information that can be obtained from the Internet, and the relevance and quality of this information, allowed teachers to better engage their students.

8.1.2.2 Malaysian Teachers’ Negative Notions of DT

Although the teachers held positive cognitions of DT and exhibited competent use of technology, they also had a variety of negative attitudes regarding DT. These negative attitudes were primarily due to past experiences when using technology, such as technical problems, abuse of facilities by students, and restrictive school rules.

All the teachers raised anxieties about students abusing the DT facilities. This aspect, though it is part of the digital attraction of technology to students, is considered harmful because it is not related to their learning objectives and processes. The teachers indicated that students were sometimes distracted by social media websites, online games, YouTube videos and so on when they were directed to undertake tasks, and this was a challenge for teachers when they chose to use DT in their classrooms. While some students showed behavioural improvements when using DT, the teachers had to deal with some students who required continuous monitoring to avoid any abuse of the facilities, and this, in turn, created negative attitudes among the teachers. Also, the teachers were concerned about the dependence of their students on technology. The teachers were worried that their students would show less effort and become too dependent on DT to solve problems, rather than develop their language skills. They stated that the use of applications or websites such as online dictionaries or online translators made some of their students less likely to remember vocabulary or spelling. The convenience of DT caused some of their students to show less effort in their
notetaking because they knew that they could find the information they needed by browsing the Internet at any time. This caused the teachers to feel that the notes they provided for their students were less appreciated and less used.

Additionally, the teachers mentioned that the use of applications such as spell checkers and grammar checkers, although occasionally helpful in the writing process, might prevent the students from learning grammar rules and accurate spelling methods since the applications fixed their mistakes. The teachers were concerned that their students would then be unable to communicate without DT. The teachers were also concerned that the writing facilities and applications accessible on the Internet made students put less effort in overall and made them disinterested in improving their literacy skills.

The teachers felt that the dependence of their students on DT, if not controlled, would limit their proficiency in English literacy. For example, the teachers were concerned about the development of their students’ writing, where their students may be less likely to improve their grammatical comprehension, understanding the sentence structure, vocabulary, spelling and so forth as they can write more easily with the help of DT without having to remember these aspects. In addition, the teachers were worried that students plagiarised resources, and the teachers felt that if those problems were not appropriately addressed, not only would their students not improve their literacy skills, but they would also violate ethical values.

The teachers understood that their attitudes towards the use of DT in learning were different from their students, who were born into a world of DT. According to the teachers, the factors they considered to be harmful and disruptive towards the learning processes (such as playing video games, browsing social media platforms and so on) were part of everyday life for the students. While the teachers and their students were aware of the advantages of DT and tried to capitalise on its potential, they were still trying to bridge their gaps in terms of their notions and practices in the use of DT. The methods preferred by the teachers in using DT in English literacy were sometimes different to the methods chosen by their students, especially in terms of traditional literacy learning versus DT literacy learning methods. The teachers were concerned that the use of DT might compromise their students' basic knowledge and literacy practices such as brainstorming skills, grammar knowledge, content finding, editing, revising and so on.
There was a disconnection between the practices performed by the teachers and their students, where the teachers sometimes emphasized on the basic literacy learning, while their students were more inclined towards the practice of new literacies, where their reading and writing practices were influenced by the use of elements of DT, which increases their dependence on the use of the technology. While the teachers were aware of the importance of DT in assisting their students' learning processes, they still believed that their students needed to have basic literacy skills without using DT. The teachers felt that most of their students were still weak in their English literacy skills, and some were even quite rebellious towards learning the subject. This was often due to their backgrounds, in which English was unfamiliar and a very foreign concept.

In addition, the teachers struggled to keep up with the latest DT skills in line with their students. Students were exposed to different trends and cultures from around the world, usually through social media platforms and films, and so their interests changed rapidly. Hence, the teachers felt that in addition to preparing the teaching materials that included academic elements of English literacy, they also needed to consider the interests and tendencies of their students.

Although they felt that they needed to continuously update their DT knowledge and skills for the purposes of teaching English literacy, the teachers were competent with DT. The teachers expressed interest in mastering DT skills beyond those required by the MOE, such as the skills of constructing public announcement systems, building websites, photo and video editing, computer hardware maintenance and so on. The teachers were appointed to deliver training and workshops to other teachers in their schools and districts.

In addition to the skills required, the teachers showed negative attitudes towards school policies that limited the use of DT among students. They often faced problems of access when they wanted to use the computer laboratories or other DT facilities, and they had to take turns and share the facilities with other teachers. Overall, despite having high skills in handling and using DT in English literacy instruction, the teachers still had negative cognitions on the use of DT, whether related to technical aspects, student behaviour, school policies and regulations, or other related factors that made it difficult to use DT in their teaching.
8.1.3  **Research Question 3: Where do the teachers’ cognitions about the use of DT in ESL literacy instruction come from?**

The data show that the teachers' cognitions related to the use and importance of DT were formed and influenced by their schooling, teacher training, upbringing, past experiences, relationships, family backgrounds, culture and socioeconomic status. From the perspective of their family and socioeconomic backgrounds, all three had similar backgrounds, coming from middle-income families with working parents. Nevertheless, Azman was exposed to DT much earlier than the other two teachers, because his father owned a home computer. The other two teachers were exposed to DT in adolescence when their families bought home computers. Their initial exposure to computers and DT more generally shaped their confidence and interest in the technology, and they were all interested in learning how to use DT independently, acquiring knowledge from friends and family members, as well as attending formal training.

The three had families with similar cognitions towards DT. Izzue, for one, stated that his father and brother profoundly influenced him in his exposure to DT. According to him, he frequently used DT to help his mother finish typing examination questions, as well as to undertake school assignments such as preparing scrapbooks. He was taught how to use the computer by his father, and the experience of using DT with family members had left a deep impression on him. Nadia also recounted a similar situation, where she was taught to use the computer by her father, a positive memory that had a prolonged impact on her. Azman stated that his initial exposure had caused him to become addicted to DT. He gained exposure at school, where he often helped his teacher in computer-related matters, and the experience encouraged him to continue actively using DT.

After their schooling years, the three teachers stated that they learned and gained exposure to DT while pursuing their studies at teacher training institutes and universities. Here they began to explore the potential of using DT at a more advanced level, and their tendency to use DT became stronger when they realised they were proficient in DT tools. The teachers also received professional training in the use of DT for teaching purposes at their teacher training institutes and universities. Apart from the formal training that they received, the teachers felt that their relationships
with skilled friends affected and reinforced their understanding and inclination towards DT.

The teachers’ cognitions about the use of DT in literacy instruction were primarily based on their DT practice in daily life. All three exhibited high dependence on DT for their personal affairs, such as online shopping, paying bills, information retrieval, and so on. For communication purposes, besides actively using phones and email, they depended on applications like WhatsApp, Facebook Messenger and so on. In addition, they were active on social media platforms to connect and maintain contact with their friends, through applications such as Facebook and WhatsApp. They were comfortable with DT in daily life, and thus naturally, they became increasingly comfortable using DT to teach English literacy, rather than using traditional methods.

The duties and responsibilities given to the participants in schools, alongside their teaching, shaped their cognitions and dependence on DT. Azman, for example, was in charge of managing the DT tools and the public announcement (PA) systems in his school, and this responsibility given to him facilitated him to identify the right time to use DT with his students. In addition, the three teachers were often required to provide training on the use of DT to other teachers in their schools, and other schools in their areas and districts. They were thus regularly among the first groups to be called upon to receive training if there was a new methodology or technology that the MOE wished to be applied in schools. The teachers felt that it would be a waste if they did not use the knowledge and training that they had received in their teaching sessions.

8.1.4 Research Question 4: How are Malaysian teachers’ cognitions about DT related to their use of DT in ESL literacy instruction?

Overall, all three teachers exhibited positive and negative attitudes towards DT use in literacy instruction. Although they believed in the advantages of DT, they were also aware of the constraints that could arise. However, the teachers still thought that DT was valuable, and they showed a reliance on DT for teaching preparation, during teaching, as well as other matters such as data storage, administrative matters, uploading student examination marks and so on. For teaching preparation, these teachers reflected upon the advantages and disadvantages of using DT in their classrooms. They considered the social contexts of their students, as well as school
policies, both of which were pertinent factors impacting preparation for their teaching sessions. Despite being influenced by the psychological and social context, the three teachers generally capitalised more on DT.

The active use of DT among the teachers was shaped by their previous experiences of DT. All three participants agreed that DT 'increases the quality of teaching and learning', and their use of DT was in accordance with that notion. Even though they reported that DT created a variety of problems, these factors did not overshadow their belief that DT could help them and could create higher quality teaching and learning sessions. They believed that DT could engage their students and make lessons fun. The participants’ DT skills enabled them to manipulate and optimise the use of DT in accordance with their learning objectives. Their appreciation of the convenience afforded by DT facilities to prepare their students for major national examinations also encouraged them to use the technology to write examination papers, encourage the students to do online exercises and download past examination papers.

In addition, the teachers’ use of DT was in line with their opinion that 'English is enjoyable', 'English is necessary' and 'Preparation for examinations'. Due to the ability of DT to help the teachers achieve what they thought was important in English literacy, DT became a tremendous asset for them. For Izzue, who believed that the teaching of English literacy was difficult, he was attracted by the functions and benefits that DT could afford him and his students. On the other hand, although Azman stated that the teaching of English literacy was easy for him, he suggested that DT made his work more comfortable and fun, not just for his students, but also for himself. The notion of 'the importance of good reading and writing', as articulated by Nadia, encouraged Nadia to use DT because she felt that it helped her achieve her goals in ensuring that her students mastered reading and writing efficiently, and assist them to learn independently. The use of DT, according to Nadia, could help her students improve their grammar, vocabulary, English expressions, and more, and the diversity and the multimodality gained through the use of DT made her firmly believe in the technology.

However, the teachers' use (or lack thereof) of DT was heavily influenced by their negative perceptions of using DT from past experiences. The problems that often arose or could arise gave them ongoing concerns regarding time management, student discipline, technical factors, school policies and so on. In terms of teaching
preparation, sometimes time constraints prevented them from using DT because of the additional time required to ensure the availability of the facilities, well-functioning equipment, completion of slideshows, and many other factors. They also recognised that they were required to put more effort into teaching sessions if they used DT in the classroom (e.g., managing student discipline, ensuring each student understood the use of DT etc.).

The teachers pointed out that sometimes they used DT (or did not use it) based on spontaneous decisions made in the classroom according to the circumstances at that time. If they found that their students looked too tired or less focused, the teachers would choose to engage them with DT (e.g., watching interesting educational videos or displaying funny pictures), but if they were aware that their students seemed distracted and might be inclined to misbehave, they would choose to use traditional methods such as textbooks. According to them, they would rather do that to achieve the learning objectives than let their students become distracted and waste time. They also argued that it was essential for their students to learn traditional methods of developing their English literacy proficiency and not depend too much on the use of DT, as it would lead to problems when they took examinations, as the DT tools would not be there to help them. The teachers were concerned that dependence on DT would make their students resort to plagiarism as a shortcut to complete their assignments.

The teachers also needed to balance their positive and negative notions with the social context. Their cognitions of and uses of DT in literacy instruction were influenced by aspects such as students’ abilities in using DT tools, different values and notions among students because of their backgrounds, the cultural context, and support from the MOE and school administrators with regards to DT usage. The teachers stated that they cared about the wellbeing and futures of their students, and always tried to familiarise themselves with the family and socioeconomic background of their students. These factors affected their attitudes towards teaching, as well as the methods they used to teach. As most of their students had relatively low skills using DT tools, the teachers were aware that they could not be overly ambitious in their use of DT, and they needed to focus on providing basic knowledge on how to maximise the potential of DT in the learning process, both in the classroom and at home.

