Learning with Smartphones: A Hermeneutic Phenomenological Study of Young People's Everyday Mobile Practices

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A Hermeneutic Phenomenological Study of Young People's Everyday Mobile Practices

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DECLARATION

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ABSTRACT

This study aims to understand how young people in Malaysia use their smartphones for learning and to uncover the meaning of these lived experiences. A review of the research literature reveals an apparent lack of theoretical and conceptual understanding of everyday mobile practices with regard to learning with smartphones. Applying the principles and practices of hermeneutic phenomenology, this study seeks to gain access to a phenomenon that is often subconscious and to interpret the participants' learning experiences. Hermeneutic phenomenological research methods comprised the use of interviews, and a written reflective exercise. 12 youths ranging from 16-19 years old, participated in 3 rounds of semi-structured interviews over a period of 6 months.

The findings reveal that participants' learning is associated with self-identity and management of their images; dependent on their perception of its value and subject to influences from their peers, parents and the community at large. This study's contribution lies in the discovery that for the participants, learning embedded in everyday mobile practices can be either serendipitous or purposive. Beyond the serendipitous and fragmentary learning of everyday mobile practices, there is evidence of deep, prolonged and purposive learning activities with the engagement lasting from 30 minutes to 4 hours per day. Both learning practices are characterized by personal agency, satisfaction and joy in the learning.

The findings would suggest the importance of understanding more about the different types of learning occurring with the use of smartphones, the values attached by learners to this learning and the transferability of such skills and knowledge across spaces, time and dimensions. Further research including careful qualitative studies is suggested to better theorize the phenomenon. Policy makers and education authorities should support a research agenda developed and aimed at theorizing learning with smartphones and other smart devices using a range of quantitative and qualitative approaches. These studies should relate to one another by focusing on developing knowledge and understanding of learning with smartphones and would enable policy makers and practitioners to develop more well-informed polices and strategies to enhance learning, either in the classroom or outside it.

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1. INTRODUCTION

1.1 RATIONALE AND AIMS

With the exponential growth in digital and mobile technologies, young people have increasing access to affordable and highly capable computing devices such as smartphones. Smartphones generally have multiple functions, serving as video recorders, camera phones and portable media players with high-resolution touchscreens. They run on mobile operating systems such as the Apple iOS, Google Android, and Windows Phone that can log on and accurately present standard web pages through protocols including wi-fi and 3G and indirectly through Bluetooth. Current advances in mobile applications (apps) and social software using Web 2.0 technologies (e.g., wikis, blogs, *Foursquare, YouTube, Instagram*) or social networking sites (e.g., *Facebook, Twitter*) have made smartphones more dynamic and ubiquitous and also promise more learning and teaching potential.

Mobile learning (m-learning) is more than simply learning with certain types of mobile technologies: through everyday practices of using the smartphone, learning can take place in formal and informal settings and in the boundary spaces in between. The focus of this study is on the use of smartphones for learning by young people in Malaysia and the meaning, value and significance of this learning that they accord to it.

My interest in mobile learning came from my work in educational management in Singapore and Malaysia. In my previous positions as Head of Department and Director of Studies, I was involved in policymaking and tasked with the implementation of technology-enhanced learning platforms. However, many of these technology-in-education initiatives failed because of the lack of motivation, ownership and interest from the teachers, lecturers and students. One impression that stayed with me was the difficulty and high cost of introducing technology into the classroom which became lost investment as

teachers and lecturers failed to adapt to the technology. This was exacerbated by the fact that the adoption time lagged far behind the technology development trajectory. Teachers trained in the use of interactive whiteboards and online learning platforms found that these technologies were soon replaced by 'smarter', more interactive social and mobile technologies and they were always 'playing catch-up.'

However, in smartphones, it is conceivable that teachers may have found the appropriate technological tool to aid them in the enhancement of teaching and learning. It is likely that many teachers would own and use such devices in their daily lives and hence, would find them less alienating to their practice. Of course, the school community, policy makers and teachers must first come to terms with the disruptive tendencies of the use of these devices (classroom management issues, perceived challenges to teaching practice), before policy and practice can be realised.

The convenience and user-friendliness of mobile apps have provided many smartphone users with ubiquitous access to learning with smartphones as seen in the various mobile apps used to learn languages, and a multitude of skills. However, there is a taken-for-granted quality to this learning in informal settings as it is intertwined with users' daily activities (Pachler et al., 2010a). Investigating learning using smartphones is important as it has implications for both formal and informal learning: knowledge, skills and competencies gained from these everyday mobile practices can be used to support learners' learning in formal and informal learning contexts.

My aim is to discover from the learners' perspectives how they use mobile technologies to learn in their daily lives in relation to their historical and cultural contexts, and to uncover the meaning of this learning. A study of the lived experiences of the participants in Malaysia would provide new understanding on young people's learning in everyday settings, the different types of learning occurring with the use of smartphones, the values attached by participants to this learning and the transferability of such skills and knowledge across spaces, time and dimensions. In addition, there appears to be no hermeneutic

phenomenological research in smartphone learning to date and this study would be able to furnish a rich, detailed picture of the phenomenon under study. The findings thus, would yield new understandings and insights that would prove useful to Malaysia and other countries as well especially in its implications for formal and informal learning.

1.2 RESEARCH QUESTIONS

Learning is a complex phenomenon and theories and conceptions of learning abound. The complexity is related to learners' cognitive processes and their interactions with society and culture (Gee, 2008). Learning is thus, multifaceted and context-dependent and at times, subconscious, automatic and unobservable (Pachler et al., 2010a, Gee, 2008). In investigating the learning phenomenon, the main question in this study is 'What does it mean to learn with smartphones?' As this question includes numerous embedded and overlapping phenomena, which required further exploration, the following sub-questions were investigated:

i. What is this experience of learning with smartphones like?
ii. How do the student participants perceive the nature of their learning with smartphones?
iii. How is the learning related to participants' identity formation, identity management and presentation of self?

1.3 SIGNIFICANCE OF RESEARCH PHENOMENON

1.3.1 Mobile Technologies and Their Impact

The use of mobile devices and technologies has grown so rapidly and their presences so ubiquitous that they are arguably redefining the ways in which people work, play, and learn (Traxler, 2009a). Gartner Research (2010) claims that there is possibly a 90% mobile penetration rate and 6.5 billion mobile connections worldwide by 2014. The business consultancy firm, Deloitte (2013) predicts that the smartphone would become a mass market

phenomenon in 2013, with annual sales rising to 1 billion globally for the first time. Originally marketed as entertainment and communication devices, these mobile devices and especially smartphones are now perceived as everyday objects and changing the landscape of how people live and learn (Sharples et al., 2007a, Shuler, 2009, Kukulska-Hulme et al., 2011).

In the TIME Mobility Poll 2012, 5,000 people of varying age groups and income levels from 8 countries (the United States of America (USA), the United Kingdom (UK), China, India, South Korea, South Africa, Indonesia and Brazil) were surveyed about their attitudes about mass mobility. The findings provide a snapshot of mass mobility attitudes and usage: that 1 in 4 people checked their mobile devices every 30 minutes, and 1 in 5 every 10 minutes. One third of the respondents declared that they felt anxious without their mobile phones for even short periods. This continual feed of news, and information that has been customized and are of personal relevance to users becomes a form of sustenance to the extent that 1 in 2 people would select their phone over their lunch if they had to choose one (TIME, 2012).

The Horizon Report (EDUCAUSE, 2011) notes that mobile devices are becoming progressively more popular as the principal means of accessing Internet resources and that it is improved access to networks that is driving this technology trajectory. Shuler (2009) observes that mobile devices in the United States of America (USA) are used in key sectors such as health, banking, politics and citizen journalism to improve productivity, build human capital, influence thinking, and stimulate innovation. The argument is that while these key sectors have shown significant advances in innovative use, the education sector is lagging behind despite the potential mobile devices have for changing the teaching and learning experience (Shuler, 2009, Crook, 2012).

The underlying assumptions in this discourse are that innovations of mobile technologies are beneficial to education, thus leading to an enhancement or transformation of teaching and learning. This is the dominant focus on mobile devices in much of mobile learning research and practice with computers and

technologies positioned as “artefacts to learn with, to learn through, and to learn about” (Bigum, 1998, p.588). In a review of trends of m-learning studies from 2003-2010, Wu et al. (2012) concluded that the majority of studies showed positive attitudes and outcomes in learning. M-learning projects investigated the use of mobile devices to augment teaching in the classroom (McFarlane et al., 2007, 2008, Nuutinen et al., 2010, Zurita and Nussbaumw, 2004). Larger scale projects such as MoMaths (South Africa) and Project K-Nect (USA) investigated the use of smartphones and mobile phones to make Mathematics more engaging and accessible to children (Project Tomorrow, 2012, Roberts and Vanska, 2011).

One critique of the mobile learning projects implemented in formal education is that mobile technologies and devices play the role of handmaiden in the classroom. The projects (McFarlane et al., 2007, 2008, Nuutinen et al., 2010, Zurita and Nussbaumw, 2004, Wu et al., 2012) while praiseworthy in their attempt to integrate mobile devices into classroom practices were for the most part, temporary and pilot projects. Arguably, teacher practices were never seriously ‘disrupted’ with these technologies and devices. Some authors (Tyack and Tobin, 1994, Arbelaiz and Gorospe, 2009) propose the concept of the “grammar of schooling” to explain the failure of technological implementations as teachers, parents and administrators have an internalised model of what a real school should be like and their traditional mindsets would resist innovations that they perceive to be disruptive. It remains to be seen if projects like MoMaths and Project K-Nect can be extended to larger school populations and be embraced by teachers and students as integral to their teaching and learning practices respectively.

The urgency and momentum arising from the debate of m-learning implementation in formal education are in part fuelled by business and industry interests. Telecommunication and computer companies have been quick to visualise the potential of mobile devices for education and large scale m-learning projects (MOBILearn, MoMaths) have been funded by companies such as Compaq, Deutsche Telecom and Nokia (Belshaw, 2010, Roberts and Vanska, 2011). The pressures from industry, business and consumers’

widespread use of mobile devices and digital media have prompted governments to initiate research reports and policy reviews on the usage of mobile devices and digital media with the intent of harnessing these technologies in education (OECD, 2007, Peters, 2007, BECTA, 2009, U.S. Department of Education, 2009, JISC, 2009).

In the critical discourse on institutional readiness and technological implementation, educational institutions have been characterized as slow to respond, lumbering and resistant to change (Shuler, 2009, Wright and Parchoma, 2011). Collins and Halverson (2010) suggest that while new technologies create new learning opportunities, tensions arise between the traditional model of learning and the affordances of mobile technologies and media. School systems that arose out of the technologies and social practices of the Industrial Revolution were structured around uniformity, curricular scope and sequencing, age-grading and accepted academic and professional accreditations. In contrast, new learner-directed technologies enable the pursuit of learning to be based on personalization and convergence (Pachler, et al., 2010a).

Mobile devices like smartphones are becoming increasingly important in learners' everyday lifeworlds and their significance is seen in their use for meaning making, leisure activities, identity formation, social interaction and learning (Pachler et al., 2012). As teenagers and young adults are intensively using their mobile devices every day, the questions of how mobile technologies can or should be integrated into formal learning becomes part of the controversy in the current public debates on this topic.

The dominant perspective of many teachers, educationists and parents appears to be that mobile devices would pose too much disruption in the classroom, hence bringing more harm than good. These devices are considered as disruptive technologies, challenging established thinking and systems, and are thus viewed by many as a threat to the status quo (Sharples, 2000). Merchant (2012a) argues that if modes of accessing, sharing and building knowledge are changing, then educational institutions need to pay

close and critical attention to everyday mobile practices to determine if these practices could be re-imagined as educational practices in their distinctive institutional settings. There is thus, a compelling need to find out more about how these devices are used in everyday practices and their relationship to learning.

1.3.2 Malaysia and Mobile Learning

Malaysia is a significant context to study this phenomenon as its government has been encouraging its citizens, particularly the youth, to embrace communication and mobile technologies. Under its Budget for 2013, youth could enjoy a RM200 rebate to purchase a 3G smartphone (The Star, 28 September 2012). The reasons for this largesse are largely political and economic. Malaysia has been stuck in the middle-income trap since 1992 with stagnating productivity, and a talent gap and skills deficit in human capital development (NEAC, 2010). Private sector firms have expressed increasing concern about the poor information technology skills and technical /professional competence of the Malaysian workforce (The World Bank, 2010). The National Economic Advisory Council (NEAC) in its *New Economic Model for Malaysia Report* (2010, p. 55) emphasized, "the education system, despite high fiscal outlays through several reform efforts, is not effectively delivering the skills needed."

Therefore, the drive to implement the use of mobile devices in the Malaysian classroom is mainly economic and political. The Ministry of Education (MOE) was tasked to execute this economic imperative and "to encourage educators and students to embrace information technology in the 21st century", they proposed in July 2012, to allow students to bring mobile devices to schools in 2013 (Tan, 2012).

The ensuing, vociferous opposition from educators, parents and students resulted in the U turn in policy in October 2012, 4 months after the initial announcement (The Straits Times, 4 October 2012). Newspapers and online forums reported mixed responses to MOE's proposed policy (The New Straits

Times, 19 July 2012, Chapman et al., 22 July 2012). In particular, The National Union of the Teaching Profession and the National Parent-Teacher Association were reported to be against this initiative. Opposition was due to perceptions of mobile phones as disruptive devices with potential harmful effects on the social and moral order in schools (The New Straits Times, 19 July 2012, Chapman et al., 22 July 2012).

There was a paucity of discussion on the potential of mobile learning and the MOE did not provide any positive models of such learning or examples (within Malaysia or in other countries like the USA, UK or South Africa) of successful implementations in schools to the public. Although there have been small scale mobile learning projects in Malaysia, notably in Mathematics (Mahamad et al., 2008), use of online social networks (Mustafa and Hamzah, 2011) and distance learning (Ismail et al., 2010), the lessons learnt could not be used for the implementation of this magnitude. As Baharom (2013) notes, m-learning is under-researched in Malaysia and there is clearly a need to move beyond research focusing on designing mobile applications and investigating the use of SMS services.

If mobile learning were to be implemented in Malaysian schools in the future, it is imperative that new insights on mobile learning practices, new pedagogical models of learning facilitated by technology and successful implementation of mobile enhanced learning projects be disseminated to the stakeholders in education and the public in order to change mindsets and attitudes. This study aims to bridge this gap in the research literature by providing new insights of how young people learn with their smartphones everyday and their perceptions and attitudes to this learning. This new knowledge would be able to provide implications for future research, education policy and teaching practice, not only for Malaysia but for other countries as well.

1.4 OVERVIEW OF MOBILE LEARNING

With the proliferation of mobile technologies, there has been increasing

interest and growth of mobile learning research and projects across all sectors in education. Telecommunication companies, researchers, educationists, and governments have defined it based on their own purposes, backgrounds and experiences and thus, there are multiple perspectives on the concept of m-learning.

The technocentric perspective currently dominates the research literature. Mobile learning is perceived as learning with mobile devices such as mobile phones, smartphones, Personal Digital Assistants (PDAs), iPods, PlayStations and tablets. This is learning with technology for the sake of technology and the emphasis is on the innovation and functionality of mobile devices (Winters, 2006). Thus, there has been a focus on the affordances of mobile devices (portability, customisation and flexibility) and their exploitation in classrooms to enhance teaching and learning (Sharples et al., 2007a, Chan et al., 2006, Traxler, 2009a, b). The claim is that m-learning "is being augmented by the richness of devices, applications and services" (BECTA, 2009, p. 17).

Some authors see m-learning as an extension of e-learning (Brown, 2003, Georgiev et al., 2004, Keegan, 2005). Traxler (2009a) describes this as using mobile and hand-held technologies to recreate approaches to e-learning such as the porting of established e-technology into mobile devices. Peters (2007, p. 15) argues that while mobile learning is a useful component of a flexible learning model, it is a subset of e-learning, a step towards making education, "just in time, just enough and just for me." Both the technocentric and e-learning definitions are all encompassing and do not distinguish the unique characteristics of mobile learning as it is positioned somewhere on the e-learning spectrum of portability (Winters, 2006, Traxler and Dearden, 2005).

A more recent perspective of m-learning is concerned with learners, their lifestyles and their uses of the mobile devices. In the early research on mobile learning, the focus was on the device or its potential for lifelong learning (Winters, 2006, Sharples et al., 2002). Mobility, however, does not only reside with the technology, it is a feature of the lifestyle of the mobile user: in the course of his everyday life, he moves from location to location, switching

contexts, technologies, topics and social groups. Hence, different notions of mobility are explored: physical, conceptual, temporal and social (Kakihara and Sørensen, 2002). M-learning projects began to focus on settings outside the classroom: museums (Sharples et al., 2007b, Yatani et al., 2004), field trips (Chen et al., 2004, Stanton et al., 2003), and use of educational games in a combination of settings (Facer et al., 2004, Spikol and Milrad, 2008, Klopfer and Squire, 2008).

In exploring mobility in social space, research in media education has shown the uses of the Internet and digital media are associated with development of self-identities, self-images, affiliations, personal agency and creative self-expression (Stern, 2008, Buckingham, 2008, Boyd and Ellison, 2007). Some findings show that youth are autonomous, self-directed and creative as they fashion their lifestyles based on "endless hybridization" or engage in a "remix culture" (Knobel and Lankshear, 2008, Lessig, 2008). Other research findings show however, that the majority of youth are engaged in more mundane activities with regard to online use and digital media (Luckin et al., 2009, Crook, 2012, Eynon and Malmberg, 2011, 2012).

From a socio-cultural perspective, Sharples et al. (2007a, p. 243) provide a theory of m-learning by defining it as "the process of coming to know through conversations across multiple contexts amongst people and personal interactive technologies." Pachler et al. (2010a, p. 6) extends this theory of m-learning by suggesting that learning occurs as "a process of meaning making though acts of conversation on the basis of a pre-given, objectified cultural world" that is bound "by rapidly changing socio-cultural, mass communication and technological structures." 'Meaning making' is thus viewed as the link in theory and practice between the everyday use of mobile phones and learning as 'coming to know'. This study draws upon these 2 conceptions of mobile learning to define learning with smartphones as a process of meaning making through conversations across numerous socio-cultural, technological and mass communication contexts amongst people and personal interactive technologies.

There has been a paucity of research on m-learning in conceptual and temporal spaces. Little is known of how learners on the move pack their learning into the gaps of everyday life, how learners' attention switch from one topic to another and how this everyday learning accumulates over time (Merchant, 2012a). This type of learning that occurs is often fragmentary, not immediately obvious or is packed in the short intermissions between activities. A review of the research literature reveals an apparent lack of theoretical and conceptual understanding of everyday mobile practices with regard to learning with smartphones.

There are complications for mobile learning research on everyday mobile practices due to the fragmentary and 'taken-for-grantedness' of this type of learning (Pachler et al., 2012). Research of informal and mobile learning are often centred on the learners' own perspectives and metacognitive analyses of their learning, through reflective accounts, surveys, semi-structured interviews, and diary studies. Limitations arise with these types of retrospective accounts of learning as learners may have issues with accuracy of recall or rationalisation of some of their actions or thought.

In addition, there are problems for children who would not have the necessary metacognitive skills to produce sufficient reflective accounts of their experiences. As learning is cumulative, and not isolated in one single experience, the inherent difficulty for this researcher is to capture and understand the contexts of learners' learning experiences and their everyday lives. Thus, the choice of the research methodology, method, analysis and interpretation were of fundamental importance in this study.

1.5 OVERVIEW OF RESEARCH DESIGN

In my personal learning journey, my focus shifted from a quantitative/mixed methods approach to a qualitative approach. Originally, the replication of Clough et al. (2008)'s study on informal learning with smartphones using their 'Informal Learning Mobile Framework' was attempted. However, in my pilot study in January to February 2012, I discovered the limitations of the survey

method. A more in-depth and nuanced analysis of this topic was desired, given the complexity of the subject of learning and the survey and supporting interviews could not yield this preferred outcome. In particular, from some of the insights derived from my pilot study interviews, I became more interested in the meanings accorded by young people to their learning with smartphones in their everyday lives.

A hermeneutic phenomenological design was used in this study as it represented the optimal way to investigate a complex phenomenon that was difficult to capture given its fragmentary and "taken-for-granted" nature. Hermeneutic phenomenology is able to uncover the uniqueness of individuals' experiences with an emphasis on the individuals' historicality or background (Heidegger, 1962, Gadamer, 1997). It is a human science that differs from other sciences as it seeks "to gain insightful descriptions of the way people experience the world pre-reflectively without taxonomizing, classifying or abstracting it" (van Manen, 1990, p. 9).

Phenomenology is the study of experience with its meanings. Hermeneutics augments the interpretive element to illuminate assumptions and meanings in the text that participants themselves may have difficulty expressing, hence offering a rich and dense description of the phenomenon under investigation (van Manen, 1990, Crotty, 1998). Language and communication are entwined and hermeneutics present a way of understanding the human experience that has been captured in context and through language (Gadamer, 1997, van Manen, 1990).

As consistent with the interpretive research paradigm, participants were selected using purposive sampling strategies to provide information rich studies for detailed analysis (Denzin and Lincoln, 2000). Applying the principles and practices of hermeneutic phenomenology, the participants' experiences of learning with smartphones were explored through interviews and a reflective exercise.

3 rounds of semi-structured interviews were conducted over a period of 6 months with 12 urban youths of between 16-19 years old. Age and educational backgrounds were the important factors for selection of participants in this study. 16-17 year old participants were in secondary schools where mobile devices were banned and 18-19 year old youth were in private colleges and universities where such devices were generally allowed in the classrooms. There was thus, a diversity of learning experiences in formal and informal learning contexts. It is acknowledged that while gender, (dis)ability, ethnicity and socio-economic class may have effects on everyday mobile practices and learning, the aim of this study is to understand learning with smartphones from a more general perspective of access, contexts, patterns of use, motivation and influences.

1.6 SIGNIFICANCE OF THIS THESIS

This research study yields new understanding of mobile learning in everyday practices and the value and significance learners attribute to this type of learning. It advances the knowledge on how learners' lived experiences of learning with smartphones are associated with networks of support (friends, family, parents, community), and the development of self-identities and presentation of selves. This study and its results are of immediate relevance to an emerging economy like Malaysia, given the rise and popularity of smartphones, social media and new mobile practices among the youth. The findings are of some urgency, given Malaysia's failed attempt to introduce mobile phones into the classroom in 2013. The new insights produced from this study will add to the continuing conversation on the feasibility and wisdom of implementing mobile devices in schools and other institutions of learning, not only in Malaysia but also in the rest of the world.

The findings and conclusions thus have implications for education policy and professional practice. Institutional readiness and teacher development are seen as areas of concern in the debate on m-learning implementation. It is suggested that the evolving roles of teachers in the 21st century be further examined and relevant training provided to teachers to support their new

roles. The findings also suggest that schools may have to change their curriculum design to focus more on critical thinking and metacognitive skills, critical reading and search strategies.

1.7 STRUCTURE OF THIS THESIS

This study is presented in a linear fashion with Chapter 1 as the introduction to the thesis, with a discussion of the rationale, research questions, the significance of the research phenomenon and overviews of mobile learning and the research design. Chapter 2 is concerned with the literature review of mobile learning research and projects in formal and informal learning contexts. Research on mobile learning and its relationship with digital media, social networking sites and, development of identities are also discussed. Chapter 3 explains the methodology and the methods of collecting the data, selection of participants, the ethical issues involved and the processes of maintaining quality and rigour in this study. In Chapter 4 the process of the analysis of the interview transcripts and the search for meaning arising from these texts are discussed. Chapter 5 presents the 4 themes of 'Difference', "Me, Myself, I', 'Value' and 'Influences' that represent the essential meanings and interpretations of participants' learning with smartphones. In Chapter 6, the implications of the findings are discussed and suggestions are made for applications for practice, education and further research.

2 LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the literature of m-learning in order to investigate the issues and limitations associated with various m-learning discourses and the relationship of informal m-learning to formal education. In addition, as the lived experiences of learning with smartphones encompass social networking practices, digital literacy skills, and development of identities and presentation of selves, there is critical assessment of existing research on the impact of m-learning on individual learners, the digital native notion and patterns of Internet use.

The affordances and technical advantages of mobile devices are first examined to consider the potential of m-learning to enhance or transform personal learning and formal education. The chapter then investigates the debate of m-learning implementation in schools and other institutions of learning to discuss the motivation and impetus for such implementations and the readiness of educational institutions and teachers to these initiatives. Next, learners and their mobile learning experiences are examined in order to highlight 3 contexts that significantly differentiate mobile learning from other types of learning: spaces and places, temporality, identity and personal agency. Lastly, the research literature on everyday mobile practices of learners is discussed to identify knowledge and conceptual gaps.

In deciding on the research and professional literature examined here, (research journals, conference proceedings, JISC policy reviews, the ECAR Study of Undergraduate Students and Information Technology 2010, BECTA research reports, the Pew Internet research reports, The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning, and government and industry reports) I have been guided by my experiences in teaching and management in the secondary school and tertiary sectors, and

by my engagement with this research study as a cyclical, hermeneutic process. This chapter does not present a definitive account of all the literature on mobile learning; rather it provides an overview to situate this study in terms of its approach, contents and significance.

2.2 MOBILES AND MOBILE LEARNING

The current m-learning environment is fragmented with many discourses as the mobile learning community includes theorists and researchers with philosophical associations ranging from empiricists to post-structuralists. Thus, there is a multiplicity of opinions with respect to m-learning and with each theorist and practitioner drawing on varying theories of learning, the concept and practice of mobile learning is a contestable topic (Sharples et al., 2007a, Uden, 2007, Hug, 2010, Pachler et al., 2010b, Traxler, 2009a, b, Wu et al., 2012).

Winters (2006) argues that there are 4 broad phases (Figure 2.1) in the history of m-learning developments. The first phase is focused on the technology of mobile devices and contents or what is known as the 'technocentric' stage. The second phase is characterised by the understanding that m-learning is an extension of e-learning. The third phase is concerned with m-learning initiatives used to augment classroom teaching. The fourth takes a learner centred perspective to m-learning with a focus on the mobility of learners (Figure 2.1).

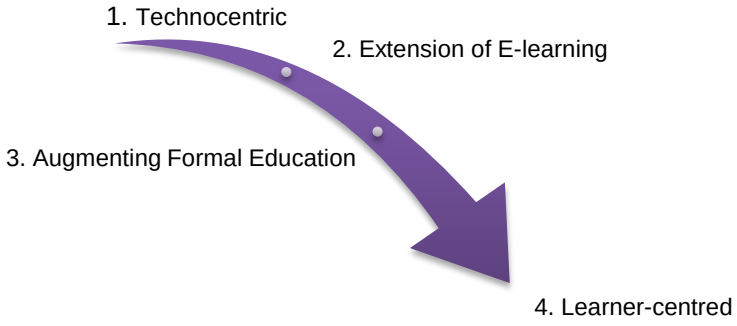

FIGURE 2.1. MOBILE LEARNING DEVELOPMENTS

Pachler et al. (2010b, p. 30) takes a diachronic overview of m-learning history with a 3 phase structure: “a focus on devices, a focus on learning outside the classroom and a focus on the mobility of the learner.” This is an extension of the structure first proposed by Sharples (2006) at the BECTA seminar ‘Future Gazing for Policy Makers.’ Essentially, all 3 perspectives of m-learning developments share similarities albeit with some differences on the significant developments, issues and debates. The field of m-learning has matured sufficiently in the last 20 years with an influx of theoretical, empirical and critical research to warrant a critical examination of its key debates and discourses.

2.2.1 Devices and Affordances

Early characterisations of m-learning were technocentric with a focus on the technology rather than on the learning as in Quin’s (2000) definition: “It's e-learning through mobile computational devices: Palms, Windows CE machines, even your digital cell phone.” The Mobile Learning Network (MoLeNET) which claims to have the UK’s largest and most wide-ranging applications of research in mobile learning, has as its definition of m-learning in 2007, “The exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning” (Traxler, 2009a, p. 2). Such technocentric definitions place too little emphasis on the teaching and learning aspects and are unstable definitions as mobile platforms, devices and systems are highly diverse and transient.

Proponents of the technocentric focus on m-learning tend to view technology as transforming the economy, social relationships and immense spaces of public and private life. There have been debates on the role of technology in society and such discourses exemplify a form of technological determinism: technology is perceived as a result of a value-neutral process of scientific research and development, rather than from the interaction of multifaceted economic, social and political forces (Robins and Webster, 1999, Buckingham, 2008). Hence, technology is perceived to engender social and psychological

changes regardless of the modes in which it is used, and of the social environments and practices into which it enters. From this perspective, mobile technologies used in education are viewed to be beneficial and research and practice in the classroom have focused on the functionalities of mobile devices and the effectiveness of these mobile learning interventions.

Extensive investigation with mobile devices such as Personal Digital Assistants (PDAs), graphing calculators, mobile phones, class response systems, reusable learning objects, laptops, and tablets for training and teaching began in the mid-1990s and has continued to today with an emphasis on the most current and relevant technologies for the classroom (Pachler et al., 2010b, Kukulska-Hulme et al., 2011).

Studies focused on classroom response systems such as 'Classtalk' (Dufresne et al., 1996) and, specially designed mobile systems developed for the teaching of courses in higher education such as the 'KNOWMOBILE' which investigated how mobile and wireless technologies (e.g., PDAs) could be of use in medical education and clinical practice (Smørdal and Gregory, 2003). A mobile live video learning system (MLVLS) was developed at the Shanghai Jiao Tong University for computer science courses, and it was discovered that mobile devices were used more extensively than laptop or desktop computers (Ullrich, Shen, Tong, and Tan, 2010). European projects such as Handheld Learning (Sharples, 2000, Sharples, Corlett & Westmancott, 2002) and MOBILearn (Kukulska-Hulme et al., 2011) focused on the design and implementation of educational software for mobile devices.

While these research studies are significant in extending knowledge on mobile learning, the dominant focus on the technological devices and systems tend to ignore the mobility of learning, the mobile learners, and the importance of pedagogy, important components in the overall equation of mobile learning. To date, the technocentric focus on mobile learning research and practice is still very much evident. Wu et al. (2012)'s review of mobile learning studies in major research journals found that most studies were on effectiveness of m-learning interventions and the design of mobile learning platforms.