Some students demonstrated advanced DT skills, and the teachers encouraged those students to teach and help their friends. As the students came from the same
socioeconomic context, the teachers felt that their students would feel more comfortable learning from one another at times, and in these situations the more passive or shy students felt more able to ask for help. Overall, many of the students did not have computers or many DT tools at home, and so their only exposure was in the classroom. With school policies that limited the use of DT facilities, some students showed tendencies to abuse the facilities (i.e., opening unrelated websites or applications such as social media and video games). According to the teachers, those students sometimes interfered with the work of their friends, as well as showing poor proficiency in DT skills. These situations caused the teachers to change their strategies to balance the policies of the school with the needs of their students. The teachers pointed out that teaching in a context where school policy limits the use of DT among students is challenging. Although the teachers believed that the students should have the opportunity to use DT to learn, restrictive school policies, and a lack of facilities, made it difficult for teachers to ensure that each student received enough exposure to help them master English literacy. According to the teachers, the problem of the misuse of DT tools by students was also seldom heightened when some students had negative perceptions and rebel against learning English literacy. These students seemed to challenge the teachers when deliberately using DT for other agendas rather than learning.

The teachers’ concerns were due to contextual factors beyond their control, and they tried to understand and balance all these factors so that their students could learn English literacy well and have the opportunity to use DT appropriately. The teachers clearly showed love and care towards their students, and their feelings were reflected in their actions and efforts inside and outside the classroom. These factors also influenced the teachers’ desire to continue to develop their skills in the use of DT in teaching, since, as they said, they should always be up to date so that what they taught was relevant and acceptable to their students. The issue of insufficient or faulty DT equipment affected the teachers’ attitudes towards the value of DT itself, specifically whether the technology was worth extra preparation and training, and whether it would produce better results. Because of this, the teachers had to be extremely patient, and if they felt that the effort was not worthwhile, they resorted to using traditional methods in the classroom. The teachers were of the view that the restrictions set by the school towards the students were reasonable, even though they made it difficult for the
teachers and students at times. They understood that the allocation and supply of DT facilities by the MOE was limited, and the schools were trying to avoid damage. In the event of any damage to DT tools, there was a long delay before equipment was repaired or replaced, and such a circumstance sometimes caused a more significant problem. Hence, even though the teachers hoped that their students would have more opportunities to use DT, they abided by the limitations and tried to manage the use of DT as well as possible for the good of all parties.

The teachers demonstrated confidence in using DT tools as they had sufficient knowledge and skills in computer maintenance and were not concerned with the possibility of technical deficiencies. But they said that there were other teachers who were reluctant to use DT because they often had technical problems and the technical officers on duty always took a long time to arrive.

8.2 Fulfilling the need to investigate DT in literacy instruction in rural areas

In this section I consider the contribution of this study in light of the wider literature. Firstly, this study fulfills the call for more studies of teacher cognition concerning neglected aspects of second language teaching (Borg, 2006, 2009). So far, most studies have covered grammar, writing and reading, and other areas have been less studied (Borg, 2006). The findings in this study address this imbalance with regards to teacher cognition about the use of DT in ESL literacy instruction, this being an under-researched area in general.

As noted in the literature review (2.4.6), there have also, specifically, been few previous studies of teacher cognition in developing countries such as Malaysia, especially in relation to teachers in rural areas. Research in this field has, instead, tended to centre on developed countries such as the United States, the United Kingdom and Hong Kong (Borg, 2006). This study responds, particularly, to this need in that the teachers involved in this study were chosen because they worked in contexts which shared characteristics with those in which other teachers in rural areas in Malaysia work. Having said this, the main focus of this study was on developing understanding of how digital technology can be used – and of cognitions relating to such use – in rural schools. This is why I focused on teachers who do use technology relatively often and purposively in such contexts, filling a gap in the field in this respect. It is also the
case that, whereas most recent studies of teacher cognitions about and use of DT have involved research into teachers who have not grown up with DT (so-called ‘digital immigrants’), the present study focuses on teachers who have grown up with DT (so-called ‘digital natives’). In these respects, the teachers cannot be said to be ‘typical’, but their cases do indicate what is possible more generally in similar contexts.

This study demonstrates the importance of paying attention to local rules and policies, and social and cultural factors related to the use of DT in literacy instruction. As studies on Internet users around the world reveal (Coiro et al., 2008), people communicate on the Internet more intimately and frequently with multi-cultural communities spread across geographical locations, compared to before the Internet, and this has resulted in a change in meaning-making populations (Lemke, 1998). This leads to broader cultural, political and social developments (Kress, 2005). The data in this study also show that cultural, social and practice-related changes in literacy as a result of the development of DT have affected Malaysian teachers and students, in the sense that although they acknowledged the advantages provided by DT in literacy teaching and learning, they admitted setbacks and problems related to culture, mentality, values, and pedagogy when they utilised technology.

The teachers in this study showed little opposition to the instructions issued by the MOE concerning DT practice in the classroom, and they chose to teach what they felt was appropriate based on the background of their students. Some teachers did not feel that methodologies and techniques copied from other cultures would be appropriate in every context. They argued that some of the methods, responsibilities and skills demanded by the MOE were not in line with the situations and problems they encountered in their schools. Some teachers tended to use DT because it made them feel like they had an advantage over others. However, teachers whose students do not have access to DT tools at home might be less likely to use DT because it could put their students in a disadvantaged or perhaps humiliated position by highlighting that they come from low-income families. This situation could make students scared of using DT, and scared of the subjects that commonly use DT, thus giving them less exposure to DT in general. When teachers use DT for English literacy, students might associate English literacy learning with DT and this could make them afraid to learn English literacy. This creates a new trauma in under-resourced context students. The findings also point out that at times, DT facilities and tools provided by the
government, which are intended to bring about positive changes, were seen as an additional burden by the teachers on top of their existing responsibilities (e.g., managing clubs, associations, sports, discipline, school maintenance, hygiene, student safety, health etc.).

8.3 The influence of the sources of teachers’ cognition on their instructional practices

Past literature shows the impact of early learning experiences on teacher cognition (Borg, 2006, 2009; Pajares, 1992; Windschitl & Sahl, 2002). Teachers’ experiences of using DT in their own learning affect their levels of confidence, self-esteem, and teaching practices when using DT in their teaching. The same factor also affects their level of empathy, understanding and tolerance towards students. This study shows that teachers who had positive experiences of using DT in their schooling years were confident with their ability to use DT to help them in their classrooms.

Exposure to DT and prior experiences of using DT to learn influenced what the teachers considered to be good and bad teaching practice. The data in this study show that there is a link between teachers’ use of DT in the classroom, and their exposure to DT in their own education. The three teachers involved in this study demonstrated positive and negative attitudes towards DT, formed from their experiences of using DT since childhood. They expressed confidence in their use of DT and showed great patience in the event of problems arising, as their prior experiences had led to their acceptance of the negative aspects of DT. Their experiences from childhood had an impact on their teaching practices when using DT in the classroom; they demonstrated a high level of initiative to consider the students' backgrounds and interests as they realised that this was one reason why they themselves started to show interest in the use of DT for learning during their own education. The three discussed how their teachers taught them and described how this influenced their teaching practices and the way they handled students.

The three case studies show the impact of parental guidance and the influence of social relationships on shaping the teachers' cognitions about DT. The three teachers reported that their initial exposure to DT started at home with their fathers' instruction. From there, family members and other social environments helped to maintain their
interests and skills until they received formal training on how to use DT. From all three case studies, it can be concluded that positive encouragement from parents and family members has a positive long-term impact on teachers' cognitions, helping to build DT confidence and skills. The exposure they received at school also shaped the teachers' cognitions on good and bad practices in the classroom.

Data from the three case studies show that the teachers' cognitions became established during their training at the teacher training centres and universities. Past studies related to this aspect reveal mixed findings. For example, some studies show that the notions or cognitions formed during childhood can outweigh the influences of teacher training (Pajares, 1992). However, other studies show that teacher education has a greater influence on shaping teachers' practices (Ertmer & Ottenbreit-Leftwich, 2010). The findings in these three case studies support the latter finding, as the three teachers stated that their cognitions concerning the use of DT in teaching were very much impacted by their teacher training. The findings also counter Kagan’s (1992) conclusions that teacher cognition and teaching practices were less influenced by teacher training. For all three teachers involved, their early exposure to DT had been the foundation for a strong belief in the potential of DT to facilitate daily affairs, but the exposure and knowledge they acquired during teacher training validated that confidence and supplemented their skills and cognitions to generate teaching practices that involved DT.

Borg (2003) lists the factors that influence teacher cognition, such as schooling and professional education, as well as its effect on teaching practices in the classroom. This study made initial reference to Borg’s (2003, p. 82) model of elements and processes in language teacher cognition – Figure 2.1 in section 2.3.2 – as a first step towards exploring the relationship between the use of DT and teacher cognition. Since this study is exploratory and qualitative, as the study progressed I realised that there were additional elements that I felt needed to be added as processes in language teacher cognition. Upon comparing the elements that Borg (2003) suggested in his diagram with the elements that I found in my study, I felt that I needed to make some changes in terms of the relationships between elements, to illustrate the findings of my research. Figure 8.1 presents my proposed revised framework. I have refined the elements and their relationships to demonstrate the findings of my research. Compared to the figure presented by Borg, I have found that there are other elements that influence teacher
cognition such as past mistakes, religion, attitude and discipline, family factors such as how the teachers were raised, number of siblings or parents' salaries, learning experience (interest in teaching and subjects), and so on.

Figure 8.1: Teacher cognition, schooling, professional education, and classroom practice – Adapted from Borg (2003) – cf. Figure 2.1 in Section 2.3.2 – in the light of the present study's findings
Based on the context and findings of this study, I have refined the original diagram by Borg (2003) in the following ways:

- The term 'Schooling' is converted into 'Early Formal and Informal Education / Experiences' to more accurately describe the role played by the parties involved in the learning process, and not only the educators in school (i.e., siblings, parents, cousins etc.) in shaping teacher cognition.

- The term 'Professional Coursework' is replaced by the term 'Teacher Training and Professional Development' to represent the specific type of education associated with the participants in this study.

- The 'Contextual Factor' element is placed around all the other elements because all the elements in this diagram (based on this study) are affected and should be represented within contextual factors. Based on the findings from this study, teacher cognition, as well as all the elements presented in the above figure, involve influence from contextual factors, which also include sociocultural and socioeconomic aspects.

- DT is included as an area in which teacher cognition operates, alongside teachers, learning, students and so on.

This model highlights, more than Borg’s original model, the importance of considering contextual factors that influence all aspects of teacher cognition (i.e. early formal and informal education/experiences, teacher training and professional development and classroom practice). The model also shows that contextual factors that influence these can occur in different phases of a teacher's life, not just as an influence on current practice. The findings of this study, which directly shape this model, indicate that various aspects such as institutional policy, and political, organizational, socioeconomic and sociocultural elements play a major role in shaping teacher cognition and also influence the use of DT among teachers. This reflects the findings of the present study but may or may not be confirmed by future studies in the field of teacher cognition. At least, this refinement of Borg’s model may help guide future research.

Understanding the importance of contextual factors, as revealed in this study, could help teacher education become more effective in implementing the aspirations
of a government while at the same time enabling teachers to develop the mindset and cognitions needed to face the world of teaching. Additionally, understanding of contextual barriers may also need to be developed in order to enhance teaching and learning performance, but sometimes this important aspect is not emphasised enough.

8.4 The impact of contextual factors on teacher cognition and teaching practice

In all three case studies, there is evidence of a relationship between contextual factors and teacher cognition. However, the case studies also show that a teacher's cognitions play a role in their individual actions, even if they are in the same or similar contexts. In the next section, I will discuss the contextual factors involved, according to some of the themes already mentioned in the literature review (see 2.2).