2.2.1.1 M-learning as Extension of E-learning and D-learning

Some theorists see m-learning as an extension of e-learning (Figure 2.2). The technocentric conceptions of e-learning is that it is learning supported by digital electronic media and tools; and m-learning is e-learning using mobile devices and wireless transmission (Chan et al., 2006). According to some researchers, m-learning is a subset of distance learning (d-learning) and e-learning (Brown, 2003, Georgiev et al., 2004, Keegan, 2005). As shown in Figure 2.2, the main characteristic of distance learning is the distance and time separation between teachers and students. From this perspective, e-learning provides new forms of distance education through computer and Internet technologies. As e-learning is tethered to computers and fixed network servers, learners are learning at fixed locations and time. M-learning devices and software were thus, designed to overcome such limitations.

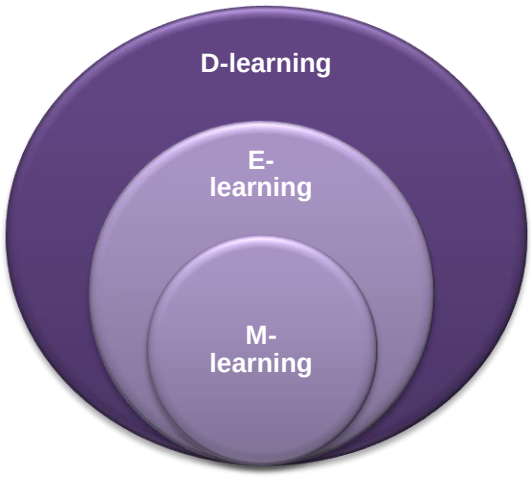

FIGURE 2.2. THE PLACE OF M-LEARNING AS SUBSET OF E-LEARNING AND D-LEARNING (GEORGIEV ET AL., 2004)

The growing body of research that views m-learning as an extension of e-learning tends to emphasize its technological advantages and its ability to reach thousands and millions of people. 'M-learning' was an early pioneering project which emphasized content delivery and the auxiliary collaboration support to underprivileged students in Sweden, the UK and Italy (Traxler, 2002). The Open University of Malaysia (OUM) introduced its version of m-

learning through the implementation of texting (SMS) to support online discussions and face-to-face tutoring in some of its courses (Zoriani, Peng and Norziati, 2008). The largest known m-learning initiative in Malaysia was the OUM study conducted with 13,200 students on their perceptions of the usefulness of SMS to support distance learners (Lim, Mansor and Norziati, 2011).

In the discourses of m-learning as an extension of e-learning and d-learning, the primary focus has always been on the online delivery of content and measurement of this online learning. However, these are "simplistic" notions of learning as delivering instructional content and "ignores the fact that modern education and pedagogy, irrespective of different theories and school of thought, converge in their high valuation of active, productive, creative, and collaborative learning methods much beyond the absorption of codified knowledge" (Chan et al., 2006, p. 10, Hoppe, Milrad & Kinshuk, 2002). In addition, there is inadequate examination of the unique aspects of learning with mobile devices and, users' continual interchangeability of tethered and mobile devices and between mobile devices.

2.2.1.2 Affordances and Formal Education

Contemporary research has focused on the technological affordances of mobile devices. Wright and Parchoma (2011, p. 249) argue that the concept of 'affordances' has "unclear usage" and "logical inconsistencies" in the research literature. Affordances is defined as "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used'' (Norman, 1988, p. 9). To some, affordances are seen as identical with technical features, for example, "mobile-specific affordances, such as GPS tagging and built-in cameras" (Cochrane, 2010, p. 134) or "the affordances of mobile Web 2.0 technologies: connectivity, mobility, geolocation, social networking, personal podcasting and vodcasting" (Cochrane and Bateman, 2010, p. 4).

Other authors use the term as identical with technical properties or capabilities

as in “communication affordances” and “posting affordance” (Liang et al., 2005, p. 184-85) or as representational, communication and language learning tools (Orr, 2010). Klopfer and Squire (2008, p. 204) have the same usage of the term when they suggest that the educational affordances of handheld technologies are:

i. portability (different locations, different contexts)
ii. social interactivity (exchange of data and collaboration with people
iii. context sensitivity (collection of real or simulated data unique to current time, location and space)
iv. connectivity (connection to data collection devices, other mobile devices, and to an integrated network)
v. individuality (provision of scaffolding customised to an individual’s learning path).

This discourse on ‘affordances’ with its inconsistent usage could be due to differing perspectives and characterisations of m-learning. However, by positioning mobile devices with their technological uses and advantages, Wright and Parchoma (2011) contend that the prevailing message is that mobile devices provide learning anytime, anywhere on any device. The claim that mobile devices and technologies enable learning at anytime, anyplace and anywhere is broadly supported (Frohberg, 2006, p. 3, Shuler, 2009, Herrington and Herrington, 2007, p. 3, Orr, 2010, p. 109).

The optimism shown in this discourse is evident in researchers’ predictions that students in the future would bring a range of mobile devices to the classroom for learning (Liang et al., 2005, Chan et al., 2006, Norris and Soloway, 2011); that there would be a continuity of the learning in multiple environments, defined as “seamless learning” (Chan et al., 2006, Looi et al., 2010) and that, these mobile devices “become indispensable educational tools like pens, papers or chalkboards” (Liang et al., 2005, p. 181). The “impact of mobile learning”, it claims, “is being augmented by the richness of devices, applications and services” (BECTA, 2009, p. 17).

This theme is based on the assumption that innovations of mobile technologies could be exploited in education, which could then lead to an

enhancement or transformation of teaching and learning. This underpins the focus on mobile devices in much of mobile learning research and practice. Bigum (1998, p.588) argues that this “booster” discourse is the most dominant of the set of discourses that position computers and technologies as “artefacts to learn with, to learn through, and to learn about.”

Since 2004, the potential of mobile and Web 2.0 technologies to enhance or transform formal education have been noted by researchers and educationists (Naismith et al., 2004, Sharples et al., 2007a, Traxler, 2009b, Gee, 2008, Collins and Halverson, 2010, Shuler, 2009, Belshaw, 2010, Crook, 2012). These authors observed that the pace of mobile learning initiatives have accelerated with small scale projects moving to large scale projects and some predicted mobile devices would soon be incorporated into “mainstream education.”

The Horizon Report (EDUCAUSE, 2009, p. 3) had indicated that mobiles would be ready in the near horizon (within a year) for “their entrance into mainstream use for teaching, learning, research, or creative applications.” This prediction was repeated in the Horizon Report (2011). But that scenario has yet to be achieved although there have been some major, large scale projects such as Project K-Nect (Project Tomorrow, 2012) in the USA and MobiMaths in South Africa (Nokia, 2013); these have been concerned with the implementation of one subject, Mathematics.

These foremost and most visible set of discourses thus position m-learning devices as valuable tools for anytime, anywhere learning with the capacity to change the field of education. With their overriding optimism and sense of urgency, they play a significant role in the drive to implement m-learning in education. Thus, as a consequence, a false impression of coherence in research and practice may be given, with problems hidden and not yet resolved (Wright and Parchoma, 2011). This could be the reason why despite the predictions made of m-learning entering ‘mainstream education’ (Horizon Reports, EDUCAUSE, 2009, 2011), this scenario has yet to materialize.

2.2.2 Institutional Readiness and Teacher Development

One reason attributed to the unfulfilled promise of m-learning in formal education has been the lack of institutional readiness with a particular focus on teacher deficits. This is seen in the discourses critical of the technocentric focus on mobile devices (Herrington and Herrington, 2007, Facer, 2009, Crook, 2012, Pachler et al., 2010a) and in the anti-schooler discourses (Prensky, 2001, 2008, Tapscott, 2009).

Critics of the technological deterministic perspective of learning tend to advocate further investigations into how institutions of learning manage technological changes, and teacher readiness (Collins and Halverson, 2010, Ertmer and Ottenbreit-Leftwich, 2010). Lessons learnt from early m-learning projects were instrumental in shaping the new focus on teacher and pedagogical development. In an evaluation study on 2 ambitious projects, 'Learning2go' in Wolverhampton and 'Hand e-learning' initiative in Bristol, McFarlane et al. (2007, 2008) reported some key problems with the implementation: the selection of the subject (Science) for implementation, the inadequate training provided to teachers and the lack of infra-structure in the schools, especially the wireless capacity. Therefore, the issue of teacher and institutional readiness is of major significance, if m-learning were to be implemented into formal education.

2.2.2.1 The Grammar of Schooling

In comparison to other sectors, the education profession has been slow in exploiting m-learning or integrating it to its *existing teaching practices*. As Fullan (1993, p. 3) notes, educational systems are still essentially traditionalist, "the way teachers are trained, the way schools are organized, the way the education hierarchy operates and the way that education is treated by political decision makers results in a system that is more likely to retain the status quo than to change." This suggests an inherent, conservative attitude to change.

Tyack and Tobin (1994)'s concept of the "grammar of schooling" explains why educational changes usually fail as the stakeholders like teachers, parents and administrators have an internalised model of what a real school should be like with its rigid structures, timetables, classrooms and lectures and there would be resistance to innovations that are perceived to be disruptive. Arbelaiz and Gorospe (2009, p. 52) agree with this concept as they explain that schools and universities have "rules and principles which are unconscious and shared by all their members" and this rigidity in mindset is what causes technology integration in schools and universities to fail. If e-learning, which has a much longer history than m-learning has failed in enhancing or transforming teaching and learning practices in schools and universities, m-learning could face the same obstacles and impediments.

2.2.2.2 The Teacher and Technology

Some academics view the swift proliferation of technologies as "coercive" and fear its spread into education as it would mean disruption to their usual teaching practices and long-held beliefs (Shore and Wright, 2000, Hodas, 1996). According to Hodas (1996), outsiders and technologists have tried for over a century to introduce technologies into the classroom with remarkably the same results – teachers were difficult to persuade to try the new technologies and if they did, classroom practice still remained the same. In fact, "the last technologies to have had a defining influence on the general organization and practice on schooling were the textbook and the blackboard" (Hodas, 1996, p. 197).

Fundamental to any discussion of m-learning implementation is the issue of teacher change. The word, "metanoia" in Greek refers to a "fundamental shift of mind" and any successful change would mean an unfreezing of the prevailing mindset of teachers and educators in order that they become the agents of change. Returning to the metaphor of the "grammar of schooling" discussed earlier, mindset changes could arguably engender changes in teaching and learning practices. Fullan and Stiegelbauer (1991) suggest that

teachers have to change in some or all of the following areas in order to facilitate meaningful changes in learning:

i. beliefs, attitudes, or pedagogical ideologies
ii. content knowledge
iii. pedagogical knowledge of instructional practices, strategies, methods, or approaches
iv. novel or altered instructional resources, technology, or material

(cited in Ertmer and Ottenbreit-Leftwich, 2010, p. 258)

If a school were for example, to implement an m-learning project on interdisciplinary learning, teachers would therefore need to develop their content knowledge across several disciplines. They would need additional pedagogical knowledge to facilitate their students' collaborative skills in an m-learning environment. Further, there is a need to understand the associations between the affordances of a range of mobile devices and the theories, skills and processes of the content domain. Then, with knowledge of the subject and their learners, teachers will have to choose the most appropriate m-learning resources to support the students' learning goals. The demands placed on teachers in such initiatives are therefore high. Additionally, with rapid technological advancements, teachers end up being "perceptual novices in the process of technology integration" which imply "the need for teachers to have strong self-efficacy for teaching with technology" (Ertmer and Ottenbreit-Leftwich, 2010, p. 261).

Some suggestions to develop teacher self-efficacy in technology include participating in professional learning communities (Berry et al., 2009, Cochrane et al., 2012), learning from knowledgeable peers (Ertmer, Ottenbreit-Leftwich, & York, 2006), making time available for teachers to play with technology (Somekh, 2008), and aligning professional development programmes with the ongoing work of teachers (Ertmer et al., 2012). Berry et al. (2009) suggest that scheduling common times for collaboration improves teacher effectiveness and imply that the school management values such collaboration. They further recommend "aligning collaborative structures for both vertical and horizontal collaboration", claiming that principals and

teachers “find vertical collaboration especially useful for aligning instructional strategies across grade levels for key tested subjects” (Berry et al, 2009, p. 6).

Cochrane and Bateman (2009)’s research suggest that intentional communities of practice (COP) are effective for guiding teachers in m-learning initiatives. Their model consists of weekly “technology sessions” with the practitioners, facilitated by a “technology steward” (Wenger, White, Smith & Rowe, 2005). Commitment from the lecturers in the project had to be displayed through participation in the weekly COP, use of social constructivist pedagogy and personalised integration of mobile technologies into their class activities. Essentially, it is provision of technological and pedagogical support that would enhance teacher skills and with this, lead to changes in teachers’ beliefs in their self-efficacy in technology. This “staged and scaffolded” model of learning for teachers (Cochrane and Bateman, 2009, Cochrane et al., 2012) would yield more effective results, thus, enhancing teacher confidence to try new mobile technologies and associated pedagogies.

Norris et al. (2011)’s work with Singaporean primary schools suggest an inquiry-based pedagogical model may be able to facilitate teachers’ use of technology. The researchers designed inquiry-based activities to take advantage of the affordances of smartphones and the specially designed software. For teachers who lack time and expertise to design such activities, these support and materials helped them to adapt to the new technologies and their effective use in the classroom. This model and other research recommendations discussed earlier may prove useful to future m-learning implementations.

An examination into the literature of student teachers suggest however, that there are more complex factors present in technology integration than the mere provision of training and, technical and pedagogical support to teachers. Swain (2006) reported that despite student teachers’ technical skills and positive beliefs on technology and its use in education, they were still unable to integrate them into their teaching practices. Related findings were reported by Choy et al. (2009) on student teachers’ inability to transfer their

technological beliefs and skills into school practices. This suggests that other social-cultural factors like the 'the grammar of schooling' may be the obstacle to technology integration in education.

2.2.2.3 Institutions and Technology

In the discourses on learning institutions and their response to technological innovations, there are 2 opposing perspectives: the 'booster' and 'anti-schooler' discourses (Bigum, 1998). The booster discourse is critical of educational institutions' response to technological advances and, advocates reform to institutions in order to remove barriers to technological integration (Warschauer, 2000, Hew and Brush, 2007, Ertmer and Ottenbreit-Leftwich, 2010, Collins and Halverson, 2010). Tensions between the affordances of digital media and technologies and traditional models of schooling were examined to highlight the challenges faced by schools (Warschauer, 2000, Collins and Halverson, 2010). Obstacles identified include "resources, institution, subject culture, attitudes and beliefs, knowledge and skills, and assessment" and strategies and recommendations were made to overcome such challenges (Hew and Brush, 2007, p. 223).

The discourse of reform includes the role of school leadership and school culture in any technological implementation. No m-learning implementation and change management can be successful if the school leadership is not enlightened and innovative with the courage to provide the right physical, economic, and emotional support to the teachers and students. Somekh (2008) suggests that school innovation usually succeed due to the principal's vision and motivation and in such cases, there was a change in the teacher-teacher relationship to one based on mutual support and collaboration.

The organizational culture of the educational institutions should also be supportive of m-learning experiments and be prepared to support ventures that may not succeed. Clement and Vanderberghe (2001) suggest that school leaders need to focus on developing a work culture that motivates teachers to reflect on their practices and beliefs. In addition, school leaders should create

a shared vision for the use of m-learning and professional development of teachers should involve a technology element (Ertmer and Ottenbreit-Leftwich, 2010, Ertmer et al., 2012).

The underlying theme in this discourse is that of hope and optimism with schools and institutions still having a role to play in society albeit with reforms that have to be made to keep pace with technological advances. This perspective however, does not take into consideration the informal learning of students outside of the schools and classrooms. People, especially the youth are learning on their own terms in spaces outside of formal education. For any reform to be successful, it is important to have a holistic view of how technology influences learning in and outside classrooms and how people in their usage of their technological devices shape these uses.

The 'anti-schooler' discourse present in mobile and digital technologies literature views educational institutions as "less efficient knowledge technologies" which "no longer have a role to play" in society (Bigum, 1998, p. 588). Authors like Prensky (2001, 2008) and Tapscott (1998, 2009) argue that universities and schools are losing their monopoly on education and different types of learning mediated and driven by technologies are emerging. Citing the disruptive tendencies of mobile technologies and social networking practices of youth, they predict that learning would become more autonomous and decentralized, away from formal education into the spaces of everyday life. Questions on future of the university have also been raised (Tapscott, 2009, Bennett, Maton and Kervin, 2008).

While it is beneficial to acknowledge the significance of informal learning and everyday practices mediated by technologies, it may be premature to predict the demise of an educational system that by all accounts, appear to be "vibrant", "real", "active" and resilient (Collins and Halverson, 2010, p. 18). Crook (2012) observes that there is evidence that young people are intensely engaging with their mobile devices everyday but the engagement appears to be biased towards consumption. In addition, he suggests that despite heavy encouragement from governments, and widespread use of social media and

mobile technologies by youth today, education practices have not been influenced or enhanced by them. Crook (2012) suggests investigating the nature and fit of the technology rather than advocating an indiscriminate approach towards importing social media or everyday mobile practices into the classroom.

Crook (2012, p. 66) examined how young participants "perceived and interpreted the situations of use: in particular, how they understand a cultural dynamic around new technologies imported into the circumstances of schooling." The findings suggest a lack of fit between in school and out of school environments of the use of Web 2.0 media and mobile technologies (Crook, 2012). Table 2.1 shows the contrasts between the activities and tasks undertaken in school contexts with the youth engagement with mobile technologies and social media in out of school contexts.

TABLE 2.1. WEB 2.0 AND CHARACTERISTICS OF OUT OF SCHOOL AND SCHOOL COMMUNICATION (CROOK, 2012, P. 78)

	Out-of-school contexts	**School contexts**
Inquiry	Fragmented assemblies Narrative structures Undocumented	Integrated schema Taxonomic structures Documented and authorised
Collaboration	Sustained co-ordinations Cumulative perspective	Goal-defined episodes Negotiated consensus
Publication	Within personal communities Conversational posts Culture of camaraderie	Institutional community Project formats Culture of assessment
Literacy	Orientation to multi-modality Consumption emphasis	Text and oral fluency Production emphasis

In their inquiry practices (Table 2.1), the participants were aware of multi-modal, multi-voiced web materials and their quest was usually for recreational, fragmentary knowledge organized in a narrative manner. In contrast, their school inquiry practices were organized around the production of more integrated and schematic structures that reflect the taxonomic forms required by schooling and the subsequent reproductions of artefacts or writing.

Participants' informal collaborations with social media through their devices were collaborative and evolving as shared perspectives were coordinated and allowed to develop. Collaborations in school contexts were contained and episodic and outcomes were sought as a result of negotiated consensus. With their informal publications, the participants could specify their own audience but in school, the audiences have been specified and they usually function as judges of the content produced. There is a cultural bias towards representational forms of expression and production in education settings; hence, tension exists when youths' preferences are towards multimodal forms of expression and consumption (Crook, 2012). As can be seen in Table 2.1, there appears to be a lack of fit between youths' technological practices in informal settings with that of established school practices.

In examining any fit between mobile technologies, social media and educational practices, it is important not to take an entirely socio-cultural view, where technology is merely a tool and is entirely shaped by social relations and how people wish to make of it. This would mean disregarding the inherent "affordances" of mobile technologies such as portability, customisation and flexibility, which make them easier to utilise in some contexts than for others. Williams (1974) suggests a dialectical approach in which technology is viewed as both *socially shaping* and *socially shaped*. The role of technology is to some extent, determined by its uses and the limitations and possibilities of those uses. It is in turn, influenced by the social interests of people who control its production, circulation and distribution.

This argument moves beyond the perspective that technology is a simple cause of social change and the notion that technology is an easy 'fix' for complex and social problems (Buckingham, 2008). Thus, this study adopts this dialectical stance when investigating the impact of technology on socio-cultural practices of young participants. The theoretical perspective of this study is that learning is influenced and changed by smartphones and mobile applications used for learning and that in return the learning tools are altered by the means that they are used for learning.

There is a noticeable gap in the research literature in relation to youths' informal m-learning practices and experiences and their appropriacy for formal learning. This study's contribution is the development of new knowledge on this hitherto under-researched aspect of learning and mobile technologies as it explores the daily experiences of youths learning with smartphones in Malaysia.

2.2.3 Industry and Business Engagement

According to Shuler (2009), the mobile market is one of the fastest growing industries with functionalities and capacities of mobile devices growing and cost of the devices decreasing. Peters (2007, p. 2) identifies 3 drivers – "consumers (particularly young consumers), mobile professionals, and specialist industries – (that) have created strong demand, which is reflected in the increasing rapidity of development of new mobile communication and data management technologies." This has resulted in the proliferation of affordable and manifestly more powerful mobile devices and their eventual adoption and use by people in their everyday lives in the developed and developing worlds. Therefore, these ubiquitous technologies and devices (mobile phones, iPads, iPods, smartphones and portable gaming platforms) that are originally developed for communication, fun and entertainment, could be further exploited for their educational potential (Peters, 2007, Shuler, 2009, Traxler, 2009a).

Computer and telecommunication companies have been quick to grasp this potential, identify new markets and promote this relationship between education, training and industry. Bigum (2012, p. 18) describes this relationship between education and business as that of a "digital romance" and it has been promoted with associations of "good things" and "improvement and efficiency" in the discourse. Major m-learning initiatives have been funded by dominant telecommunication and computer companies for example, the MOBILearn project was supported by Nokia, Compaq, Deutsche Telecom and Telecom Italia (Belshaw, 2010). MoMaths is a programme developed by Nokia and in partnership with the Department of Education in South Africa to teach

Mathematics to Grade 10 and 11 students in 200 schools with a reported improvement of 14% in Mathematics scores for its students (Roberts and Vanska, 2011). Such m-learning projects tend to emphasize mobile learning architectures and business models and, report mainly positive findings and implications of m-learning.

Another focus of business and industry has been to promote the use of mobile technologies to reach the underserved poor and those living in remote areas. Some research studies and projects on inequality, inclusion and access have benefitted from funding from GSMA (Global Speciale Mobile Alliance), the group that represents 800 of the world's mobile operators and 200 of companies in the broader mobile ecosystem (GSMA, 2013). 'mLearning: A Platform for Educational Opportunities at the Base of the Pyramid' (GSMA, 2010) for example reported on case studies undertaken to address issues of access and inclusion in Africa and India.

Business, mass communication and agriculture sectors have been swift to exploit the potential of mobile devices and technologies (Shuler, 2009). Opportunities with e-commerce and training programmes were identified utilizing these devices. Personal development and vocational learning for individual learners appear to display the greatest potential for the evolution of a sustainable business as consumers or organizations are willing to pay for language learning, health education, vocational training, literacy and numeracy services as these are perceived to improve employment opportunities or raise living standards (GSMA Development, 2010).

eLearning News (Sept 1, 2010) reports that "the current US Mobile Learning market is being driven by consumers and healthcare buyers, who increased spending on mobile learning even at the height of the recession." It is in these areas that m-learning is most likely to achieve its greatest success and sustainability, as consumers are increasingly demanding educational applications for learning on their mobile devices.

In contrast to other sectors, the education sector has been slow in its appropriation of these mobile technologies into its existing practices. Correspondingly, it has been portrayed as slow, conservative and resistant to change (Shuler, 2009, Bigum, 2012). There are also claims that the education sector is not equipping students with the 21st century skills (information and digital literacies) that business and industry require of workers in this present century (Crook, 2012, Binkley et al., 2012, Voogt et al., 2013). The impetus from industry, business and consumers' widespread use of mobile technologies have resulted in numerous policy research and review papers from different governments and non-governmental agencies: reporting, reviewing and recommending the integration of mobile and digital technologies into formal education (OECD, 2007, Peters, 2007, BECTA, 2009, U.S. Department of Education, 2009, JISC, 2009, Belshaw, 2010, NEAC, 2010). Thus, the debate on m-learning implementation in formal education arises from these pressures.

It is important, however, to note that while much of this debate continues, and while this is a significant area of concern, the actual and widespread use of mobile devices and digital media is in the everyday lives of users. This is an area of focus that has only recently emerged and therefore, there is a need to find out more about how these devices, media and technologies are used in everyday settings, their patterns of use and, how they are appropriated by learners for their learning (Ito et al., 2010, Livingstone and Brake, 2010, Eynon and Malmberg, 2011, 2012, Pachler et al., 2012, Merchant, 2012a).

2.2.3.1 21st Century Competencies and Digital Literacy

As a corollary to the research on patterns of Internet use and young people's engagement with digital media, there has been growing interest in digital literacy and the competencies/skills needed for the 21st century. In framing the discussion on 21st century competencies, Voogt et al. (2013, p. 404) highlight the oppositional discourses that have "evolved around both (a) the specific competencies that are needed in our current and future societies: such as hard (e.g., a focus on Science Technology Engineering and Mathematics)

versus soft skills (e.g., emphasizing collaboration and creativity), basic competencies (e.g., knowledge of standard school subjects, literacy, math and so on) versus key competencies (e.g., adaptability, ability to think laterally), and (b) approaches to acquiring these competencies, such as individual (e.g., adaptive online or computer-mediated learning) versus collective (e.g., Computer Supported Collaborative Learning) approaches to learning."

There appears to be some consensus from reviews of the critical competencies needed for current and future societies: digital literacy, communication, problem solving, collaboration, citizenship, productivity, creativity and critical thinking (Dede, 2010, Binkley et al., 2012, Voogt and Pareja Roblin, 2012). However, articulation of these educational aims in the reviews did not translate to actual practice and implementation in schools and educational institutions (Voogt et al., 2013). Calls for changes in curricular and the redefining of curriculum priorities have met with resistance, as it would mean the questioning of beliefs, assumptions and perceptions of academics, teachers, policy makers and researchers (Voogt and Pareja Roblin, 2012).

With the pervasive use of mobile applications, and digital media and technologies, the focus has shifted from the transmission of content and reproduction to content creation and sharing in online environments in what is known as a "remixing culture" (Lessig, 2008). The question therefore, is the set of skills or competencies that are needed to function in this digital age and their implications for formal education.

Different authors have competing (but interconnecting) definitions of digital literacies. Theorisations from the field of media education tend to use the plural term, 'literacies' to reflect the various, socio-cultural aspects of these notions (Buckingham, 2008, Lankshear and Knobel, 2011) and to encompass well-defined media literacy skills such as "the abilities to access, analyse, evaluate, and create online content" (Livingstone and Helsper, 2010, p. 311).

In Norway, digital literacy is defined as a "complex competence that emerges as the sum of simple ICT skills (using software to search, locate, transform

and control information) and more advanced skills (to evaluate, interpret and analyse digital genres and media forms to that through the creative and critical use of digital tools and media)" (Voogt et al., 2013, p. 405). Clearly, digital literacy is a broad concept with various aspects but the broad area of agreement amongst researchers is the need for formal education and policy makers to acknowledge its importance in curriculum design and to address implementation issues.

2.2.4 Theoretical & Pedagogical Conceptualisations

Traxler (2009a) calls for a commonly agreed conception of mobile learning as a way of confirming a shared understanding and as a mode of exploring the direction and evolution of m-learning. He argues that such a conceptual base is needed for the credibility and authority it provides and as a basis for the evaluation of methodologies founded on the unique qualities of m-learning. Theory, however, is a contested topic, as the m-learning community comprises researchers, educationists, teachers and policymakers from all the fields in education, engineering, medicine and computer science, each with their own understanding and expectation of the significance and impact of theory on practice.

2.2.4.1 Theories of M-learning

Formal education has usually been described as face-to-face teaching with the conventional lecture as the norm in the classroom. However, teaching practice in the classroom draws on different learning theories and utilizes various learning activities in addition to the lecture. For example, in a review of mobile learning literature, Naismith et al. (2004) discovered 6 broad categories of learning activities based on learning theories: behaviourism, constructivism, situated learning, collaborative learning, informal and lifelong learning and learning and teaching support. Since 2000, m-learning projects developed for formal education have variously drawn on different learning theories as no acceptable learning theory and framework has yet emerged specifically for learning with mobile devices.

With changes taking place due to globalization and technological advancements, Herrington and Herrington (2007, p. 2) identified “the shifts in philosophical, theoretical and professional understanding about learning” that have occurred in the past decade in Table 2.2. It can be seen that as mobile technologies become more user-centred, ubiquitous and personal, the implications are that learning can go beyond the simple transmission model and engage learners more productively in collaborative and problem-solving learning and higher order thinking. There would also be effects on pedagogy, assessment, transfer of knowledge and knowledge outcomes as seen in Table 2.2**.**

Initial conceptualisations of m-learning were technocentric with a focus on the technology rather than on the learning. Laurillard (2007) proposes using the ‘Conversational Framework’ to test how using mobile devices contribute to the learning process. This framework draws upon Pask’s ‘Conversation Theory’ (1976a, b) which conceptualizes learning as communication in an all-encompassing computational medium where people and interactive systems (e.g. computers) converse. This perspective is an example of how conventional e-learning theory is utilized to explain m-learning. There is however, the problem of the transferability of this theory as m-learning may be manifestly different from e-learning particularly in the informal settings.

The technocentric perspective of m-learning was challenged within the field of education, thus moving some of the emphasis away from technology towards the social practices it engenders (Sharples, et al., 2007a, Traxler, 2009b, Pachler et al., 2010a, Kukulska-Hulme et al., 2011). Sharples et al. (2007a, p. 243) propose a new theory of m-learning and define it as “the processes of coming to know through conversations across multiple contexts.” Thus, mobile learning is not e-learning or a subset of it. It is concerned with learning as coming to know through conversations across multiple contexts.” Thus, mobile learning is not e-learning or a subset of it. It is concerned with learning processes in which technology can be used. Secondly, the communicative nature of learning is of prime importance, for example as in the communication between people, people with technology, or people’s interaction with and

TABLE 2.2: SHIFT IN PHILOSOPHICAL, THEORETICAL AND PROFESSIONAL DIMENSIONS OF LEARNING

Source: Herrington and Herrington, 2007, p. 2

Dimension	Moving from	Moving to
Philosophy	Instructivist	Constructivist
Theory	Behaviourist, cognitivist	Situated, socio-constructivist, andragogical
Course design	Bounded scope and sequence	Open-ended learning environment, flexible content
Time and place	Fixed in educational institutions	Distributed to suit the contexts of the learners
Knowledge base	'Objective' knowledge largely determined by experts	Knowledge built and shared among the community
Tasks	Decontextualised, concise, self-contained	Authentic, reflective, complex and sustained
Resources	Fixed, chosen by teacher	Open, chosen by learners with access to search tools
Support	Teacher	Community of Learners
Mode	Individual, competitive	Collaborative, networked
Technology tools	Fixed, located in learning spaces	Mobile, portable, ubiquitous, available
Knowledge outcomes	Facts, skills, information	Conceptual understanding, higher order learning
Products	Academic essays, exercises or no tangible product	Authentic artifacts and digital products
Assessments	Standardised tests, examinations	Performance-based, integrated, and authentic assessment
Transfer of Knowledge	Stable knowledge, adapted to different contexts	New and changing knowledge acquired when required
Professional Learning	Courses, group events, workshops	Personal, just-in-time, community-based

exploration of environments. Thirdly, there is the emphasis on changing contexts and in interaction across contexts in mobile learning. Finally, there is the use of personal and interactive technology with learning regarded as constructing meaning from personal experiences and knowledge.