8.4.1 Technical assistance

Access to technical support is an important element with regards to the integration of technology in teaching (Che Had & Ab Rashid, 2019). Among the contextual factors affecting teacher cognition and teaching practices in the classroom, the availability and effectiveness of technical assistance was key. Technical assistance was necessary to help teachers overcome any technical problems related to the use of DT. As discussed in the literature review, Jones (2004) stated that two categories of problems might arise in the adoption of ICT: anxieties about technical problems and lack of technical support. The three case studies in this research showed that the factors identified by Jones (2004) did not cause problems for the three participants due to their own technical skills, as well as access to good technical assistance in their schools.

As the teachers had experience of handling DT hardware competently, they were able to resolve problems related to technical damage or lack of computer facilities. All three stated that they always made back-up plans, as well as ensuring that they brought their own DT equipment so that they were not dependent on the DT facilities provided by the school or MOE. According to them, their exposure to DT from childhood meant that they had encountered technical problems before thus there
were not easily discouraged when such problems arose. This shows the influence of early exposure to DT in developing teacher cognition, their confidence in the use of DT and their teaching practice. With regards to technical assistance, the three teachers stated that they received technical assistance from an officer on duty, although the aid was usually slow to arrive, and sometimes it took a long time to resolve a technical problem. However, Izzue and Azman stated that their skills in computer hardware gave them confidence, and at times they repaired damage or fixed technical problems themselves. For Nadia, though she was not skilled in fixing hardware, she was creative in providing back-up plans and often bringing spare equipment from home. Despite technical problems, DT’s potential motivated the teachers to continue using DT, and prevented them from feeling anxious if the situation did not work as they had planned. This is contrary to the claims of Roslan and Tan (2005), who argued that damage to computer hardware would reduce teachers’ confidence in using ICT.

Jones (2004) pointed out that fear of damaging appliances prevented teachers from using DT tools, but this aspect did not occur in the three case studies, as the three participants demonstrated high confidence and skills in handling DT in the classroom. It can, therefore, be concluded that dependence on technical assistance in the development of teacher cognition is related to their early exposure to DT, personal technical skills and individual cognitions.

8.4.2 Integration time and effort

As stated in Chapter 2, many studies reported time constraints as a major obstacle in the integration of technology (Al Mulhim, 2014; Jones, 2004; Mumtaz, 2000). The integration of DT in teaching requires time for teachers to prepare for teaching, to undergo adequate training on the use of DT in teaching, to create materials and ensure suitable DT equipment, as well as sufficient time for the teaching process involving the use of DT. Some studies reported time constraints as the major obstacle in the integration of technology (Al-Asmari, 2005).

Mumtaz (2000) notes that time pressures from inside and outside the classroom are a barrier for teachers to learn how to use ICT in the classroom. The teachers in this study stated that many situations involving time constraints made it difficult for them to use DT in their teaching. The issue of time limitations also arises when educational
institutions have little or no understanding of the importance of addressing the problem or feel that changes in terms of time are not required by teachers (Mumtaz, 2000). All three of them stated that the additional tasks that they had to do, other than teaching, meant that the time available for them to prepare was rather limited. However, since the three participants had extensive experience in managing time to use DT, they were able to adequate plan and prepare for most of their teaching sessions involving the use of DT. This is in line with research by Al-Asmari (2005), who stated that if given ample time to find teaching materials appropriate to the local culture, teachers' anxieties about using ICT tools, particularly the Internet, may be reduced. Al Mulhim highlights the importance of giving teachers extra time and reducing their workload in terms of other curricula tasks, so they can better meet the needs of each learning session using ICT, besides having more time to receive training. The teachers did not show any doubts about the potential of DT in improving the quality of teaching and learning, although sometimes they faced time constraints while trying to use DT, and this factor, according to them, is that they are familiar with such situations as their exposure to DT usage since childhood. Their explanation supports the recommendations of Baylor and Ritchie (2002), that teachers should be exposed to the real benefits of using technology for a long period of time to enable them to understand the true potential of these technologies.

8.4.3 Culture of the educational institution

As described in the literature review, institutional policies and rules carry a significant impact on the adoption of technology (Al-Waaili, 2018). This reflects the findings of this study, where policies at the participants' schools influenced their cognitions and practices. All three case studies showed that the policies in the teachers’ schools restricted the use of DT among students to prevent damage to facilities, and students were only allowed to use DT hardware at certain times if it was available. In addition, teachers were required to book a computer laboratory, or rooms reserved for DT usage, in advance using a rota system. Such policies could demotivate teachers to use the DT hardware, but in the case of the three teachers involved in this study, they demonstrated creative and innovative ways of providing their own hardware without being too
dependent on those provided by the school, as well as systematic scheduling methods to ensure that all of their students could use DT facilities fairly.

However, they stated that the class sizes were too big, making it difficult to ensure that all students could use DT properly and effectively. Likewise, Al-Asmari (2005) reports that curriculum features and class size are major obstacles to using technology among teachers in Saudi Arabia. Similar obstacles were reported in Syrian (Albirini, 2006) contexts. According to Zhao & Frank, (2003), teachers will be less likely to use computers when they are forced to implement various new things that are contrary to their culture and practices. The statement is not very accurate with the findings of this study, as the three teachers involved use computers and syllabus provided by the MOE although sometimes the situations are not compatible with the school culture they work in, and also do not comply with their teaching practices and cognitions. According to Izzue, for instance, his role as a civil servant is to follow the direction given by the superior, although some of the instructions are not in line with his teaching practices or cognitions.

8.4.4 Access to technology

As mentioned in the literature review, Che Had and Ab Rashid (2019) states that the accessibility of DT tools is associated with the successful implementation of technology among teachers, and a lack of access to technology would limit the use of technology among teachers. Mumtaz (2000) also notes that the availability of appropriate software, which suits the needs and interests of teachers, is a driving force behind their use of ICT hardware. This statement is supported by the present study, as it can be demonstrated that the accessibility of DT tools influenced the teachers' mindset and their teaching practices. However, for the teachers involved in this study, they did not depend on the facilities provided by the school and the MOE simply because they understood the constraints and limited DT facilities in their schools. Al Mulhim (2014) highlights that the enhancement of ICT facilities will directly increase the use of ICT hardware in the classroom, and teachers are reported to be more confident when they are more familiar with the computer hardware provided. This statement is consistent with the findings of the study, as the three teachers show higher levels of confidence when the DT facilities they use are maintained regularly and are
in good condition to be used when needed. Azman stated that computer damage, which takes a long time to repair, will affect the motivation of teachers to continue using these facilities.

Albrini (2006) states that DT tools such as the Internet may be incompatible with teachers’ moral values and culture. The teachers in this study took their culture into account when using DT tools in the classroom. Since Malaysia is an Islamic country, the teachers did not choose materials that contained elements or influences that conflicted with local culture.

8.4.5 Education on the use of technology

Although the development of computer skills for teachers is very important, literature from across the world has reported a lack of ICT training among teachers (Al Mulhim, 2014; Baylor & Ritchie, 2002; Che Had & Ab Rashid, 2019; Hammond, 2013; Md Yunus, 2007; Mumtaz, 2000). However, the participants involved in this study demonstrated high computer skills, and this directly affected their levels of confidence and ability to use DT in the classroom. While exhibiting high skills, they acknowledged that the actual training provided by the school and the MOE in connection with the use of DT in teaching was insufficient. Teachers need to integrate ICT into their teaching pedagogy, and hence, they need to receive sufficient training, so their ability aligns with students' expectations, and they are able to carry out tasks effectively (Che Had & Ab Rashid, 2019). Their skills originated mostly from the practice of DT since their early adolescence, as well as the training they received from friends and family. Hammond (2013), addressing this issue, notes that lack of training or weaknesses in the training provided made it difficult to adopt ICT. Pelgrum (2001) also reported that, respectively, a lack of computers and lack of computer skills are key barriers to the adoption of technology.

Che Had and Ab Rashid (2019) emphasise that training should take into account the teachers' current belief systems. As teachers who believed in the potential and advantages of DT, the three participants in the study felt that teachers should enhance their DT skills. Their views are in line with Egbert, Paulus & Nakamichi (2002) who state that the practice must be context-embedded and address the current needs of teachers. The participants’ positive outlook on the use of DT may have made
it easier for them to master the knowledge and skills necessary for using DT in teaching. Al Mulhim (2014) notes that a key element that should be provided by the Ministry of Education is proper in-service training for all teachers at all levels, so that they have the latest skills in teaching techniques appropriate to the current requirements. Al Mulhim also observes that technical training and teaching pedagogy should be emphasised in parallel, to achieve an effective and relevant impact.

8.5 Teacher cognition and the use of DT in literacy instruction

Although this study has focused on aspects that can be observed, a big portion of this research also focuses specifically on unobservable aspects. The study used selected research methodologies, specifically semi-structured interviews and stimulated recall interviews, to understand the thoughts and cognitions of the participants regarding the aspects studied. Teachers need to be given space to reflect on their teaching practices (Ertmer, 2005), to cooperate with others in a supportive and professional environment (Zhao & Frank, 2003), and to see examples of good practice of ICT (Ertmer, 2005; Ertmer & Ottenbreit-Leftwich, 2010). The methodologies which were selected and applied systematically allowed me to study the roots of the teachers' cognition, obtain information on their teaching practices, gain insights and explanations of their skills, their perceptions and cognitions regarding the use of DT and literacy teaching practices, their knowledge of the use of DT in education, and gain information about many other aspects that could not be obtained by observation alone.

The findings from this study indicate that teaching experience builds knowledge of teaching methods and forms teachers' teaching practices.

8.6 Methodological contributions

Overall, this study provides a significant contribution to research in its methodology. Continuous reference has been made to the literature review to identify methodological gaps that may be filled through this study. Specially selected research designs have allowed me to identify with significant depth the teachers' cognitions about the use of DT in literacy instruction, as well as discovering their actual teaching practices in the
classroom. The adoption of various approaches and methods (see Chapter 2) has allowed data from multiple perspectives to be obtained to examine all the factors involved in the study while ensuring that the objectives of the study can be achieved thoroughly. This study has shown the advantages and disadvantages of selecting a methodology based on the type of data to be collected, as well as describing how to ensure that the method is ethically and efficiently carried out. This study also provides an overview of how the research design is conducted according to the preset code of ethics, based on the guidelines discussed in Chapter 2. Although the ethical guidelines used were based on situations and procedures in Western countries, my understanding of the socio-cultural background of the study area makes it easy for me to conduct the study without offending any party or breaking any local ethical codes or customs.

The application of various research methods has enabled me to obtain data and input on elements which would be unobservable, like the teachers' thoughts and cognitions. As stated in Chapter 2, most of the studies on the use of DT in education were carried out using quantitative methods, and although such studies may be useful in describing the perceptions of teachers and the use of DT, they do not provide in-depth information, compared to the information that can be obtained through qualitative methods. Through my own understanding of the socio-cultural background of my participants, I was able to triangulate the data obtained more accurately, and the risk of misunderstanding was reduced, compared to if this study had been conducted by outsiders who had no understanding of the context. This study also demonstrates how data obtained from various methods can be triangulated to explain teacher cognition and the way they use DT in the study of English literacy instruction. The study shows the rationale behind teaching practices and cognition, by using different methods.