Sharples et al. (2007a)'s conception of m-learning draws upon Laurillard (2007)'s definition on the conversational framework, in which communication, a characteristic of mobile devices, is an essential process in learning as it assists people to negotiate meanings, and establish shared understanding of experiences This socio-cultural perspective of m-learning is also grounded on Engeström (1999)'s activity theory, which is applied to investigate mobile learning in the context of learning activities. The context of learning is perceived as the community (interactive technologies and people) and the physical environment that act together around shared objects.

As Kukulska-Hulme et al. (2009, p. 21) note, Sharples et al.'s (2007a) definition of m-learning draws on the concept of learning as "a tool-mediated socio-cultural activity" and the argument that "conversation and context are essential constructs for understanding how mobile learning can be integrated with conventional education, as mobile learning offers new ways to extend education outside the classroom, into the conversations and interactions of everyday life". While Sharples et al. (2007a)'s theory of m-learning is an extension of the technocentric perspective it has certain limitations. Its focus on learners' communications with technology and peers across multiple contexts are a good development. However, a greater emphasis is needed on mobile learning practices used in everyday lives which could further identify mobile learning and differentiate it from static learning.

Pachler et al. (2010a, p. 6) builds on this conception of m-learning by suggesting that learning occurs as "a process of meaning making though acts of conversation on the basis of a pre-given, objectified cultural world" that is bound "by rapidly changing socio-cultural, mass communication and technological structures." 'Meaning making' is thus viewed as the link in theory and practice between the everyday use of mobile phones and learning as 'coming to know'.

This socio-cultural ecology of m-learning has the core constituents of agency, structures and cultural practices (Pachler et al., 2010a). 'Structures' are the structures of technology and mass communication in everyday life such as

schools, the Internet and leisure, and learners navigate within and between these structures and produce new structures through their mobile use. 'Agency' refers to the individual learner's ability and choice to appropriate these structures for learning that is subjectively meaningful. 'Cultural practices' are the everyday practices and routines located in a society and culture that engender learning that is situated, reflexive and collaborative in knowledge building (Pachler et al., 2010a).

Learning thus, occurs as knowledge is co-created and skills and competencies are developed in these contexts (Lave and Wenger, 1991, Scardamalia and Bereiter, 2006, Pachler et al., 2010a). According to Pachler et al. (2010a)'s ecological approach, everyday lifeworlds are transformed into learning spaces and the world itself becomes the curriculum with cultural resources and agency being the key to unlocking and utilising this curriculum. However, there are some issues with regard to this conceptualisation of m-learning as "a continuous, almost all-encompassing activity": copyright and ownership of content, ethics of use (Kukulska-Hulme et al., 2011, p.160) and "risks of privacy invasion, bullying and dangerous contacts" (Livingstone and Brake, 2009, p.78). These issues are currently being investigated and the debate continues on the use of mobile device and digital media. To date, Pachler et al. (2010a)'s theorisation is the most comprehensive conception of m-learning to emerge and this study draws upon this socio-cultural perspective of m-learning.

2.2.4.2 Learning 2.0

Diverse contexts offer new and multiple types of learning with the rapid developments in mobile and digital technologies, and especially in the growing power, reach and collaborative potential of the World Wide Web (Internet). The term 'Web 2.0' is identified with practices and tools of digital technology that has marked a significant development in the Internet, signifying a more participatory turn (Crook, 2012). These new types of learning diverge strikingly from traditional classroom education as they are usually situated in non-formal and informal settings based on everyday-grounded experiences (Lankshear

and Knobel, 2011). As young people use their laptops and mobile devices and in particular, smartphones to access the mobile Internet for communication, games, entertainment and learning (Drotner, 2008, Ito et al., 2008, Pachler et al., 2012) different conceptualisations of learning with digital media and the Internet are also applicable to m-learning perspectives.

Brown and Adler (2008, p. 18) propose a new conception of learning, "Learning 2.0" for Web 2.0 technologies based on the supposition that understanding of knowledge and processes is constructed socially "'through grounded (and situated) interactions, especially with others, around problems or actions." This is a shift from the Cartesian view of learning where the focus is on the subject matter to the emphasis on how to learn. This perspective of learning is anchored on the social constructivist paradigm of communities of practice, collaborative learning, social learning and cognitive apprenticeship (Lave and Wenger, 1991, Downes, 2007, Gee, 2008, Brown and Adler, 2008).

The perspective of multiple modes of informal learning is strongly aligned with the Open Educational Movement (OER) and MOOCs in education (Brown and Adler, 2008). Some authors (Biesta, 2009, p3, Knox, 2013) argue that the OER is associated with probably the principal theoretical shift in recent education, that is, the '"learnification" of education involving "the translation of everything there is to say about education in terms of learning and learners." This shift arises from "the influence of humanistic psychology and constructivist orthodoxy in education, where 'learner-centred' methods are privileged" (Knox, 2013, p. 825).

The discourse on social learning, Learning 2.0 and OER is positioned as offering free educational resources to the underserved poor and concepts of openness and freedom (Knox, 2013). Learner-centred methods are prioritised with learning processes viewed as self-directed and autonomous from the structure and conventions found in formal education (Knox, 2013). Pedagogy is de-emphasised with self-directed learners exploring and discovering their own learning (Brown and Adler, 2008, Downes, 2007). 'Learning 2.0' and 'social learning' concepts have yet to address issues of critical pedagogic

design for educational resources offered in the Internet, and the place of the teacher and educational institutions in this new learning ecology.

However, in the informal, everyday worlds of learners, Brown and Adler (2008)'s conceptions of 'learning to be' and 'multiple learning modes' and Lave and Wenger's (1991) concept of 'situated learning' and 'communities of practices' can be applied to many of the mobile learning practices of learners, particularly in their use of the mobile Internet, Web 2.0 media and social networking applications. As current theories of m-learning are still not all encompassing, this study draws upon different theories of learning to fit the multiple learning scenarios and contexts in m-learning.

2.2.4.3 Situated Cognition, Learning and Experience

Situated cognition research arising from the field of cognitive psychology argues that thinking is linked to, and alters across real situations, and is not usually the result of applying abstract definitions, rules and generalizations (Gee, 2010, Lave and Wenger, 1991, Brown, Collins and Duguid, 1989). Thinking, therefore, is related to the experiences of goal-related action in the material and social world. People principally learn and reflect through their own experiences, and not through abstract generalizations and calculations. These experiences are then stored in memory and later retrieved for use in mental simulations when problem-solving in new situations. These simulations based on past experiences are fundamental in assisting the forming of hypotheses on how to respond and act in new situations (Gee, 2008).

The theory of situated cognition has particular relevance to this study as its focus on learning from thinking, experience and reflection has significance for m-learning. Gee (2009, p. 18) argues that the theory of situated cognition with its "situated view of the mind" is connected to social groups, their technologies and tools. M-learning theories (Sharples et al., 2007a, Pachler et al., 2010a) and Learning 2.0 (Brown and Adler, 2008) are based on socio-cultural perspectives of learning. What these theories have in common with situated cognition is that their focus is not on the "private mind" but on experience as

“the core of human learning, thinking, problem solving, and literacy” (Gee, 2009, p.18).

These theories may assist in explaining how the learning takes place with smartphones based on social interaction and experience. However, as m-learning is still an emerging field, there are still some gaps in the conceptual knowledge, for example in the approaches learners take in their fragmentary learning with their mobile devices, the cumulative effect of this fragmentary learning and in their perceptions of the significance of this type of learning.

2.2.4.4 Approaches to Learning

The approaches that young people take in their learning are an important dimension in learning with smartphones. Marton and Säljö (1976a, b, 2005) suggest that when presented with similar learning opportunities, learners approach their learning in different ways. To investigate how learners conceptualized their learning, Säljö (1979) asked university students this fundamental question: ‘What do you actually mean by learning?’ He discovered five conceptions of learning and Marton et al. (1993) added a sixth conception of learning: learning brings a change to the learners themselves.

The three conceptions of learning: learning as increasing of knowledge; learning as memorising; learning as applying facts and knowledge are considered by Marton et al. (1993) to be primary reproduction of information and engender surface approaches to learning (Figure 2.3). The other three conceptions: learning as involving change in a person, learning as understanding, and learning as perceiving something in a new light are believed to represent deep approaches to learning.

Deep and surface learning require different conceptions of learning and distinct mental orientations to the learning processes depending on the learner’s purpose. These approaches to learning are not fixed characteristics of learners: learners may have a preference for one or the other but their choice depends very much on the task at hand or the perceived demand of

the learning event. The deep and surface metaphor has 'legs' in that its appeal and longevity can be attributed to several reasons: its universality, simplicity, metaphorical power, and its facility to cohere with past pedagogical notions (Webb, 1997, Enwistle, 1997).

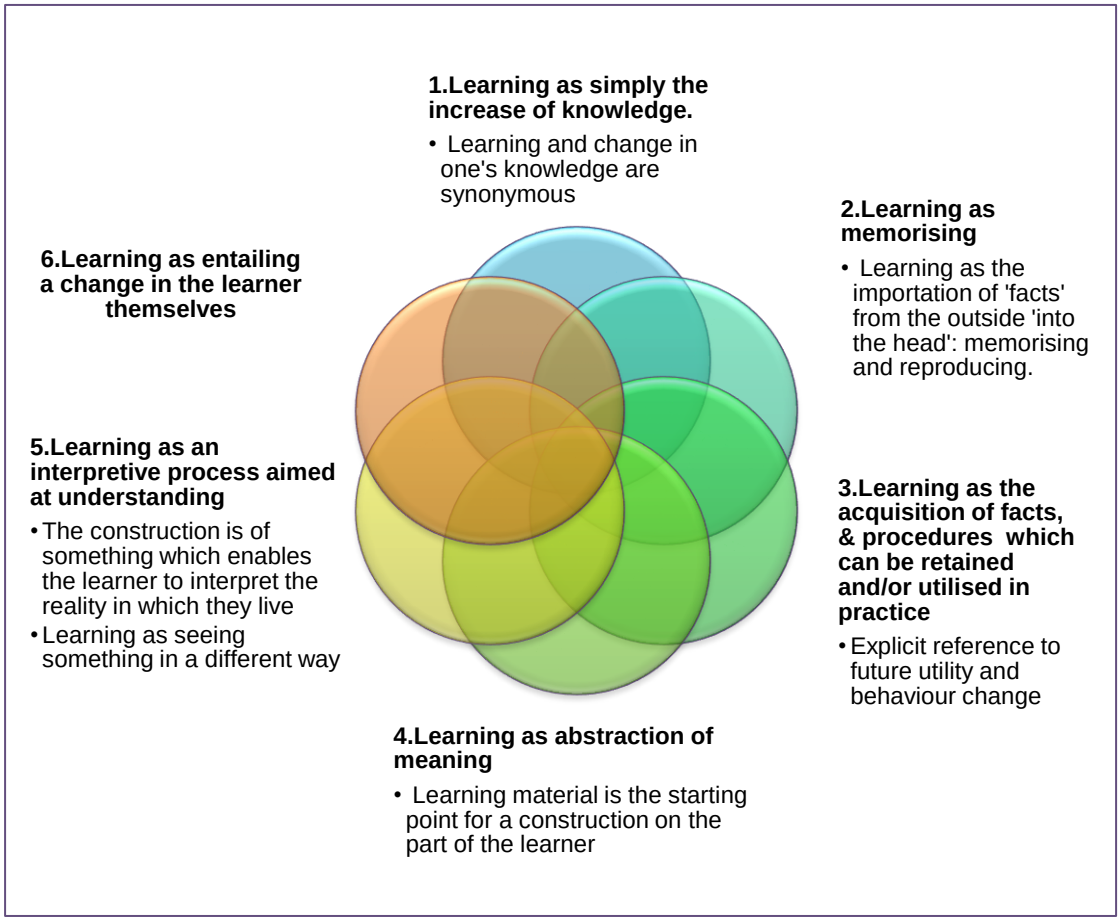

FIGURE 2.3. CONCEPTIONS OF LEARNING (GREASELY AND ASHWORTH, 2007, P.822-823)

However, there has been criticism of this model (Figure 2.3), particularly the importance researchers appear to have placed on testing the model as compared to the under-theorised conceptions of learning that underpin the model (Webb, 1997; Howie & Bagnall, 2012). In addition, Webb's (1997) critique is that the metaphor and the accompanying model is far too simple and has not been subjected to adequate critical debate despite its widespread acceptance. Howie and Bagnall (2012) call for more scholarly theorisation and critical examination on what constitute deep and surface conceptions of

learning and what ‘surface’ and ‘deep’ really mean when applied to ‘approaches’ and ‘learning.’

With reference to digital and mobile technologies, Gee (2007, p. 172) believes that well-designed games can engender deep learning: learning that can produce “real understanding, the ability to apply one’s knowledge and even to transform that knowledge for innovation.” Lankshear and Knobel (2011) support this perspective as young people who interact with their mobile devices and technologies, may be in learning contexts where their ideas and content are grounded in specific tasks, purposes and outcomes, and which require them to take on new identities, see the world differently and act upon them in new ways, all characteristics of deep learning.

2.3 LEARNERS AND THEIR MOBILE LEARNING EXPERIENCES

2.3.1 Mobile Learners in Focus: Attitudes, Mindsets and Lifestyles

There is a growing focus on learner centred issues and perspectives as attention shifts from technological advances and the tools to how these technologies impact and influence the behaviour and learning patterns of learners, and their development and management of selves. The discourse “centres on what young people are doing with these mobile and digital technologies; where, how and for what purpose they are using them and how such activities might usefully be harnessed in formal educational settings” (Luckin et al., 2009, p. 87).

2.3.1.1 The Digital Native Debate

Growing up with increasingly sophisticated mobile devices and social technologies, young learners are arguably experienced in accommodating and influencing yet further technological advances. This is the “Google Generation” born after the mid-1990s that Wikipedia has characterized as the “generation whose first port of call for knowledge is the internet and a search engine,

Google being the most popular" (cited by Williams and Rowlands, 2008, p 7). These learners are probably accustomed to and perfectly comfortable with the design of the technology, confident with experimenting, and actively participating in role playing in virtual worlds, conversing, messaging, sharing images, finding things out – often simultaneously. Additionally, most of their learning is usually informal, coming from their friends and friends of friends. Web 2.0 and mobile technologies are their "medium and their metier" (JISC Report, 2009, p.39).

Young people of this 'Google Generation' is the focus of this study as these learners are the "harbingers of change" whose "habits, expectations and behaviours may anticipate what the rest of society will come to consider as its culture or norms" (JISC Report, 2009, p 14). This generation of learners (born after 1994) represents the future and their learning attitudes and motivation could decide the workplace and higher education of the future. What determines their learning behaviours and styles are issues of vast strategic importance as education and society struggle to cope with the changes wrought by rapid technological advancements. This constant exposure to mobile, communications and digital technologies have arguably developed a new type of learner, the 'digital natives' whose thinking and processing of information are essentially dissimilar from their predecessors, the 'digital immigrants', who find interaction with these digital tools difficult and unnatural (Prensky, 2001).

There are other competing terms given by educators and education commentators to identify young people growing up in a technologically immersive environment. The generation born from 1982 to 1994 has been described as the Net Generation (Tapscott, 1998) or Millennials (Howe and Strauss, 2000) because of the ease with which they have adopted and adapted to new technologies. The key traits of the Millennials (and shared by the Google Generation) are being mobile, digitally literate, focused on social interaction and 'connectedness', and with a preference for experimentation and experiential learning (Oblinger, 2004, Howe & Strauss, 2000; Cobcroft et al., 2006, Ito et al., 2008).

Prensky (2008) argues that the “digital natives” are now the “i-kids” who are “plugged into portable, personalised devices such as mobile telephones, mp3 players and handheld games consoles”, constantly in “a state of technological immersion and dependence.” With reference to the older “generations X and Y”, the children and youths born after 2000 are being portrayed in commentary as “generation M” (media), “generation V” (virtual) or “generation C (creative, connected and click) (Rideout et al., 2005; Veen and Vrakking, 2006; Selwyn, 2009). Therefore, the main assumptions made in the literature are that these young learners are in possession of an innate “hardwired affinity with digital technologies” with sophisticated technological skills and knowledge as a result of their constant exposure to new technologies and hence, display different learning behaviours and preferences (Fisher and Baird, 2009 as cited by Selwyn, 2009, p.365).

Williams and Rowland (2007) recommend maintaining a degree of critical distance concerning the various titles (Google Generation, Net Generation, Millennials, Digital Natives) that the media and education commentators have given to the younger generation as these rest on generally untested assumptions that the younger people are “qualitatively” different from what went before. Bennett et al. (2008) contends that there is limited empirical evidence to justify such claims and some previous claims have been supported by only common sense beliefs and anecdotes.

Empirical work that examines the nature of young people’s use of technology suggests a high degree of diversity with most possessing a core of technology based skills but with a wide range of skills and competencies beyond this core (Livingstone and Helsper, 2010, Kennedy et al., 2008, Bennett et al., 2008, Jones et al., 2010, Margaryan et al., 2011, Sanchez et al., 2011). Young people’s complex and wide-ranging use of digital and mobile technologies tend to be discounted or minimised in favour of the digital native arguments (Helsper and Eynon, 2010).

More recent empirical work on The Digital Youths Project (Ito et al., 2008, 2010) appears to show some qualitative differences in the learning practices of youths. It was a three-year ethnographic investigation that aimed to establish how digital media were altering the approach young people learn, socialize, play and participate in American society. The focus was on youths (12-18 years old) and the investigation was centred on their recreational and social activities rather than on formal instruction. Ito et al. (2009)'s findings suggest the youths are "always on," in continuous communication with their friends via mobile phones, instant messaging, texting, and Internet connections.

This constant presence "requires on-going maintenance and negotiation, through private communications like instant messaging or mobile phones, as well as in public ways through social network sites such as *MySpace* and *Facebook*" (Ito et al., 2008, p. 1). While these findings suggest some qualitative changes in learning behaviours and attitudes of the youth today, Ito et al. (2008, p. 4) caution that there is a need to be "wary of claims that a digital generation is overthrowing culture and knowledge as we know it and that its members are engaging in new media in ways radically different from those of older generations."

Drawing on data taken from the 2007 Oxford Internet Survey with 2350 respondents, Helsper and Eynon (2010, p. 515) found that "younger people do have a greater range of ICTs in their households, tend to use the Internet as their first port of call, have higher levels of Internet self-efficacy and use the Internet for fact-checking and formal learning activities." They challenge the generational differences in the digital native notion by positing that education levels, gender, immersion in a digital environment and experience play important roles in explaining these activities, with the most important being breadth of use or immersion.

Research studies on 'digital natives' have generally employed surveys to collect data from large populations, and mainly from higher education students (Bennett, 2012). The main findings from some large scale studies (Kennedy et

al., 2008, Jones et al., 2010, Smith and Caruso, 2010, Margaryan et al., 2011) conducted in the USA, UK and Australia reveal that there is near universal embracing of some technologies, for example, mobile phones, and that there are high variations in knowledge, skills and interests when comparing individuals. Individuals from the studies adapted their technology use to fit their interests, needs and the contexts of use.

Consequently, Bennett (2012) suggests that there is a need for new qualitative studies that are capable of "exploring technology use in greater depth and with sensitivity to individuals' contexts." Helsper and Eynon (2010) recommend more qualitative work to understand further about the learning that may occur because of Internet use. They suggest that reports on patterns of use are insufficient to improve and advance theories of learning with regard to new technologies. This research study, in its use of hermeneutic phenomenology methodology aims to fulfil this gap in the research literature by investigating how participants used their smartphones in depth and in their individual contexts for learning.

2.3.1.2 Learners' Lifestyles and Patterns of Online Use

With the increasing availability of smartphones and other mobile devices becoming more affordable, young people and children have at their disposal, highly capable computing devices connected continuously to networks, databases, services and online repositories as they fashion personal lifestyles based on their appropriation of these media content and technologies (Pachler et al., 2012). Their patterns of use include participating in digital practices, information-seeking, communicating, writing and sharing stories, creating media, and playing games; all which may facilitate learning (Buckingham, 2008, Eynon and Malmberg, 2011, Pachler et al., 2012).

In an examination of young people's engagement with digital media, Lankshear and Knobel (2010, p. 1) introduce the term "DIY (Do It Yourself) Media to describe youth practices such as "podcasting, music, remixing, creating flash animations, making machinima movies." Youth are positioned

as DIY producers and creators as the engagement with digital media and mobile technologies involve the "matter of knowing something about their goals and aims and purposes; their tools and how they use them; the knowledge they draw on and seek to obtain in crafting their production to a personally satisfying level of expertise; the values and standards they recognize as relevant to good practice" (Lankshear and Knobel, 2010, p. 2). In this discourse, youth are portrayed as autonomous, creative and self-directed as they pursue their interests and engage with the media and technologies (Gee, 2008, Brown and Adler, 2008, Lankshear and Knobel, 2010, 2011). As evidence of the creativity shown in such practices, Knobel and Lankshear (2008, p. 23) cite the "endless hybridization" shown in digital remixes such as in "photoshopping, music and music videos, Machinima, moving images, original manga and anime fan art, and service ware mashups."

This perspective has been challenged with some authors arguing that most digital practices of youth are limited to mundane uses of technologies with only a minority displaying interest in the wide spectrum of the affordances of the new technologies and utilising more creative and advanced technological skills in their digital practices (Buckingham, 2008, Luckin et al., 2009, Crook, 2012).

Eynon and Malmberg (2011, p. 585)'s typology of young people's use of the Internet revealed four Internet usage profiles: "the peripherals (least frequent use of the Internet), normatives (average use), all-rounders (more than average use) and active participators (most frequent use)." In contrast to the hype on the Digital Native notion it was found that "run of the mill use of technologies is common amongst young people" (Eynon and Malmberg, 2011, p. 592). The differentiating variable of the active participators is the problem-solving approach they adopt on the use of new technologies. They take responsibility for their own learning and use technologies to solve problems for themselves. The study also suggests the importance of having friends engaged in such media practices, Internet self-efficacy and the role of parental regulation in the use of the Internet.

Online information seeking has emerged as one of the most popular online activities for youth and children (Pachler et al., 2010b, Eynon and Malmberg, 2011, 2012). The importance of networks of support, particularly friends' engagement in online information seeking was found in a study by Eynon and Malmberg (2012) on patterns of Internet use. Parents were perceived to have influence on self-concept for learning but do not have significant effect on online information skills. Eynon and Malmberg (2012) suggest that parents may function as good role models for their children and provide support and positive reinforcement for their learning, thus affecting their self-efficacy with use of technologies.

Luckin et al. (2009, p. 87)'s study of 11-16 year old students' use of Web 2.0 technologies revealed 4 categories of learners: "(1) researchers: mainly in terms of reading with little evidence of critical enquiry or analytical awareness; (2) collaborators: mainly with respect to file sharing, gaming and communicating; (3) producers and (4) publishers: mainly in terms of sharing experience through social networking sites." They concluded that the majority of learners were unfamiliar with the full range of Web 2.0 activities and only a small minority were proficient technologically and engaged in production and publishing of self-created content in the Internet.

As there was "little evidence of ground-breaking activities and only a few embryonic signs of criticality, self-management or metacognitive reflection", Luckin et al. (2009, p. 87) called for the introduction of higher order thinking skills in formal education in any endeavour to utilise Web 2.0 for learning in formal education. By higher order thinking skills, they refer to the 21st century skills set recommended by Buckingham (2008) and Green, and Hannon (2007): namely metacognition, critical awareness, and the ability to transfer such skills across domains and contexts.

The picture that emerges thus far is that the majority of young people may be more concerned with consumption of media on their mobile devices and engaged in relatively low level and basic use of Web 2.0 technologies. What appears lacking or missing from research on mobile learners are studies on

users of smartphones who not only use Web 2.0 media technologies but also the other affordances of their smart devices for learning. A composite picture of these uses could reveal new patterns of use and new learning scenarios that may not have emerged previously.

2.3.2 Spaces and Places

Traxler (2009b, p. 14) argues that m-learning signals a new approach to learning: “just-in-time, just enough, and just-for-me” with a focus on the experiences of learners and with it, “the emphasis on ownership, informality, mobility, and context.” Mobile devices, thus, have the capacity to change the nature of knowledge and discourse, which in turn would affect the nature of learning and teaching (Traxler, 2009b). Kukulska-Hulme et al. (2011, p. 158) suggest that the “new mobile character of society manifests itself, for example, in the mobile culture developed amongst young people and the increasingly fragmented and mobile work and leisure practices.”

Mobile technologies are arguably changing the relationships between public and private spaces, and how people view these relationships penetrated by “mobile virtual spaces” (Traxler, 2009a, p. 72). Learning can take place not only in established public or private spaces such as in schools, libraries, homes but also on the train, bus or in the toilet. Kakihara and Sørensen (2002) suggest that the notion of mobility include mobility of spaces (physical, conceptual, social) and temporality.

Physical mobility means that mobile devices can be taken to different locations (contexts) which are most appropriate for learning to take place. Context is created by learners through interactions with their environments. As Sharples et al. (2007a, p. 230) note, “context can be temporarily solidified, by deploying or modifying objects to create a supportive workspace, or forming an ad hoc social network out of people with shared interests, or arriving at a shared understanding of a problem.” Mobility in conceptual space refers to the conceptual topics or themes that compete for a learner’s attention every day, as they are driven by passion, interest and curiosity (Kukulska-Hulme et al.,

2011). In social space, learners on the move, perform their social roles and functions in different settings such as the school, home, office and cyberspace (Kakihara and Sørensen, 2002, Kukulska-Hulme et al., 2011).

Investigation into m-learning thus, has moved from a predominant focus on fixed physical places (classrooms) to other places (outside classrooms and in the boundary spaces between). Projects which investigated the effects of situated learning or learning in context were initiated such as learning in museums (Sharples et al., 2007b, Yatani et al., 2004), field trips (Chen et al., 2004, Stanton et al, 2003), use of educational games in different settings (Facer et al., 2004, Spikol and Milrad, 2008, Klopfer and Squire, 2008) and 'seamless learning' in formal and informal contexts (Looi et al., 2010, 2011). These projects have advanced knowledge on learning with mobile devices, learning in context and the importance of design, pedagogy and implementation.

However, as Wright and Parchoma (2011) note, despite the dominant theme of "ubiquity' and "prevalence" of mobile devices in learners' lives, most research projects controlled both the device and tasks for completion in formal and informal settings. Wright and Parchoma (2011, p. 254) contends that a greater focus on the "ubiquity and prevalence in practice" is needed as there is minimal literature on informal learning with mobile devices and consequently, they are "desperately seeking mobile practice in action."

It is in the field of media and communication studies that most research on young people's engagement with social networks and Web 2.0 tools in naturalistic settings can be found (Ito et al., 2008, 2010, Buckingham, 2008, Drotner, 2008, Stern, 2008, Weber and Mitchell, 2008, Livingstone and Helsper, 2010, Livingstone and Brake, 2009). The rapid rise and popularity of social networking sites like *Facebook* and *Twitter* has given rise to new opportunities for communication, learning, creative self-expression and networking for young people (Livingstone and Brake, 2009, Lankshear and Knobel, 2011). Conversely, there are associated risks with these opportunities: bullying, dangerous contacts and privacy invasion (Livingstone

and Brake, 2009). Leisure-time digital practices tend to be based on personal interests and experiences and display more problem-based and experiential work processes (Drotner, 2008).

These studies investigate the learning in social spaces (Kakihara and Sørensen, 2002) and advance the knowledge about young people's online behaviours, affiliations and motivations mediated through laptops, smartphones, tablets and mobile phones. What appear to be missing are studies that explore the learning in conceptual spaces: how attention shifts from one conceptual topic to another and how learning can or may be crammed into the activities of daily life.

2.3.3 Temporality and Everyday Learning

Kakihara and Sørensen (2002) argue that technology affects the temporality of social practices. New advances in technology are motivated by the ambition to hasten the pace of life and to save time in business and industry. Hence, the temporality of social practices and interactions cannot be accounted for by a linear perspective of time, rather it is now significantly mobilized into various temporal modes with people multi-tasking, working, playing and learning at the same time (Kakihara and Sørensen, 2002). Learning that occurs across formal and informal learning contexts and dispersed over time is viewed as "a cumulative process involving connections and reinforcement among a variety of learning experiences" (Kukulska-Hulme et al., 2011, p. 159, Dierking et al., 2003).

Studies undertaken to investigate this mode of learning that occurs throughout people's lives have been variously defined as lifelong learning (Knapper & Cropley, 2000, Fischer and Konomi, 2007) and free-choice learning (Dierking and Falk, 2003). Lifelong learning outside school is conceptualised as being intrinsically motivated and principally under the control and choice of the learner (Dierking and Falk, 2003), and it is driven by needs and interests, frequently collaborative and performed in tool-rich environments (Fischer and Konomi, 2007).

Sharples (2000, p. 179) argues that mobile technologies are particularly appropriate for the implementation of lifelong learning in countries as their features and affordances combine well with lifelong learning methodological issues. Arrigo et al. (2013) suggest that mobile technologies are the most appropriate technologies to implement the lifelong learning vision of governments but acknowledge that there is still no clear evidence to show the connection between adoption of mobile technologies and advancements in lifelong learning.

There is growing interest in the personalised and cumulative learning that occurs in everyday practices. Merchant (2012a) argues that people and material things they utilise are inextricably connected to each other. As such, mobile devices employed in everyday lives (public and private spaces) require investigation into the relationship between users and their mobiles, and the discourses and practices of their use. Drawing on Schatzki's (2002)'s social practice theory, Merchant (2012a, p. 772) defines "everyday mobile practices" as the "doings", "sayings" and "relatings that constitute informal social practice". These are the "observable ways in which people interact with or incorporate portable digital devices into existing, or emerging, sets of actions" (Merchant, 2012a, p.772).