This study also demonstrates a process for obtaining data in a bilingual context, where various additional procedures related to methods of understanding the data collected, as well as means of delivering data derived from different languages and cultural backgrounds. The methods used to analyse the data can also be used as a reference for similar studies in the future. Also, the triangulation process has linked the data to form robust interpretations. The methods and procedures used in the data analysis can be used to inform future studies with similar data.
Past studies have focused on usage and method of use. Sometimes when teachers are aware that they are being monitored and observed, they teach more diligently, and what is observed may be different from their actual practice. So long-term studies are needed to monitor actual practice. This study does not focus only on elements that can be monitored during the teaching of English literacy in the classroom, but also considers unobservable elements relating to the teachers’ cognitions. These elements were collected through stimulated recall interviews, teacher notes, a questionnaire and semi-structured interviews (see 3.7). In addition to focusing on the use of DT by teachers in the classroom, the methods identified the cognition of teachers with regards to their beliefs and understanding, their awareness of the backgrounds of the students, the sources of their patterns of thought, the resources and constraints affecting their teaching processes, as well as their justifications for their practice and the use of DT in English literacy instruction (see Chapters 5, 6 and 7).

The data show teaching practices are affected by past experiences, thinking patterns, and awareness of the advantages, disadvantages and contexts. The also data show that teachers exhibit and confirm many of the factors discussed in Chapter 2 (see 2.2) as well as demonstrating the relevance of additional factors related to the context and background of their students. As discussed in Chapter 2, Lam (2000) confirms that the area of technology use among second language teachers remains under-researched. According to her, only a few studies have been conducted on teacher perspectives relating to the use of technology in language teaching (Lam, 2000). Ertmer (2005) supports this statement, arguing that although studies on teachers’ cognitions are very established, the area of teacher's cognitions and technology is less explored. In addition, Tondeur and colleagues (2008) note that studies related to the relationship between technology and educational practices beliefs are still minimal. Moreover, most of the studies were carried out using quantitative methods, and although such studies may be useful in describing the perceptions of teachers and the use of DT, they do not provide in-depth information, compared to the information that can be obtained through qualitative methods.

In addition, non-judgmental approaches to the teachers' cognition and classroom practices, which are not over-emphasising the effectiveness of teaching practices demonstrates a more objective approach to illustrating the real reality that
occurs in the context of the study. Various perspectives were taken into account before conclusions were made, with the objective of presenting robust conclusions regarding the relationship between the cognitions of teachers and their actual practice in the classroom, without criticising any aspect of their thinking or practice. Throughout the study, I did not exert any influence on the teaching practices, but only acted as a non-participating observer throughout. Such approaches can be used by future researches.
CHAPTER 9: CONCLUSION

In this chapter, I consider the implications of the study (9.1), the study’s limitations (9.2), and suggestions for future research, with some final remarks to conclude the thesis (9.4).

9.1 Implications of the study

With an acceleration in the use of DT, particularly in the field of education, a complex situation has arisen for teachers, policymakers, school administrators, teacher educators, and curriculum makers as they strive to upgrade the educational system to ensure that students succeed. In this section, I will discuss how this study can benefit many parties, including teacher cognition specialists, researchers, teacher educators, teachers and curriculum developers.

9.1.1 Researchers

The findings from this study contribute to the field of teacher cognition, particularly in relation to the use of DT in the teaching of English literacy. Ertmer (2005) states that although studies on teachers’ cognitions are well regarded, research into teacher's cognitions and subsequent use of technology is limited. In addition, Tondeur et al. (2008) note that studies concerned with the relationship between technology and educational practices and cognitions are still minimal. This study explores teacher cognition in the context of a rural area in a developing country, addressing the lack of research conducted in this field. The study illustrates how socioeconomic and cultural factors are related to the use of DT in the teaching of English literacy.

This study used a variety of methodologies to study teachers' cognitions about DT in literacy instruction, and future researchers could use the same procedures or build upon them to increase the reliability and validity of the findings. This study conducted stimulated recall interviews after the observation process to obtain more accurate conclusions, as well as triangulated data from different sources. This study can be used as a point of reference for researchers using case study methods, as this
study illustrates an example of a three-case study design. The research may also be useful for researchers who are looking for methodological information regarding questionnaires, semi-structured interviews, stimulated recall interviews, observation of lessons, field notes and collection of lesson materials.

9.1.2 *Pre-service teacher education and in-service professional development*

Descriptive data from this study can be used for teacher training, whether in teacher training centres, universities or for in-service teacher development programmes. The data can provide useful examples of the use of DT in literacy teaching in schools, as well as insights into advantages and disadvantages in the context of rural schools. The data can also be a reference for teacher training institutions to determine the latest trends in the use of DT in schools, also identifying the skills needed by teachers today to face current challenges. This study explains the ways in which DT was utilised among teachers for literacy teaching, which may inform those involved with teacher education on teaching practices that are relevant and practical, while at the same time identifying problematic teaching practices that could be improved or replaced. The numerous issues presented in this study may also be discussed by trainee teachers to ensure they are prepared to meet the challenges of teaching.

For in-service training programs, current teachers could use the data from this study as part of reflection and critical thinking exercises, where they could discuss the issues that were raised in the study and consider how to manage such situations in their own teaching. The problems faced by the three teachers participating in the study offer referential examples of real situations that could occur in similar teaching contexts.

The participants' responses during the stimulated recall interviews demonstrate possible ways to reflect upon one’s own teaching practices, suggesting how in-service teachers or trainee teachers could keep track of their teaching practices and identify strengths and weaknesses in the classroom. This approach would provide opportunity to improve teaching quality while ensuring that one’s skills are satisfactory, in line with current needs. In addition, teacher training institutes or universities involved with teacher training could refer to this study in preparing to deliver training in the use of DT from the teacher’s perspective. The learning of teaching skills and skills using DT
without taking into account the humanities and physiology aspects of a teacher may cause future problems, as illustrated in this study.

Izzue and Azman frequently stated that they needed to understand the socioeconomic background of their students to enhance the relevance of their teaching. This demonstrates the importance of socioeconomic and sociocultural aspects in teaching, which should be given more emphasis at teacher training institutes. The difference between learning contexts in urban and rural areas is significant. A teacher from a vastly different background to the students affects the academic achievements of the students, and teachers may judge students based on their experiences without knowing the context of a student (teacher-student gap). The cultures and lifestyles of the students are changing very quickly because of their exposure to foreign culture in the media (e.g. social media, viral videos). The data from the study show that the Internet offers new possibilities and ambitions for some students, showing them alternative career paths and life choices to the ones their families have taken (e.g., fishermen, farmers etc.). The data also show that students are increasingly more interested in learning English literacy because they want to be accepted in the cyber world and be a part of the global community. Thus, teachers need to be trained to understand such aspects to motivate students in their English literacy learning.

9.1.3 Curriculum developers

The rapid advancement and increasing sophistication of DT has directly and indirectly changed instruction methods and practices among teachers in English literacy classrooms. Stakeholders in education need to take this into account, as learning and teaching sessions become more multimodal and no longer depend on the use of written, physical texts. Teachers and schools need to embrace a more open approach by accepting these changes and trying to take advantage of DT’s capacity to improve teaching and learning. Various policies related to technological learning have been hindered by a lack of knowledge and preparedness among teachers (Lankshear & Knobel, 2003). Teachers need to receive ongoing training to become proficient in technology, and to develop educational activities that combine their teaching with the potential of DT (MacArthur & Karchmer-Klein, 2009).
The data in this research could be used by curriculum developers to formulate policies and syllabuses that address the current needs of teachers and students. This study may be useful in informing on appropriate teaching and technological methods especially in English literacy, as well as to determine the suitability of teaching materials and textbooks. In addition, curriculum developers can use data related to new literacies to formulate syllabuses that are appropriate to students’ interests, as traditional literacy materials and methods may no longer be relevant to students. Additionally, materials that are appropriate to students should also be fully understood by teachers who may be more susceptible to different learning techniques, so they are able to adapt and are prepared to deal with the changes. Data from this study provide useful information on creating materials that take into account DT facilities in schools and can be realistically implemented.

Instead of resisting the changes brought about by DT, school administrators need to recognise that DT has become part of the lives, identities and cultures of students. School administrators should avoid policies that make it difficult for students or teachers to access DT facilities. Regulations and policies should instead be formulated to ensure that teachers and students can use DT facilities adequately and appropriately. Schools should, overall, ensure that the DT facilities they provide are sufficient to meet the needs of the students.

The study showed that the students showed positive responses and were more focused during their English literacy lessons when DT was utilised. DT is already a part of their lives, and they use technology in their daily activities. The students who did not have access to DT facilities at home showed the same fascination with DT. Therefore, it is essential that DT is used in learning English literacy, and more importantly, teachers need to be able to identify the advantages and disadvantages of using DT among students, so that the real potential of DT can benefit students and improve their learning quality.

\subsection{Teachers and students}

The development of digital literacies has grown and will continue to grow rapidly and influence future teaching methods (Rhodes & Robnolt, 2009). Various factors affect the use of DT among students, including access issues beyond the classroom. These
factors should be taken into account in order for a learning session that integrates DT to accommodate student skills, interests and habits. According to Rhodes and Robnolt (2009), students use DT differently at home compared to at school; the use of DT in the classroom is often unsuitable for the needs of students, contradicting to the way students think, and there is sometimes a gap in technical skills between students and their teacher, who may be less proficient.

Because there are situations in which teachers are unskilled in the use of DT in the classroom, students should share their skills and knowledge (Coiro, 2007). These contributions from students would enable teachers to organise their classes to suit the interests and abilities of their students (Coiro, 2007).

Teachers need to be given space to reflect on their teaching practices (Ertmer, 2005), to cooperate with others in a supportive and professional environment (Zhao & Frank, 2003), and to see examples of good practice of ICT (Ertmer, 2005; Ertmer & Ottenbreit-Leftwich, 2010). Participants in this study stated that sometimes there is a disconnect between the government and policy makers, with a lack of understanding regarding teacher attitudes and the real situations in schools. This study clearly shows the gesture to understand the teacher's cognition and belief before the government and the policymakers of an education system. If we recognise the importance of the role of teachers, we will also realise that the integration of technology in education depends on the pedagogical cognitions of teachers (Borg, 2006) (see 2.5). There should be a balance between teacher and the government expectations. The participants in the study mentioned that some of the government’s requirements were not feasible in their circumstances and teaching contexts. However, teachers are required to meet the criteria set out, resulting in some teachers falsifying data and reports regarding their teaching practices as well as students’ progress. Data also showed that the use of DT among teachers was highly influenced by the emphasis on the students' achievements in major examinations, and the MOE of Malaysia directly established this scenario by requiring improvement in students’ examination scores. Teachers with outstanding students were seen as exceptional teachers and vice versa (see 5.1.1.3, 6.1.1.3 and 7.1.1.3). Although some teachers disagreed with this expectation, they were required to comply.
9.2 Limitations

There are some limitations identified in this study that need to be discussed. The study cannot generalise about all teachers in all contexts, because this study involved a limited number of participants in a specific context. However, like most other qualitative studies, the goal of this study was not to generalise, but to provide a thorough and contextualised review, specifically of the participants’ cognitions about the use of DT in literacy instruction as well as their actual use of DT.

A further limitation is that the interaction between myself and the three participants, as well as the observations I undertook, might have had an impact on the data generated. While I intended to record their natural teaching practices and cognitions, they might have prepared more than usual knowing that they would be recorded for research purposes. In addition, my analysis of the data might be influenced by my professional, educational and personal background. Although I triangulated the research findings, my experience and knowledge of the aspects studied may have given me preconceptions or biases affecting how I interpreted the data.

In addition, the data collection and analysis processes might have been influenced by my reading of previous literature. Although the data collection methods I used were exploratory, the knowledge I gained from the literature review could have affected the direction and the types of questions that I asked the participants during the interviews.

9.3 Suggestions for future research

Based on the data and results, together with the contributions, implications and limitations that have been described, I will make some recommendations for future research in this area:

- As discussed in Chapter 2, many of the studies on teacher attitudes were undertaken in developed countries. Therefore, future research should be conducted in under-developed countries. Such research needs to be conducted objectively and non-judgmentally, so that accurate results can be obtained.
• Future studies should be conducted in a similar context to the one in the present research, but involving participants from different groups (e.g., teaching different subjects, different levels of teaching experience, different educational backgrounds, different upbringings etc.).

• The methodology used in this study should be applied more frequently, because such a qualitative approach allows for a better understanding of real situations and contexts, as well as participants’ genuine thoughts and cognitions. Such data will be useful if used to form an educational system that is closer to their souls, which may produce better results as they would feel that their voices are being heard.

• In addition to conducting research on individuals from different backgrounds, studies related to teacher cognition should also be made to different aspects according to the current needs. These studies should focus on different types of educational institutions to allow for comparisons. In addition, a key finding from this study was that socioeconomic factors affected teacher cognitions, either directly or indirectly. Hence, future research should be conducted in different contexts to contribute to this body of knowledge.

• I also feel that more studies related to the digital gap need to be undertaken in the future. With the rapid development of DT, this aspect is becoming increasingly important.

9.4 Final remarks

The rapid changes and advancements in DT will inevitably impact every aspect of education, including literacy instruction. The creation and use of new technologies have prompted a change in education, resulting in issues among teachers relating to their skills, attitudes and various other factors. In addition, lifestyle changes caused by the developments of DT also provide new changes and definitions to literacy learning, and phased changes are needed by all educational institutions to ensure that the current education system continues to be relevant to students. The parties involved in education need to identify the positive and negative impact of such changes from various angles, taking into account such factors as teacher skills, facilities in schools,
potential disciplinary problems, financial factors, maintenance factors, psychological preparation and many others. DT will certainly become an essential part of the lives of students and thus it is the responsibility of various parties to consider how to implement DT appropriately in education.

As the data obtained from this study show, Malaysian teachers acknowledged the advantages provided by the use of DT in literacy teaching and learning, but they admitted that problems related to culture, mentality, values, and literacy practices sometimes arose when they utilised the technology. This study demonstrates the importance of paying attention to the social and cultural factors with regards to the use of DT in literacy instruction. The combination of literacy and DT continues to evolve, and this type of research is vital to monitor and assess the current situation. The data is hoped to shape the standard of education and the latest paradigm in the field of teaching to align with the necessities and requirements of the present. Increasingly sophisticated digital technologies have created new definitions and conceptions of literacy, education, and new literacies. New values, beliefs, and practices relating to literacy at present may need to be better understood by teachers, primarily because of the differences they have regarding their cognition, values, and practices in teaching English literacy. Many new issues have emerged when using DT in literacy instruction, including access to facilities, reliable sources of reference and training required. With students who were born in the era of DT, teachers face complex issues including their ability to gain students' trust, to follow their students' interests and trends, to learn how to use the latest technology, to encourage students to use DT appropriately, and to show students how to effectively use DT in their learning. Recognising the challenges faced by teachers in this regard will have significant implications for the education of teachers, education systems, stakeholders, curriculum makers and researchers.

This study may be used as a guide by various parties, such as institution leaders and administrators, school teachers, students and learning institutions. For institution leaders and administrators, this study may help provide information on shaping the curriculum and vision for their institutions. For teachers, this study offers a space for their voices to be heard and understood, so that their professional development needs with regards to DT might receive more attention. The study may also be beneficial to students, in the sense that students may receive a better learning experience, with more
efficient facilities suitable for language learning. Finally, this study may provide useful information for educational institutions in other developing countries.
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APPENDICES

Appendix 1 - Questionnaires

First session

Name:
Age:
Gender
Language(s):
Race/Ethnicity:
Place of Origin:
Education level: Teaching Certification / Dip. Education / B.A. Education / M.A.
Other: ........................................................................................................
Major: ........................................................................................................
Minor: ........................................................................................................
Teaching Certification: National Teaching Certification etc. (e.g., KPLI) (Please circle one)
Education
Institution: ....................................................................................................
Year of Graduation: .................................................................
Current School: .........................................................................................
Teaching Experience: ............... years
Contact Number(s): Handphone: ......................... Office: ..................
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Email Address: ..................................................................................................
Office Location: ............................................................................................

Current Assigned Teaching Duties:
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<th>Standard/Grade</th>
<th>Course</th>
<th>Student’s academic achievement (High / Intermediate / Low)</th>
<th>Student’s English Proficiency Level (Beginner / Intermediate / Advanced)</th>
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If it is not too much trouble, please list the sorts of DT that you have at home and at your office/work area, and rate your recurrence/frequency in utilizing them.

1 – Very Seldom 2 – Seldom 3 – Often 4 – Very Often

Digital technology at work/office:

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<td>13.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
Kindly respond to the questionnaire as indicated by the scale underneath.

1 – Strongly Disagree  2 – Disagree  3 – Agree  4 – Strongly Agree

<table>
<thead>
<tr>
<th>Use of Digital Technology (DT)</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I always use DT even before becoming a teacher.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. I frequently use DT every day.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3. I am exceptionally comfortable with utilizing DT.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4. I am extremely capable with utilizing DT.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5. I attempt to find out about DT on my own.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training in DT</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I figured out how to utilise DT in literacy instruction on my own</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7. I figured out how to utilise DT in literacy instruction from my peers.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>8. I usually use DT for literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
9. I always receive in-service training on how to use DT in literacy instruction.  

10. The DT in English literacy instruction training from the in-service teacher training sessions are sufficient for me.  

<table>
<thead>
<tr>
<th>Use of DT in English Literacy Instruction</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am exceptionally comfortable with utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. I am very capable with utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3. I frequently utilise DT in my English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4. I utilise DT that I learned on my own, in my English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5. I utilise DT that I learned from my peers in my English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6. I utilise DT that I learned during my teacher training in my literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7. I utilise DT that I learned from the in-service teacher training session(s) in my English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>8. DT assumes a vital part in my English literacy lesson preparations.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>9. DT assumes a vital part in my English literacy lesson instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
20. DT assumes a vital part in my English literacy lesson assessments.  

<table>
<thead>
<tr>
<th>Worries about DT in literacy instruction</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I have worries over the utilisation of DT in English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>22. The school organization has done well to lighten my worries, particularly concerning utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>23. The district/state/national educational bodies have done well to ease my worries, particularly with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>24. The teacher education institution has done well to ease my worries, particularly with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Development</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. I am pleased by my present understanding of DT in English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>26. I want to learn more about DT in English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>27. I want to use more DT in my English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>28. The school administration has done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td></td>
<td>The teacher training institution has done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>29.</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>The district/state/national educational bodies have done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
</tr>
</tbody>
</table>


Appendix 2 – Interview questions

First session

Semi-Structured Interview Questions

First Interview Questions

Thank you very much for making time for the interview.
Do I have permission to audio record this interview?
[Press “record” on the audio recorder. State name, date, and context.]

I will start this interview by asking some questions about your personal, as well as your professional background. Are you ready?

Personal and Professional Backgrounds
Please tell me about yourself.
Please describe your educational background.
What does ‘professionalism’ mean to you?
Please describe the history of your professional background as an English teacher.
- How did you become a teacher?
- Why did you choose to be a teacher?
- Why English teacher?

English Literacy Instruction

Please tell me about your job.
- What do you have to do when teaching the English language?
- Please describe the routines as an English teacher.
- Please describe the normal situation in your English learning session.
- What is your belief about how to teach English effectively?
- How would you define ‘English language literacy instruction?’
- What aspects of the teaching of English (writing / grammar / reading etc.) that you enjoy the most? Why?
- How do your knowledge and life experiences prepare you to teach English Literacy Instruction?
- How many times do you teach English literacy in a day/week?
- What do you normally expect the students to achieve from your English literacy instruction?

Access to and Use of ICT

Thank you so much for sharing on your personal background, professional background, as well as your thoughts about English literacy instruction. Next, let’s talk about the background of your use of ICT.

Can you recall your first experience using ICT?  
What types of ICT do you use at home?  
How do you use them, and how often?  
What types of ICT do you think your students use at home?  
- How do they use them, and how often?  
Do your students use the same types of ICT as you? Why, or why not?  
- If so, how do they use them, and how often?  
Have you ever experienced any memorable experiences while using ICT in literacy instruction?

Definition(s) of ICT

What is your definition of ICT?  
- What can be considered as ICT, and what are the criteria? Why?  
- When in your life/vocation did you come to this definition/realization of ICT?

In the following meeting session, would you be able to please bring an ICT device/tool that best characterize your thoughts regarding and utilisation of ICT in your English literacy instruction?  
Are there any thoughts or comments that you might want to include before we end our meeting today?
In the future, would I be able to catch up with further inquiries by email or telephone call to get elucidation on your use of ICT in English literacy instruction?

Thank you so much for your willingness to spend time with me today.
Second session

Stimulated recall interview

Thank you very much for making time for the interview.
Do I have permission to audio record this interview?
[Press “record” on the audio recorder. State name, date, and context.]

Instructional Observations (Uses)
When I observed your instruction in classroom X, on X day/X date/X time:
- I noticed you were doing X with X technology. Can you tell me more about how and why you were doing X with X technology?
- I noticed in your instruction that you were using X technology in a certain way. Can you tell me why were you using X technology that way?
- What were you thinking when you were doing X activity using X technology?
- How did you come up with such an activity using X technology?
- How did you come to this realization with regards to X technology?
- How do you choose the type of ICT in your instruction?
- How did you come to the point of using X technology with your students?
- What other ICT could you use in that lesson? Why so?
- What non-ICT teaching materials/aids/tools could you use in that instruction?
- How would the instruction differ as compared to using ICT?

Are there any thoughts or comments that you might want to include before we end our meeting today?
In the future, would I be able to catch up with further inquiries by email or telephone call to get elucidation on your use of ICT in English literacy instruction?
Thank you so much for your willingness to spend time with me today.
Third session

During-Instruction Interview Questions

Thank you very much for making time for the interview.
Do I have permission to audio record this interview?
[Press “record” on the audio recorder. State name, date, and context.]

Definition(s) of ICT (Revisited)
Last time I requested you to bring an ICT device/tool that best characterize your thoughts regarding and utilisation of ICT in your English literacy instruction. I am delighted to see you brought it with you today.
So, would you be able to let me know a touch about this ICT tool, i.e., your utilisation of it, and how it best catches your thoughts regarding and utilisation of ICT in English literacy instruction?
In the past meeting we talked a tiny bit about your personal and professional backgrounds, as well as your use of ICT. We should now talk a tad bit about your preparation for English literacy instruction, your trainings on ICT, and your ICT usage in English literacy instruction.

Preparations of Instruction.

How would you normally get ready or prepare for an English literacy lesson?
How would you normally get ready or prepare for an English literacy lesson when using ICT?
Depict your vision of a perfect English literacy lesson.
- Do you generally accomplish this vision when you teach? Why, or why not?
- How does ICT fit into this vision? At the end of the day, does ICT assist or hinder you from accomplishing this vision?

Education/Training on ICT
- Do you think that your early schooling experience has an impact on your current teaching? If so, in what way?
Have you attempted to find out about ICT on your own?
- If so, what ICT did you attempt to learn (or did you learn)?
- If so, how did you train yourself to use ICT? How did it go?
- If so, why did you choose these technologies to learn on your own?

Were you trained to use ICT to teach English while you were in the teacher training institution?
- If so, what were you taught to do and how?
- If so, are you using ICT in your English literacy instruction? How did it go?

What in-service professional development training have you done on ICT in English education?
- How many training sessions have you gone to, and what were they about?
- Are you using any of this training on ICT in your English literacy instruction? How did it go?

What is the most current training session in which you received ICT training in English education? Tell me about it.
- Are you using any of this training on ICT in your English literacy instruction? How did it go?