There is emerging research on everyday practices of technology use (Caronia, 2005, Thulin and Vilhelmson, 2007, Petit and Kukulska-Hulme, 2007, Ito et al., 2010, Merchant, 2012b) on how mobile phones and associated practices are "insinuating" themselves "into the capillaries of everyday life (Gergen, 2003, p. 103). Thulin and Vilhemson (2007) place their research study in the dynamics of everyday life and communication with an emphasis on contact and activity patterns, social relations and everyday contexts. Their findings reveal that their young participants "experience an intense dependency" on mobiles and would not risk "being excluded from friends and social contact by not having access to a mobile" (Thulin and Vilhemson, 2007, p. 249). Their mobile devices enable them to socialise more easily and reinforce face to face meetings in their daily lives.

Ito et al. (2010) use “genres of participation” with new media to describe the daily learning and media engagement of American youths. The key difference is between “friendship-driven and interest-driven genres of participation, which relates to different genres of youths culture, social network structure, and modes of learning” (Ito et al., 2010, p. 15). “Participation” is a term used to differentiate itself from an internalization or consumption perspective, as it does not assume that youths are the passive audience to media or educational content. “Hanging out” signifies social interactions and friendships that are oriented to local networks. “Messing around” is participation that involves playing, exploring, “finding stuff”, cruising around; an intermediate stage between the other two categories. “Geeking out” refers to expertise, exploring a particular topic or technology in greater depth. “Transitioning between hanging out, messing around, and geeking out represents certain trajectories of participation that young people can navigate, where their modes of learning and their social networks and focus begin to shift” (Ito et al., 2010, p. 17).

Young people and children may be learning more widely and deeply as a result of their engagement with mobile technologies but the fundamental question is whether they are learning more effectively. Selwyn (2009, p. 368) argues that there are concerns with the “intellectual and academic “dumbing-down” associated with young people’s digitally redefined relationships with information and knowledge” as they appear incapable of gathering information from the Internet in a discriminating mode. Keen (2007, p. 25) suggests that there is now a “younger generation of intellectual kleptomaniacs, who think their ability to cut and paste a well-phrased thought or opinion, makes it their own.” These findings have implications as it suggests that young people may not be able to discriminate and construct knowledge critically in informal learning environments.

As mobile phones and smartphones have been so quickly and seamlessly absorbed into the fabric of everyday lives, Merchant (2012a) calls for a more detailed analysis of everyday mobile practices and their relationship to learning, particularly since mobile technologies have been so well assimilated

into daily lives that they have been taken for granted. There is a noticeable gap in the literature regarding the everyday mobile practices of smartphone users and their relation to learning. Not much has been learnt about how learners use their private spaces for learning with smartphones, the cumulative effect of this learning and if this informal learning transitions to formal learning contexts.

The difficulties of investigating learning in informal contexts in general and everyday practices in particular are manifold due to the mobility of learners and the wide range of contexts which are seldom structured with learning in mind. The learning that ensues is often fragmentary, not instantly obvious or is packed in the short intermissions between activities. The complexities of uncovering smartphone learning in everyday practices have resulted in it being an under-researched area. This study aims to bridge the gap in the literature by exploring how smartphones are integrated into the structure of everyday life and their relationship between everyday practices and learning in formal and informal settings.

2.3.4 Identity and Personal Agency

As Buckingham (2008, p. 1) observes “identity is an ambiguous and slippery term” as it is premised on a wide variety of assumptions, discourses and practices of the self from the fields of psychology, sociology, anthropology and mass communication (Erikson, 1968, Jenkins, 2008, Bauman, 2004, Griffin, 1993, Buckingham, 2008). Much of the ‘identity’ debate is concerned with the tensions between ‘identity’ as arising out of a unique personal biography and ‘identity’ as “multiple identifications with others, on the basis of social, cultural, and biological characteristics, as well as shared values, personal histories, and interests” (Buckingham, 2008, p. 1).

Jenkins (2008) argues that social identity should be seen as a social process, in which the individual and society are inextricably connected, and as such, identity is a fluid concept. This notion is well exemplified through Goffman’s (1959) notion of the presentation of self in everyday life or ‘impression

management'. This refers to front stage behaviour/ performance when people put on their best behaviour and conform to social norms in situations where they wish to impress other people. In back stage behaviour, people do not conform as much to social norms and may be more honest and more true to their real identities. Buckingham (2008) suggests that this notion of impression management may have implications for understanding how young people use digital media and mobile technologies, particularly in online interactions and communication such as texting, emails, and social networking.

Buckingham (2008, p. 6] suggests that 'identity' at the intersection of technology and identity is a "fluid, contingent matter" and it is "more appropriate to talk about identification rather than identity." Thus, according to this perspective, learners learn subconsciously about identity presentation and identity management. Stald's (2008, p. 161) investigation of young people's use of their mobile phones suggests that these devices are changing or intensifying social connections with friends and family:

> The mobile is the glue that holds together various nodes in these social networks: it serves as the predominant personal tool for the coordination of everyday life, for updating oneself on social relations, and for the collective sharing of experiences. It is therefore the mediator of meanings and emotions that may be extremely important in the ongoing formation of young people's identities.

Young people therefore, have to constantly negotiate values, representations and their identification with others in their ongoing construction, management and presentation of fluid identities (Stald, 2008). Boyd (2008)'s analysis of 2 social networks, '*Myspace'* and '*Friendster*' reveal that developing a social identity online requires learning through impression management. Young people have to decide where they wish to be located inside the social world that they see and subsequently, make attempts to get the responses to their performances that meet up to their vision. From the findings, it suggests that the young people form hierarchies, manage impressions and engage with social roles in complex ways that may not be very different from traditional offline social relationships.

Agency refers to learners' ability to construct their own lifeworlds and to use different technologies and media for meaning-making (Pachler et al., 2010a). Mobile devices, and in particular, smartphones afford youth and children control and choice over their own learning and everyday mobile practices. This is particularly important during the process of adolescent development as youth struggle to construct their own identities and differentiate themselves from their peers and families (Stald, 2008, Drotner, 2008, Stern, 2008). Agency therefore, enables learners to choose the type of media, activity and practice, and the time, rate or pace at which they wish to engage with these mediums and practices. From these choices and control, learners derive pleasure and satisfaction in their learning (Drotner, 2008, Boyd, 2008) increased motivation and the "wow" effect (Sharples et al., 2009, p. 242).

With smartphones and other mobile devices becoming increasingly ubiquitous in youth cultural contexts, identity and personal agency can be two analytic lenses to investigate young people's interactions with social media and mobile technologies. Although identity is an ambitious and wide-ranging concept, it directs attention to important questions on social relationships, personal agency and personal development, issues that are critical for our understanding of youth and children's development into adulthood and the nature of their cultural, social and learning experiences (Buckingham, 2008, Stald, 2008, Drotner, 2008, Stern, 2008).

2.4 LEARNING WITH SMARTPHONES

Learning with smartphones or m-learning in this study is presented as a contextualised, participatory activity with a focus on the experiences of learners and its attendant features of informality, mobility and ownership. In addition, smartphone learning is learning that:

i. includes communication between people, people with technology, or people's interaction with and exploration of environments and in changing contexts. It refers to use of personal and interactive technologies with

learning regarded as constructing meaning from personal experiences and knowledge (Sharples et al., 2007a, Pachler et al., 2010a)

ii. requires different approaches (deep or surface) to learning depending on context and the learning task (Marton and Säljö ,1976a, b, 2005)

iii. arises when learners increasingly participate in communities of practice with people who share their goals, interests and activities (Lave and Wenger, 1991). Learners participate in situated negotiation and renegotiation of meaning in a social world that is unique, contextual, historical and dynamic (Wenger, 1998)

iv. takes place in authentic contexts where the learning is situated (Lave and Wenger, 1991). In such authentic settings, cognitive apprenticeships (learning to be) are undertaken by learners who work on problems before they fully understand them with the guidance of other more expert learners (Brown et al., 1989)

v. where people mainly learn and reflect through their own past experiences which are fundamental in assisting the forming of hypotheses on how to respond and act in new situations (Gee, 2008, 2010).

This study is concerned with young people's use of mobile and digital technologies in their everyday lives. It does not subscribe to a purely socio-cultural view that technology is wholly shaped by prevailing social relations. Rather, it adopts Williams (1974) dialectal stance in its investigation of the impact of technology on socio-cultural practices of the young participants. Hence, it moves beyond the perspectives that technology is a straightforward cause of social changes or that technology can easily resolve complicated social problems. The theoretical perspective of this study is that learning is influenced and altered by smartphones, and mobile technologies and applications (inherent affordances and constraints) used for learning and that in return the learning tools are modified by the means that they are used for learning.

In this review of the research literature, several conceptual gaps emerged that suggest the need for further and new investigations. There has been very little rigorous research on the potential of smartphones as the bridge between learning in formal and informal learning contexts. Very little is known about

how the everyday mobile practices of smartphone users engender learning, and if there is quality and value in these learning practices. There is also inadequate knowledge of how learners perceive their learning experiences with smartphones and their relationships with these devices.

The majority of m-learning studies have concentrated on developing m-learning systems and evaluating the effectiveness of these systems using experiments and surveys. To date, extensive empirical studies on m-learning, online use and social networking practices have led to very little cumulative development of understanding of the phenomenon of mobile learning in informal contexts. The limitation for example, of using surveys is discovering young people's patterns of online use but not about how "each type of use may lead to opportunities for learning" (Eynon and Malmberg, 2011, p. 585). There is therefore a pressing need to find out more about how learning occurs with different types of digital media and Web 2.0 tools, especially in the context of using smartphones and everyday mobile practices.

2.5 SUMMARY

The growing body of m-learning research is evidence of its increasing importance with research increasingly turned towards investigations on m-learning and pedagogy as successful implementations have to take into consideration effective pedagogical principles and practices. Attention is progressively more focused on studies that examine the fit of technologies into established school/classroom practices as it cannot be assumed that all technologies are good for the classroom.

Introducing or integrating m-learning into established educational practices, however, is posing a problem as many educators who are still struggling with technological advancements encroaching into their habitus, see the disruptive qualities of mobile devices and have yet to understand the full potential of m-learning.

The importance of more qualitative studies on understanding young people's social and mobile practices in their everyday lives have been emphasised in the literature. In particular, there is need to understand more about how young people switch their attention from one topic or subject to another when they use their mobile devices and the nature and value of this cumulative learning.

3 DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This study aims to uncover the meanings students attribute to their everyday mobile practices in order to elicit a deeper understanding of the phenomenon that presents itself as learning with smartphones. To achieve this aim, hermeneutic phenomenology, with its roots in phenomenological philosophy and hermeneutics, has been chosen as both methodology and method.

In this chapter, a rationale is provided for the choice of hermeneutic phenomenological methodology to investigate the lived experience of participants' learning with smartphones. It discusses the philosophies of Husserl, Heidegger, and the main notions fundamental to phenomenology and hermeneutics, and makes explicit the points of concurrence and divergence which underscore the philosophical and theoretical assumptions upon which this research study is based. The research design therefore, draws upon the theoretical perspectives of phenomenology and hermeneutics. Four phenomenologists, van Manen (1990), Gadamer (1997), Hycner (1985) and Polkinghorne (2005, 2007) inform this study as their articulation of theoretical principles and methodical procedures were particularly influential.

There is a discussion on the researcher's role, beliefs, research methods utilised, and the procedures used to ensure rigour, trustworthiness and quality in this study. Ethical issues concerned with the collection of evidence and the writing process are also discussed. The chapter concludes with a deliberation of the limitations of the research design adopted.

3.2 RESEARCH PARADIGMS

3.2.1 Importance of Research Paradigms

Research paradigms present a crucial structure for understanding, explaining

and justifying research strategies. ‘Paradigm’ in the context of research methodology refers to a “set of philosophical assumptions about the phenomena to be studied, about how they can be understood, and even about the proper purpose and product of research” (Hammersley, 2012). The three most frequently used paradigms in education research are the empirico-analytical paradigm (also recognized as quantitative research) and the interpretive and critical paradigms (jointly identified as qualitative research).

While the term ‘qualitative research’ is usually employed in the literature, locating the present research under this general definition is problematic for 2 reasons. Firstly, qualitative research is a term covering a variety of research methodologies derived from different traditions including psychology, sociology, philosophy, history and anthropology (Denzin and Lincoln, 2000, Hammersley, 2012, Koch, 1996), and thus, on its own lacks preferred specificity. Secondly, some research paradigms with differing philosophical underpinnings and theoretical perspectives may be utilized in the conduct of qualitative inquiries.

Denzin and Lincoln (2000) suggest that paradigms can be seen as including 4 concepts: epistemology, ontology, methodology and ethics. Ethics refer to the study of morality or the moral principles that underpin the conduct of what is right (Corey et al., 2003). Epistemology refers to “the theory of knowledge embedded in the theoretical perspective and thereby in the methodology” while methodology is defined as “the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes” (Crotty, 1998, p. 3). Epistemological argument thus, may concern knowledge in general or knowledge of specific types.

Hammersley (2012, p. 9) notes that ontology relates to “enquiry into, or assumptions or theories about, the nature of what exists (reality), including whether anything can be said to exist at all.” Accordingly, one dominant area of differing perspectives here relates to whether all phenomena have the same essential character or if there are multiple kinds of being. Another area of

difference concerns whether ideas or matter constitutes “the true nature of being; or whether both exist and are of equal importance; with the latter position leading to questions about the relationship between mind and body” (Hammersley, 2012, p. 9). Some theorists argue that the nature of social phenomena is essentially different from that of the experiences, behaviour and objects studied by natural scientists; and the epistemological inference often derived from this is that a distinctive approach is crucial in order to understand them (Denzin and Lincoln, 2000, Guba and Lincoln, 1994).

An understanding of these 4 concepts: epistemology, ontology, methodology and ethics is important to this study because when faced with a bewildering array of methodologies and methods, it is important to understand the theoretical underpinnings in order to distinguish between how these methodologies and methods relate to their theoretical elements. This helps to facilitate the design of this research study and its implementation to maintain consistency between the questions and the research approach, all important fundamentals if the research is to be deemed to be of good quality and of high credibility by the reader.

After an exploration of the different research paradigms and the accompanying concepts, the interpretive paradigm was selected for this research to best focus on this research topic and questions. The next section discusses the interpretive paradigm in the context of the qualitative research tradition.

3.2.2 The Interpretive Paradigm

The interpretive paradigm comprises multiple research approaches that have as its focus an interpretation of the social world. Hermeneutics and interpretivism (generally known as the *Verstehen* tradition of the human sciences) arose in the opposition of neo-Kantian German scholars such as Dilthey and Weber to the then prevailing philosophy of positivism (and then later, postpositivism) in the late nineteenth and early twentieth centuries (Smith, 1983; Schwandt, 2000). At the crux of the argument was the assertion

that human sciences were essentially dissimilar in purpose and nature from the natural sciences. Dilthey argued that with transformations over time, cultural differences and the complexity of the social world, it would be highly unlikely to discover laws as in the natural sciences (Smith, 1983).