Have you received any training on ICT in English education from your peers (or other people)?
- Are you using any of this training on ICT in your English literacy instruction? How did it go?

ICT in English literacy Instruction

When did you begin to use ICT in English literacy instruction? How did it go?
- Is your current use of ICT in English literacy instruction different than when you initially began using it? If so, how?
- Is your current knowledge of ICT in English literacy instruction more developed than when you initially began using it? If so, how?

What do you think about someone who uses ICT in English literacy instruction?
What do you think about your own use of ICT in English literacy instruction?
What is the role of ICT in your English literacy classroom? Why so?
How often do you use ICT in your English literacy classroom?
For you, what metaphor/analogy best captures the idea of using ICT in English literacy instruction?

If you could redesign your classroom space to best use ICT in English literacy instruction, what would your classroom look like? Could you use this paper to draw it for me, and bring the drawing in the next interview session?

Are there any thoughts or comments that you might want to include before we end our meeting today?

In the future, would I be able to catch up with further inquiries by email or telephone call to get elucidation on your use of ICT in English literacy instruction?

Thank you so much for your willingness to spend time with me today.
Fourth session

Stimulated recall interview

Thank you very much for making time for the interview. Do I have permission to audio record this interview? [Press “record” on the audio recorder. State name, date, and context.]

*Instructional Observations (Uses)*

When I observed your instruction in classroom X, on X day/X date/X time:
- I noticed you were doing X with X technology. Can you tell me more about how and why you were doing X with X technology?
- I noticed in your instruction that you were using X technology in a certain way. Can you tell me why were you using X technology that way?
- What were you thinking when you were doing X activity using X technology?
- How did you come up with such an activity using X technology?
- How did you come to this realization with regards to X technology?
- How do you choose the type of ICT in your instruction?
- How did you come to the point of using X technology with your students?
- What other ICT could you use in that lesson? Why so?
- What non-ICT teaching materials/aids/tools could you use in that instruction?
- How would the instruction differ as compared to using ICT?

Are there any thoughts or comments that you might want to include before we end our meeting today?

In the future, would I be able to catch up with further inquiries by email or telephone call to get elucidation on your use of ICT in English literacy instruction? Thank you so much for your willingness to spend time with me today.
Fifth interview

Fifth Interview Questions

Thank you very much for making time for the interview.
Do I have permission to audio record this interview?
[Press “record” on the audio recorder. State name, date, and context.]

Today, I would like to talk to you about your practices of, reflections on, and concerns about the use of Information and Communication Technology (ICT) in English literacy instruction. May I ask you some questions?
ICT in English literacy Instruction (Revisited)
Last time I asked if you could show in drawing how you could redesign the classroom space to best use ICT in English literacy instruction. I am happy to see you brought it with you today.
So, can you tell me a bit about this drawing, i.e., how would you use the classroom space to best use ICT in English literacy instruction?
Instructional Practices (Rationalizations and Reflections)
What are the most important things that you consider before, during, and after teaching English literacy? Why?
Are there any differences to these important aspects that you consider before, during, and after teaching English literacy when using ICT? If so, how are they different, and why?
When you use ICT in English literacy instruction, how do your students respond?
- Is their response different from when you are not using ICT? Why, or why not?
Do you think your students benefit from the use of ICT in English literacy instruction? Why?

Concerns/Challenges
What are your concerns when teaching English literacy? Why do you have these concerns?
- How have you been addressing these concerns in your teaching?
- How do you intend to further address these concerns in your teaching?
What are your concerns when using ICT in English literacy instruction? Why do you have these concerns?
- How have you been addressing these concerns in your teaching?
- How do you intend to further address these concerns in your teaching?

Professional Development
Are you satisfied with the way you currently teach English literacy? Why or why not?
Are there any aspects in your English literacy instruction that you want to improve?
- If so, what are they, and how do you intend to improve them?
Are you satisfied with your competency with ICT in English literacy instruction?
- Are you satisfied with your current use of ICT in English literacy instruction?
- What aspects of ICT would you like to learn more about or improve on?
- What ICT would you like to use more of in your English literacy instruction?

Are there any thoughts or comments that you might want to include before we end our meeting today?
In the future, would I be able to catch up with further inquiries by email or telephone call to get elucidation on your use of ICT in English literacy instruction?
Thank you so much for your willingness to spend time with me today.
Appendix 3 - Letter of Informed Consent (Teachers)

Malaysian Primary School Teachers’ Use of and Cognitions about Digital Technology for Literacy Instruction: A Case-based Investigation

(Researcher’s details)

(Date)

Dear Teacher,

My name is (name), and I am a Ph.D. candidate at (university). I am currently doing research on how English language teachers use Information and Communication Technology (ICT) to teach English literacy. The purpose of this study is to examine the nature of teachers’ cognition about and DT English literacy instruction. I believe that researchers, teacher educators, school administrators, and teachers will be able to use this information to help pre-service and in-service teachers in their training and professional development for teaching English literacy.

I request your participation in this research which will be conducted from ....................... to ..................... In this research, you will be observed and interviewed regarding the uses of DT in English literacy instruction.

Your name, other teachers, and the administrative staff will not be used. Identification codes will be used on all records. The data from this study and the master list of names and identification codes will be kept in separate locked filing cabinets. Only (university)’s Institutional Review Board (in the case of an audit), my research supervisor (name), and members of the research committee will have access to the information. The school and your confidentiality will be protected to the maximum extent allowable by law. The research data will be retained for a period of 10 years after the close of the research study.
You can indicate your participation in this study by signing one copy of this letter and returning it to me. Your participation is entirely voluntary. There is no penalty for refusing to participate, and you may choose not to answer any question or to stop participating at any time. If, after you sign and return the letter, you change your mind, simply let the researcher ((name), contact information is provided below) know, and you will not be asked to participate. There are no known major risks associated with participating in this study. If you have concerns or questions about this study, such as its scientific issues or to report an injury, please contact the researcher (name and contact details) or his research supervisor (supervisor’s name and contact details).

Thank you,

(name)
Ph.D. Candidate, (university)

By signing this form, I agree to participate in this study as outlined above.

_______________________________                            __________________________
(Signature)                           (School)

_______________________________                           _________________
(Printed Name and Position)                   (Date)
Appendix 4 - Students’ consent letters

Malaysian Primary School Teachers’ Use of and Cognitions about Digital Technology for Literacy Instruction: A Case-based Investigation

(Researcher’s details) \hspace{2cm} (date)

Dear Sir/Madam,

My name is (name), and I am a Ph.D. candidate at (university). I am currently doing research on the nature of teachers’ cognition about and use of DT in English literacy instruction.

I request your child’s participation in this research which will be conducted from (date). In this research, your child will answer a questionnaire and probably be interviewed regarding their background and their English teachers’ uses of DT in English literacy instruction. The real identity or your child, the school, the teachers, or the administrators will not be used. Identification codes will be used on all records. The data from this study and the master list of names and identification codes will be kept in separate locked filing cabinets. Only (university name)’s Institutional Review Board (in the case of an audit), my research supervisor (supervisor’s name), and members of the research committee will have access to the information. The school and your confidentiality will be protected to the maximum extent allowable by law. The research data will be retained for a period of 10 years after the close of the research study.

You can indicate your child’s participation in this study by signing one copy of this letter and returning it to me. Your participation is entirely voluntary, and it is not in any way related to the school your child is studying in. There is no penalty for refusing to participate, and you may choose not to answer any question or to stop participating at any time. If, after you sign and return the letter, you change your mind, simply let the researcher (name) know, and you will not be asked to participate. There are no known major risks associated with participating in this study. If you have concerns or questions about this study, such as its scientific issues or to report an
injury, please contact the researcher (name), (phone number); (e-mail address)) or his research supervisor (Supervisor’s details).

Thank you, 

(Name)  
Ph.D. Candidate, (University)

By signing this form, I agree to allow my child, ____________________________,  
(I/C No:___________________________  ) to participate in this study as outlined above.

………………………………………….                   ……………………………………
(Signature)                  (School)
………………………………………….                                 …………………………
(Name)                          (Date)
Appendix 5 - Students’ Questionnaire

Age:…………………………… Year/Class:…………………………
Gender: Male / Female
Language(s): ……………………………………………………………………………..
Race/Ethnicity: .................. Religion: .................
Place of Origin: ..................
Father’s occupation: ................Father’s monthly salary: RM..............
Mother’s occupation: ..............Mother’s monthly salary: RM..............

Please answer the questions below:

1. Please list down the DT that you have at home.

2. Do you use DT? And if yes, for what purpose? Please elaborate.

4. Do you think the use of DT in the English literacy classroom helps you to learn better? Please elaborate.

5. Do you have any comment(s) or recommendation(s) about the use of DT in your English literacy classroom?
Appendix 6 - Teacher’s Uses of DT in Literacy Instruction Form

Teacher’s name:

Class:

Date/Day: Time:

Number of students:

Theme:

Topic:

Lesson Objectives: 1)

2)

3)

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<tr>
<th>Stages</th>
<th>Activities</th>
<th>Notes/Comments</th>
</tr>
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<td>Introduction</td>
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<tr>
<td>Instruction</td>
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<td></td>
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</tbody>
</table>
Digital Technology used:

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<th>No.</th>
<th>Equipment(s)</th>
<th>How it was used</th>
<th>Notes/Comments</th>
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Notes:
Appendix 7 - Example of data analysis

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<th>Professionalism</th>
<th>Educational Background</th>
<th>Preparations for teaching</th>
<th>DT knowledge</th>
<th>Confidence in English</th>
<th>Confidence in DT use</th>
<th>Professional duties</th>
<th>DT use in Malaysian Education</th>
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</thead>
<tbody>
<tr>
<td>Training in English</td>
<td>Personal use of DT</td>
<td>Influence of past experience</td>
<td>Convenient to use</td>
<td>Negative impact of using DT in LI</td>
<td>Ideal classroom</td>
<td>Make lessons fun</td>
<td>Positive cognition</td>
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<td>Training in DT</td>
<td>Details about the students</td>
<td>Cognition about EL</td>
<td>Cognition about DT</td>
<td>Use of DT for LI</td>
<td>Teaching practices in EL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### A. Nadia

**Coding Density**

- **Someone** speaks English, good English is written in full English, good English, and then people start saying ‘eh, kita tak cekap Bahasa Melayu, kan orang Melayu and stuff’. So there’s a kind of mentality that still very strong in Malaysia, which is something that hinders the progress of our children’s English proficiency level. Sometimes, we try to make them speak Bahasa Malaysia, but that’s not the English I mean. Back when I was a little girl, I watched cartoons in English. I think that’s something that would help me learn English better. I get a lot of my inspiration from them. So, when I listen and then I’m initialized the things that I’ve heard, but there’s, nowadays, they have Astro, they have cartoons, and they can switch. The cartoon is supposed to speak English. I know Mickey Mouse speaks English, but suddenly, Mickey Mouse speaks Malay, you just need to switch it. You just press a few buttons and then it stops speaking. So that would be the biggest challenge of teaching English in Malaysia. So about being professional as an English teacher, what does professionalism mean to you? What does that mean to you? What does that mean to you? What does professional Mean to you? What does professionalism mean to you?
Appendix 8 – Nadia’s questionnaire

Questionnaires

Name: [redacted]
Age: 29
Gender: FEMALE
Language(s): MALAY LANGUAGE, ENGLISH
Race/Ethnicity: MALAY
Place of Origin: [redacted] B.Ed., TESL
Education level: Teaching Certification / Dip. Education / B.A. Education / M.A.
Other: B.Ed., TESL
Major: ENGLISH
Minor: LITERATURE
Teaching Certification: National Teaching Certification etc. (e.g., KPLI) (Please circle one)
Education Institution: [redacted]
Year of Graduation: 2010
Current School: [redacted]
Teaching Experience: 6 years
Contact Number(s): Handphone: [redacted] Office: [redacted]
Home: [redacted]
Email Address: [redacted]
Office Location: [redacted]

Current Assigned Teaching Duties:

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<th>Standard/Grade</th>
<th>Course</th>
<th>Student's academic achievement</th>
<th>Student's English Proficiency Level</th>
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</table>

292
If it is not too much trouble, please list the sorts of Digital Technology that you have at home and at your office/work area, and rate your recurrence/frequency in utilizing them.

1 – Very Seldom  2 – Seldom  3 – Often  4 – Very Often

Digital technology at work/office:

<table>
<thead>
<tr>
<th>No.</th>
<th>Digital technology</th>
<th>Purpose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(work / personal / study etc.)</td>
<td>(Please circle)</td>
</tr>
<tr>
<td>1.</td>
<td>computer</td>
<td>work, study</td>
<td>(circle)</td>
</tr>
<tr>
<td>2.</td>
<td>email</td>
<td>work, study</td>
<td>(circle)</td>
</tr>
<tr>
<td>3.</td>
<td>whatsapp</td>
<td>work</td>
<td>(circle)</td>
</tr>
<tr>
<td>4.</td>
<td>facebook</td>
<td>work, personal</td>
<td>(circle)</td>
</tr>
<tr>
<td>5.</td>
<td>telegram</td>
<td>work</td>
<td>(circle)</td>
</tr>
</tbody>
</table>
### Digital technology at home:

<table>
<thead>
<tr>
<th>No.</th>
<th>Digital technology</th>
<th>Purpose (work / personal / study etc.)</th>
<th>Frequency (Please circle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>laptop</td>
<td>work, personal, study</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2.</td>
<td>instagram</td>
<td>personal</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3.</td>
<td>facebook</td>
<td>personal</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4.</td>
<td>whatsapp</td>
<td>personal</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5.</td>
<td>telegram</td>
<td>work, personal</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
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<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Digital Technology (DT)</td>
<td>Response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I always use DT even before becoming a teacher.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I frequently use DT every day.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am exceptionally comfortable with utilizing DT.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I am extremely capable with utilizing DT.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I attempt to find out about DT on my own.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training in DT</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I figured out how to utilize DT in literacy instruction on my own</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7. I figured out how to utilize DT in literacy instruction from my peers.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>8. I usually use DT for literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>9.</td>
<td>I always receive in-service training on how to use DT in literacy instruction.</td>
</tr>
<tr>
<td>10.</td>
<td>The DT in English literacy instruction training from the in-service teacher training sessions are sufficient for me.</td>
</tr>
<tr>
<td><strong>Use of DT in English Literacy Instruction</strong></td>
<td><strong>Response</strong></td>
</tr>
<tr>
<td>11.</td>
<td>I am exceptionally comfortable with utilizing DT as a part of English literacy instruction.</td>
</tr>
<tr>
<td>12.</td>
<td>I am very capable with utilizing DT as a part of English literacy instruction.</td>
</tr>
<tr>
<td>13.</td>
<td>I frequently utilize DT in my English literacy instruction.</td>
</tr>
<tr>
<td>14.</td>
<td>I utilize DT that I learned all alone in my English literacy instruction.</td>
</tr>
<tr>
<td>15.</td>
<td>I utilize DT that I learned from my peers in my English literacy instruction.</td>
</tr>
<tr>
<td>16.</td>
<td>I utilize DT that I learned during my teacher training in my literacy instruction.</td>
</tr>
<tr>
<td>17.</td>
<td>I utilize DT that I learned from the in-service teacher training session(s) in my English literacy instruction.</td>
</tr>
<tr>
<td>18.</td>
<td>DT assumes a vital part in my English literacy lesson preparations.</td>
</tr>
<tr>
<td>19.</td>
<td>DT assumes a vital part in my English literacy lesson instruction.</td>
</tr>
<tr>
<td>20.</td>
<td>DT assumes a vital part in my English literacy lesson assessments.</td>
</tr>
<tr>
<td>Worries about DT in literacy instruction</td>
<td>Response</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>21. I have worries over the utilization of DT in English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>22. The school organization has done well to lighten my worries, particularly concerning utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>23. The district/state/national educational bodies have done well to ease my worries, particularly with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>24. The teacher education institution has done well to ease my worries, particularly with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td><strong>Professional Development</strong></td>
<td><strong>Response</strong></td>
</tr>
<tr>
<td>25. I am pleased by my present understanding of DT in English literacy instruction.</td>
<td>1 2 3 4</td>
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<td>26. I want to learn more about DT in English literacy instruction.</td>
<td>1 2 3 4</td>
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<tr>
<td>27. I want to use more DT in my English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>28. The school administration has done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>29. The teacher training institution has done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
The district/state/national educational bodies have done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.
Appendix 9 – Izzue’s questionnaire

Questionnaires

Name: .................................................................

Age: 31

Gender: Male

Language(s): Malay and English

Race/Ethnicity: Malay

Place of Origin: .................................................................

Education level: Teaching Certification / Dip. Education / B.A. Education / M.A.

Other: .................................................................................

Major: B. ED TESL ................................................................

Minor: .................................................................................

Teaching Certification: National Teaching Certification etc. (e.g., KPLI) (Please circle one)

Education Institution: .................................................................

Year of Graduation: 2010 ..................................................

Current School: ................................................................

Teaching Experience: ............. years

Contact Number(s): Handphone: ......................... Office: .........................

Home: .........................

Email Address: ................................................................

Office Location: ................................................................

Current Assigned Teaching Duties:

<table>
<thead>
<tr>
<th>Standard/Grade</th>
<th>Course</th>
<th>Student’s academic achievement</th>
<th>Student’s English Proficiency Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

299
If it is not too much trouble, please list the sorts of Digital Technology that you have at home and at your office/work area, and rate your recurrence/frequency in utilizing them.

1 – Very Seldom 2 – Seldom 3 – Often 4 – Very Often

Digital technology at work/office:

<table>
<thead>
<tr>
<th>No.</th>
<th>Digital technology</th>
<th>Purpose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(work / personal / study etc.)</td>
<td>(Please circle)</td>
</tr>
<tr>
<td>1.</td>
<td>Laptop</td>
<td>Personal / work</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2.</td>
<td>Email</td>
<td>Personal / work</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3.</td>
<td>WhatsApp</td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4.</td>
<td>Facebook</td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5.</td>
<td>Telegram</td>
<td></td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
### Digital technology at home:

<table>
<thead>
<tr>
<th>No.</th>
<th>Digital technology</th>
<th>Purpose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Laptop</td>
<td>Personal, work</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2.</td>
<td>WhatsApp</td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3.</td>
<td>Facebook</td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4.</td>
<td>Telegram</td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5.</td>
<td>Email</td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kindly respond to the questionnaire as indicated by the scale underneath.

1 – Strongly Disagree    2 – Disagree    3 – Agree    4 – Strongly Agree

### Use of Digital Technology (DT)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I always use DT even before becoming a teacher.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2.</td>
<td>I frequently use DT every day.</td>
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<td>1 2 3 4</td>
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<tr>
<td>5.</td>
<td>I attempt to find out about DT on my own.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

### Training in DT

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>I figured out how to utilize DT in literacy instruction on my</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td></td>
<td>own</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I figured out how to utilize DT in literacy instruction from my peers.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>8.</td>
<td>I usually use DT for literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
9. I always receive in-service training on how to use DT in literacy instruction.

10. The DT in English literacy instruction training from the in-service teacher training sessions are sufficient for me.

**Use of DT in English Literacy Instruction**

11. I am exceptionally comfortable with utilizing DT as a part of English literacy instruction.

12. I am very capable with utilizing DT as a part of English literacy instruction.

13. I frequently utilize DT in my English literacy instruction.

14. I utilize DT that I learned on my own, in my English literacy instruction.

15. I utilize DT that I learned from my peers in my English literacy instruction.

16. I utilize DT that I learned during my teacher training in my literacy instruction.

17. I utilize DT that I learned from the in-service teacher training session(s) in my English literacy instruction.

18. DT assumes a vital part in my English literacy lesson preparations.

19. DT assumes a vital part in my English literacy lesson instruction.

20. DT assumes a vital part in my English literacy lesson assessments.
<table>
<thead>
<tr>
<th>Worries about DT in literacy instruction</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I have worries over the utilization of DT in English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>22. The school organization has done well to lighten my worries, particularly concerning utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
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<tr>
<td>23. The district/state/national educational bodies have done well to ease my worries, particularly with respect to utilizing DT as a part of English literacy instruction.</td>
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<td>24. The teacher education institution has done well to ease my worries, particularly with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Development</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. I am pleased by my present understanding of DT in English literacy instruction.</td>
<td>1 2 3 4</td>
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<td>28. The school administration has done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>29. The teacher training institution has done well in improving my professionalism with respect to utilizing DT as a part of English literacy instruction.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
30. The district/state/national educational bodies have done well in improving my professionalism with respect to utilizing IT as a part of English literacy instruction.
Appendix 10 – Azman’s questionnaire

First session
Questionnaires

Name: [Redacted]
Age: [Redacted]
Gender: M
Language(s): Bahasa Malaysia & English
Race/Ethnicity: Malay
Place of Origin: [Redacted]
Education level: Teaching Certification / Dip. Education / B.A. Education / M.A.
Other: 
Major: English
Minor: Science
Teaching Certification: National Teaching Certification etc. (e.g., KPLI) (Please circle one)
Education Institution: [Redacted]
Year of Graduation: 2011
Current School: [Redacted]
Teaching Experience: 5 years
Contact Number(s): Handphone: [Redacted] Office: [Redacted]
Home: [Redacted]
Email Address: [Redacted]
Office Location: [Redacted]

Current Assigned Teaching Duties:
<table>
<thead>
<tr>
<th>Standard/Grade</th>
<th>Course</th>
<th>Student’s academic achievement (High / Intermediate / Low)</th>
<th>Student’s English Proficiency Level (Beginner / Intermediate / Advanced)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4</td>
<td>ENGLISH</td>
<td>INTERMEDIATE</td>
<td>BEGINNER</td>
</tr>
<tr>
<td>S5</td>
<td>ENGLISH</td>
<td>INTERMEDIATE</td>
<td>BEGINNER</td>
</tr>
<tr>
<td>S6</td>
<td>ENGLISH</td>
<td>INTERMEDIATE</td>
<td>BEGINNER</td>
</tr>
</tbody>
</table>

If it is not too much trouble, please list the sorts of Information and Communication Technology (ICT) that you have at home and at your office/work area, and rate your recurrence/frequency in utilizing them.

1 – Very Seldom  2 – Seldom  3 – Often  4 – Very Often

**ICT at work/office:**

<table>
<thead>
<tr>
<th>No.</th>
<th>ICT</th>
<th>Purpose (work / personal / study etc.)</th>
<th>Frequency (Please circle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Notebook</td>
<td>work</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2.</td>
<td>LCD</td>
<td>work</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3.</td>
<td>DSLR Camera</td>
<td>work</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>No.</td>
<td>ICT</td>
<td>Purpose</td>
<td>Frequency</td>
</tr>
<tr>
<td>-----</td>
<td>--------------</td>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>1.</td>
<td>SMART PHONE</td>
<td>PERSONAL</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2.</td>
<td>SMART TV</td>
<td>PERSONAL</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3.</td>
<td>MICROPHONES</td>
<td>PERSONAL</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4.</td>
<td>DSLR CAMERA</td>
<td>PERSONAL</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5.</td>
<td>PRINTER</td>
<td>PERSONAL / STUDY</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

**ICT at home:**
Kindly respond to the questionnaire as indicated by the scale underneath.

1 – Strongly Disagree    2 – Disagree    3 – Agree    4 – Strongly Agree

<table>
<thead>
<tr>
<th>Use of ICT</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I always use ICT even before becoming a teacher.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. I frequently use ICT every day.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3. I am exceptionally comfortable with utilizing ICT</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4. I am extremely capable with utilizing ICT</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5. I attempt to find out about ICT on my own.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training in ICT</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I figured out how to utilize ICT in literacy instruction on my own</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7. I figured out how to utilize ICT in literacy instruction from my peers.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td></td>
<td>Use of ICT in English Literacy Instruction</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>8.</td>
<td>I usually use ICT for literacy instruction.</td>
</tr>
<tr>
<td>9.</td>
<td>I always receive in-service training on how to use ICT in literacy instruction.</td>
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<tr>
<td>10.</td>
<td>The ICT in English literacy instruction training from the in-service teacher training sessions are sufficient for me.</td>
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<td>ICT assumes a vital part in my English literacy lesson preparations.</td>
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</table>
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<table>
<thead>
<tr>
<th>Worries about ICT in literacy instruction</th>
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</thead>
<tbody>
<tr>
<td>21. I have worries over the utilization of ICT in English literacy instruction.</td>
</tr>
<tr>
<td>22. The school organization has done well to lighten my worries, particularly concerning utilizing ICT as a part of English literacy instruction.</td>
</tr>
<tr>
<td>23. The district/state/national educational bodies have done well to ease my worries, particularly with respect to utilizing ICT as a part of English literacy instruction.</td>
</tr>
<tr>
<td>24. The teacher education institution has done well to ease my worries, particularly with respect to utilizing ICT as a part of English literacy instruction.</td>
</tr>
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<table>
<thead>
<tr>
<th>Professional Development</th>
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<tbody>
<tr>
<td>25. I am pleased by my present understanding of ICT in English literacy instruction.</td>
</tr>
<tr>
<td>26. I want to learn more about ICT in English literacy instruction.</td>
</tr>
<tr>
<td>27. I want to use more ICT in my English literacy instruction.</td>
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<tr>
<td>28. The school administration has done well in improving my professionalism with respect to utilizing ICT as a part of English literacy instruction.</td>
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<td>30.</td>
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</table>
Appendix 11- Research setting field note

RESEARCH SETTING FIELD NOTE

School name:

No. of students:

No of teachers:

Descriptions:
### Classroom Environment And Basic Amenities

<table>
<thead>
<tr>
<th>No.</th>
<th>Facilities</th>
<th>Vol.</th>
<th>Comments</th>
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</thead>
<tbody>
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</table>
**DT amenities**

<table>
<thead>
<tr>
<th>No.</th>
<th>Facilities</th>
<th>Vol.</th>
<th>Comments</th>
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</table>
*I took pictures of all the important rooms and areas around the each school.

*I listed and counted all the basic and digital technology amenities around each school.

*I also collected some data about the school (i.e., school background, number of students, number of staffs etc.)
Appendix 12- Classroom Environment and DT Equipment field note sample

Classroom environment and DT equipment.

Date: 1/8/2016

Teacher: [Name]
Standard: 4 Bepanhi
Level: Mixed
No. Students: 13 boys, 12 girls (2 absent)

Classroom setting - computer lab
1. Teachers’ desk - in front of the classroom
2. Students’ accommodation: - 22 desks - 17 PCs
   - not enough for all
   - Some students had to share.

* Pictures taken.

Students’ seating arrangements:

[Diagram of classroom setup with labels for whiteboard, desk, PCS, students, and various equipment like printer, scanner, speaker, Laptop, Portable LCD projector, LCD projector, and Broken PCs]
DT equipment:

- 1 Laptop (personal)
- 1 portable LED projector
- 17 PCs (desktop computers)
- 5 broken PCs
- 1 LED projector screen
- Internet connection (wireless and cable)
- 1 printer
- 1 scanner
- 100+ Instructional CDs/DVDs
- 2 CD/DVD/MP3 players
- 1 speaker system
- 32 netbooks

Instructional Materials:

- 1 white board (magnetic)
- 6 book shelves
- 7 Notice / bulletin boards
- Visual aids / diagrams / realia.
- Educational textbooks / books
- Writing resources
- Guide books

* Pictures taken
Appendix 13- Samples of teachers’ lesson plans

<table>
<thead>
<tr>
<th>No.</th>
<th>Minggu / Hari / Tarih</th>
<th>41 / Sunday / 9.10.16</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Kelas / Masa / Jam Pembelajaran</td>
<td>8:30 - 12:30 / ENGLISH</td>
</tr>
<tr>
<td>3</td>
<td>Tema / Tajuk Standard Pembelajaran</td>
<td>World Of Knowledge / Animals in the Farm</td>
</tr>
<tr>
<td>4</td>
<td>Objektif Pembelajaran</td>
<td>Pupils should be able to enjoy singing a song about animals in the farm</td>
</tr>
<tr>
<td>5</td>
<td>Aktiviti PDP</td>
<td>1. Teacher reviews previous lesson.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Spelling exercises</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Teacher introduces a song using his phone</td>
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<tr>
<td></td>
<td></td>
<td>5. Teacher demonstrates how to sing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Pupils sing along with teacher.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Pupils sing with body gestures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Pupils sing along with music using teacher’s phone.</td>
</tr>
<tr>
<td>6.1</td>
<td>Tujuan / Niat</td>
<td>Singing along.</td>
</tr>
<tr>
<td>6.2</td>
<td>EMK / KB / BCB</td>
<td>Cooperation.</td>
</tr>
<tr>
<td>7</td>
<td>Bahan Bantu / Mengajar</td>
<td>Song / Radio / Phone</td>
</tr>
<tr>
<td>8</td>
<td>Pemilihan PDP / Pintaksiran PDP</td>
<td>Teacher’s observation</td>
</tr>
<tr>
<td>9</td>
<td>Refleksi / Impak dan Kerja Rumah</td>
<td>AHT: 17/30</td>
</tr>
<tr>
<td>No.</td>
<td>Minggu / Hari / Tarikh:</td>
<td>1. Sunday / 9.10.16</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2</td>
<td>Klas / Masa / Mata Pelajaran:</td>
<td>9:00-10:00 / ENGLISH</td>
</tr>
<tr>
<td>3</td>
<td>Tema / Taju Standard Pembelajaran:</td>
<td>World of Knowledge / Interesting Places in Muar.</td>
</tr>
<tr>
<td>4</td>
<td>Objekt Pembelajaran:</td>
<td>Pupils should be able to write a postcard sharing information about interesting places in Kota Muar.</td>
</tr>
</tbody>
</table>
| 5   | Aktiviti PDP: | 1. Teacher recaps previous lesson.  
2. Teacher asks for pupils thought.  
3. Pupils complete the mind map.  
4. Teacher demonstrates on how to write a message to a friend.  
5. Pupils pick 3 places only and complete the message using Frog VLE.  
6. Chain reading. |
<p>| 6   | Pengisian Kurikulum: | |
| 6.1 | Ilmu / Nilai | Writing postcard. |
| 6.2 | EMK / KB / BCB | Entrepreneurship. |
| 7   | Bahan Bantu Mengajar: | Postcard / Frog VLE |
| 8   | Pengajaran PDP / Pertaksiran PDP: | Context / Checking |
| 9   | Refleksi / Impak dan Kinerja Rumah: | AH1 : 25/25 |</p>
<table>
<thead>
<tr>
<th>No</th>
<th>Date / Time / Day</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>56 / Sunday / 9.9.16</td>
<td>9:00 - 10:00 / ENGLISH</td>
</tr>
</tbody>
</table>

**Tema / Tema Standard Pembelajaran:**
World of Knowledge / Reuse and recycle.

**Objektif Pembelajaran:**
- Pupils should be able to identify a few ways to reuse an empty bottle.
- With teacher's guidance.

**Aktiviti PDP:**
1. Teacher introduces recycle to pupils.
2. Pupils give their thoughts about recycle.
3. Pupils guess items at their house that can be recycled.
4. Teacher introduces 'reuse' term.
5. Pupils volunteer to share ideas.
6. Teacher shows an item and pupils will find a way to reuse the item.
7. Speed dating activity.
8. Teacher shows video to pupils.

**Penilaian Kurikulum:**
6.1 Ilmu / Nilai
   Reuse and recycle.
   Cooperation.
   Pictures.

**Bahan Baru Mengajar:**
Teacher's observation.

**Penilaian PDP / Penilai PDP:**
All 19/10
Appendix 14- Sample of teaching observation field note

Field Data:
Observation 1
Computer Lab (22 students)
10.28

10:28 - Students still have problems logging into VLE FROG.
- Some students forgot to bring their card
- Some students forgot their passwords
- Some students have problems logging in the details
- Some problem students have poor computer literacy - they did not know ‘shift’ button, ‘enter’ etc.
- Took about 55 mins to go to the computer lab, and to log into VLE FROG.
- How to change the desktop/put Elsa's picture

   Digital technology used:

   - 12 pcs for students
   - Web browser, google
   - 1 pc for teacher
   - Google images
   - VLE FROG
   - Internet connection
   - LCD projector and screen

11.06 - teacher asked students to google 'ELSA', some students had problems doing that:
- Students were super excited looking at ELSA's pictures.
- Some students were distracted browsing the pictures.
- Some students did not understand 'right click, enter button, Poov typing skills'.
- Very slow progress. Had to stop after every step to help the students.
- Students are quite dependent on
the teacher.

11:09 am - Every step was slow, teacher had to check the students at every step.

- One student logged out automatically. Had to log in again.
  Took time.

11:45 am - Student managed to put Elsa's picture as the background of their VLE from page.

11:28 am - Save changes.

11:26 am - Log out / turn off computer.
Appendix 15 – Samples of teaching materials

1. Read aloud the Caption clearly. Be careful of the two words “read”.

2. Give the synonym for “story”.

3. Express “Dad, could you read me another story?” in a different way.

4. “that one” means ………………

5. Write another creative Caption for the Cartoon above.

---

1. Suggest what probably happened to the poor man.

2. Replace “stating my location” with another phrase.

3. What phrase can be used in place of “bombarded with”? 

4. “junk” can be substituted with

5. Write another creative Caption for the Cartoon.
Follow these steps...

Step 1: Read the question carefully.
Step 2: Circle the keywords.
Step 3: Analyse the questions and answers given.
Step 4: Do the distractors elimination process.
Circle the best answer.

Question 1

1. My sister’s hobby is collecting ________.

A. origami

B. pet

C. badges

D. music
Question 2
Write a story based on the pictures below. You may use the words given to help you. Write your answer in the space provided. Write your story between 80 to 100 words.

- volleyball
- friends
- evening
- beach
- near
- house

- cousins
- neighbours
- join
- play
- game

- tea
- snacks
- grandfather
- hungry
- return
This section consists of two questions. Answer one question only.
Bahagian ini mengandungi dua soalan. Jawab satu soalan sahaja.

Question 1
Write a story based on the picture below. You may use the words given to help you. Write your answer in the space provided. Write your story between 80 to 100 words.

Begin your story with:

It was the Mid-Autumn Festival. Mr Tan’s children are playing with lanterns outside their house. This…
**Name of the Activity**  
Weather

**Description**  
Write 'WEATHER' on the board and ask them to find new words from the letters as many as possible. (you will get surprised.)

**Language focus/aims**  
fun, generating words

---

**Name of the Activity**  
Speed up(Dictionary act)

**Description**  
Choose a passage two or one unit ahead and tell them that the person who manages to write most new words correctly he/she will win a bar of chocolate.(give 2 minutes)

**Language focus/aims**  
Indirect study of new vocabulary and they will be familiar to the vocabulary in that unit.