People therefore construct their own meanings as they engage with the world that they are interpreting (Crotty, 1998). People may experience similar objects but their individual experiences may be different from others and this represents the concept of multiple constructed realities (Crotty, 1998). Thus, the ontological perspective is multiple and subjective, as there are several versions of reality (Creswell, 1998). Subjectivity is acknowledged and valued, principally that of the researcher and participants as it is recognized that people are not capable of total objectivity, situated as they are in their subjective realities. The interpretive approach is adopted in this study as it is recognised that participants have varying, individual experiences of their learning with smartphones, giving rise to multiple, constructed realities.

3.3 RESEARCH METHODOLOGY

The Interpretive paradigm comprises a range of research methodologies including phenomenology, ethnography, grounded theory, ethnomethodology and performance ethnography (Denzin and Lincoln, 2000). Hermeneutic phenomenological methodology, as informed by the works of Gadamer (1997) and Max van Manen (1990) is used in this study. Hermeneutic phenomenology pays special attention to both hermeneutics and phenomenology from which it is derived (van Manen, 1990).

The following sections describe the beginnings and historical development of hermeneutics and phenomenology as philosophies and human science approaches, in conjunction with a number of the major developments in modern philosophical thinking that bring them together. Such understanding is valuable, since the application of hermeneutic phenomenology is not an easy conduct of dispassionate or prescribed strategies. Rather, using this methodology in this study requires an exploration filled with choices and

justifications that need to be grounded in and informed by knowledge of the philosophical underpinnings and paradigmatic expectations of this approach. As such, the research design in this study is underpinned by an understanding of the philosophical and theoretical foundations of hermeneutics and phenomenology.

3.3.1 Phenomenology and Husserl

The word, 'phenomenology' comes from the Greek word, 'phenomenon' which means to 'show itself' or to manifest itself in order to be visible (Ray, 1994, p.119) and this root word sums up the fundamental nature of phenomenological research as its aim has been to uncover the crux of experience and its essence(s).

To answer the question of 'What is Phenomenology?', Ray (1994, p. 118) argues that one can turn to the question, 'What is Philosophy?' as both share the same concerns with the ontologic question, 'What is Being?' and the epistemologic question, 'How do we know?' Phenomenology is also similar to philosophy in its use of reflection as the method and form of analysis. Therefore, phenomenology is primarily a "philosophy or a variety of distinctive, yet related philosophies" (Ray, 1994, p. 118). Yet, it has been considered as an approach and method. In fact, Husserl (1970 trans), the founder of phenomenology regarded it as a philosophy, an approach and a method.

Husserl developed phenomenology as a radical enquiry in opposition to the prevailing theoretical perspective of positivism (and later postpositivism) and the manner in which it was applied to the human sciences (Cohen, 1987). Positivism emphasized that sensory experience is the source of all authoritative knowledge and that all data received from the senses can be verified to produce empirical evidence. In addition, it embraces the Cartesian dualism of reality being external, observable and separate from the individual (Koch, 1996). Husserl, on the contrary, believed that people should be observed in their natural settings and not in artificially created environments. In his criticism of psychology, he argued that humans are living subjects who

are not responding automatically to external stimuli but are in fact, reacting to their own view of what these stimuli represent (Husserl, 1970 trans).

Husserl believed that philosophy is a precise science, rooted in certainties and examining a person's awareness and experiences would reveal that the 'pure self' is the 'ultimate certainty' (Goulding, 1999, p. 863). In the study of human consciousness, there are characteristics to any lived experience that are shared by all persons who have the experience, which he referred to as universal essences, or eidetic structures. The essences are deemed to correspond to the true nature of the phenomenon under study. The supposition that essences uncovered through phenomenological research end in one correct understanding of the participants' experiences represents a foundationalist approach in inquiry (Allen, 1995, Lopez & Willis, 2004).

Accordingly, reality is perceived as objective and independent of context and history. This assumption that essences can be extracted from lived experiences independent of context is reflective of the values of traditional science and characterise Husserl's endeavour to make phenomenology a rigorous science within the dominant tradition. Although there are different variants of phenomenology, most phenomenologists generally agree with Husserl that phenomenology is the study of experience (or the appearance of things) and the nature and meaning of such experiences for one person or a group (Ray, 1994, van Manen, 1990, Laverty, 2003, Finlay, 2009, Friesen et al., 2012).

3.3.2 Hermeneutic Phenomenology and Heidegger

Phenomenologists do not all agree with Husserl's approach as phenomenology has developed in different directions, often reflecting distinct philosophical directions of significant figures such as Martin Heidegger, Maurice Merleau-Ponty, Emmanual Levinas, and Jean-Paul Sartre. As a movement, it is relatively amorphous with one key event in its history: the development from Husserl's 'transcendental' realm of essences to the

Heidegger's 'immanent' world of everyday objects (Giorgi, 2005, Friesen et al., 2012).

To Heidegger (1962 trans), it is more important to study the nature of 'being' which could be found in consciousness and the kinds of existence people have. Existence is dependent on the different ways in which the world is structured. His existentialist view is based on the concept of situated freedom in that individuals are responsible for their own choices in life and there are no guarantees that such choices are/will be the right choices (Heidegger, 1962, Goulding, 1999). Thus, individuals have the autonomy to choose their own worlds or existence but cannot escape the outcomes of their choices.

From a Heideggerian perspective, consciousness is not detached from the world but is part of the historically lived experience of people. Heidegger (1962, trans) proposed the concept of 'Dasein' with 'Being-in-the-world' as an essential component. In Heidegger's description of 'Being-in-the world', the 'world' exists only if 'Dasein' exists. He makes a distinction between the lived world and the physical world: the latter can be investigated using the scientific method but the former requires the researcher to discover a way into the world to reveal that world to others. Heidegger argues that many human activities are not directed by deliberate choices, conscious decision making or reflection but that many actions have a 'taken-for-grantedness'. This supports explorations into the phenomena of everyday activities of smartphone users to reveal what have been taken for granted in their learning.

Heidegger also suggested that people could not extract themselves from their everyday world. His focus thus, is not on the pure content of human subjectivity but on what the individual human narratives imply about experiences in their historical, social and cultural contexts (Lopez and Willis, 2004). In contrast to Husserl's transcendental phenomenology that focuses on describing categories of the actual, perceived world in the narratives of the participants, Heidegger's hermeneutic phenomenology aims to describe the meanings of such individuals' 'being-in-the-world' and how these meanings affect the decisions they make. This would engender an analysis and

interpretation of the social, political and historical factors that influence the experience. Hence, in the exploration of the lived experiences of young people's use of smartphones in Malaysia, their 'being-in-the world' would be investigated to determine how such social, political and historical factors affect their perception of the learning and the experience itself.

Expert knowledge or the presupposition of researchers is considered valuable to the study, as it would add to the meaningfulness of the research. Heidegger (1962 trans) claims that it is impossible to remove from the researcher's mind all the background of understanding and presuppositions that led him/her to carry out the research in the first place. These assumptions and prior knowledge would be carried through in the conduct of this research study and in the analysis and writing.

Personal knowledge and preconceptions are deemed as both necessary and valuable in research and the techniques of bracketing used by descriptive phenomenologists are perceived as problematic and inconsistent within a hermeneutic approach (Lopez and Willis, 2004, Finlay, 2009). To ensure quality in the research study, it is important, however, to make such preconceptions and presuppositions explicit and to explain and justify their use in the inquiry (Denzin and Lincoln, 2000, 2011, Whitehead, 2004, Ajjawi, 2006, Ajjawi and Higgs, 2007). This practice and the principles underpinning this practice are adhered to in this research study in order to maintain rigour and quality.

Another difference between these 2 types of phenomenology is their emphasis on the 2 different branches of philosophy. Eidetic phenomenology (or the Husserlian tradition) is *epistemelogic* and concentrates on using reflective intuition to describe and clarify experience as it is lived and formed in consciousness (Husserl, 1970). Hermeneutic phenomenology (or the Heideggerian tradition) is *ontologic,* "a way of being in the social-historical world where the fundamental dimension of all human consciousness is historical and socio-cultural and is expressed through language (text) (Ray, 1994, p. 118).

3.3.3 4 Key Concepts in Phenomenology

A full discussion of phenomenology and its traditions is beyond the scope of this study. There is a need however, to be sensitive to the context of study and to be clear as to which philosophical and research traditions in phenomenology are to inform my research approach (Moran, 2000, Finlay, 2009). In the following sections, 4 key concepts (*consciousness, lived experience, lifeworld, and phenomenological reduction*) are discussed together with my interpretation and position on them.

3.3.3.1 Consciousness

To Husserl (1970 trans), 'consciousness' (human experience) is fundamental as people cannot act or speak without implicitly including it and a full understanding of this concept consists of the complete totality of the lived experiences of human beings. Husserl's perspective on consciousness was a departure from the prevailing Cartesian subject-object dualism. The Cartesian view of human consciousness was an awareness of thoughts and feelings that was directed inwards rather than outwards to the things that lead to such thoughts and feelings. Husserl on the contrary, believed that the focus should be on "the way consciousness is turned out on to the world, as it intentionally relates to objects in the world. And it is this consciousness of the world, or, more specifically, the relationship between a person's consciousness and the world, that is the object of study" (Landridge, 2007, p. 13).

The most important characteristic of consciousness is 'intentionality'. By 'intentionality', Husserl meant that every conscious experience has meaning, and a mode of being for consciousness (Moran, 2000). Thus, it is perceived as a process where the mind is focused towards objects of study. For Husserl, all consciousness is intentional and each time human beings are conscious, they are conscious of something. For example, with relation to this study, every act of use by the participants is the use of something, every act of seeing, is the seeing of something. Husserl argues that experience is always the experience of something and this belief led him to transform the subject-object distinction

into a correlation between the ‘noesis’ (how something is experienced) and ‘noema’ (the product/content of this experience (Moran, 2000).

In his initial works, Husserl viewed the subject (human being) as the one who experiences and is part of this correlation. However, in his later life, Husserl’s work took a transcendental turn where the subject or “I” was no longer part of the equation between ‘noema’ and ‘noesis’ and could instead make a reflective move to be outside this relationship to view the process from above or outside (Landridge, 2007). This aspect of Husserl’s philosophy has been much criticized with Heidegger proposing a new perspective. The “I” or subject remains embedded in the intentional relationship between ‘noema’ and ‘noesis’ and existence is seen as embodied in the world as “being-in-the-world” (*the hyphens suggesting the inter-relatedness*). According to this Heideggerian perspective, all perception of the world is therefore grounded in the human body in relation to the world/environment they live (Landridge, 2007).

In phenomenology, the “I” is positioned at the noetic pole of intentional correlation as the self-reflective ego or human being does not occupy the principal position in the experience unlike other humanist traditions (Landridge, 2007). The experiencer is not the starting point for the exploration of the structure of the experience; instead, it is the experience that is the first focus of the investigation. Phenomenological investigation starts with Husserl’s “back to the things themselves”, which is the description of the immediate experience (Moran, 2000).

In this study, I agree with Heidegger’s philosophical perspective of the subject, “I” remaining embedded in the intentional relationship between the ‘noema’ and ‘noesis’ as the experiencer or “I” cannot be removed from the correlation relationship. In addition, I subscribe to the Husserlian view, that consciousness, subject and objects are inherently connected, rather than separate entities as within the Cartesian subject-object dualism.

3.3.3.2 Lived Experience

The question of "lived experience" is important as phenomenology originates in the lived experience and ultimately turns back to it. Dilthey describes lived experience as:

> A lived experience does not confront me as something perceived or represented; it is not given to me, but the reality of lived experience is there-for-me because I have a reflexive awareness of it because I possess it immediately as belonging to me in some sense.
>
> Dilthey, 1985, p.223

Hence, lived experience in its most fundamental form concerns a pre-reflective, immediate consciousness of life. Dilthey (1985, p. 227-228) believed that "lived experiences are related to each other like motifs in the andante of a symphony" and have a "structure or structural nexus". As such, they form "part of a system of contextually related experiences, explicated from it through a process of reflection on its meaning" (van Manen, 1990, p. 37). Lived experience has a temporal structure in that its immediate appearance can never be grasped; it is only as past presence that its vividness and entirety can be fully understood.

van Manen (1990) suggests that as we reflect on past lived experiences, we are applying the principles of hermeneutics. As we reflect, we interpret. The interpretive exploration of lived experience has the methodical feature of relating the particular to the whole, the part to totality. Hermeneutic phenomenology exemplifies van Manen's (1990, p. 38) notion of human science research: phenomenology because it is "the descriptive study of lived experience (phenomena) in the attempt to enrich lived experience by mining its meaning"; hermeneutics because it is "the interpretive study of the expressions and objectifications (texts) of lived experience in the attempt to determine the meaning embodied in them."

Thus, hermeneutic phenomenology as informed by van Manen (1990) has relevance for my study as it focuses on the lived experience: the content of

pre-reflective, immediate consciousness, the manner of the experience, and the subsequent reflection and interpretation of this lived experience. This has applicability in my study of exploring lived experience and the way in which the world of everyday mobile practices and learning with smartphones is perceived by the research participants.

3.3.3.3 Lifeworld (Lebenswelt)

Husserl (1970 trans) argued that the study of human sciences was not to explain laws or discover cause and effect as in the natural sciences; rather it was to understand the 'lifeworld' in its pre-reflective condition and to revisit and re-examine those taken for granted experiences in order to expose new and forgotten meanings, that is, as he put it, to go back 'to the things themselves'. The lifeworld *(Lebenswelt)* refers to the existence of an everyday world; concretely lived, and filled with complex meanings that shape the foundation of a person's everyday actions and interactions. The lifeworld, thus relates to a person's lived environment and social world rather than some inner introspective world. In phenomenology, the focus is not on the inner man but as Merleau–Ponty (1962, p.xi) suggests the focus is on 'man is in the world, and only in the world does he know himself'.

The idea of the lifeworld has been developed further by Schütz and Luckmann (1973, p. 3-4), who define it as:

> ..by the everyday lifeworld is to be understood in that province of reality which the wide awake and normal adult simply takes for granted in the attitude of common sense. By this taken-for-grantedness, we designate everything which we experience as unquestionable. Every state of affairs is for us unproblematic until further notice.

They argue that there is the possibility of multiple and different lifeworlds and consequently suggest that it is conceivable for each of us to inhabit dissimilar lifeworlds at different times of the day. I draw on this distinction in my study which identifies the everyday lifeworlds of the student participants as having different experiential qualities from the school and classroom lifeworlds or from

my lifeworld as the researcher. Furthermore, I embrace the view that the participants probably experience different lifeworlds throughout the course of their everyday living, for example, that their lived world of hanging out with friends differs from their lived world of home. Therefore, in my study, I accept and use the concept of various and multiple lifeworlds.

3.3.3.4 Phenomenological Reduction

Although the notion of the lifeworld is essential to all in phenomenology, it is also a point of contention for many with the key issue focusing on the role of researcher subjectivity. Husserl (1970 trans) thought it possible to transcend the lifeworld by abstaining from presuppositions or preconceived ideas, a process that he called 'epoche' or more commonly known as 'bracketing' to achieve contact with essences. Another problem he identified was to assume that the phenomenon of study exists before an investigation and this must be addressed by the researcher.

Phenomenological reduction is a methodological device developed by Husserl to enable research findings to be more precise. As human existence is characterized by the natural attitude, this is the most basic form of experiencing the world with taken-for-granted assumptions of experiences. As a result, much is undetected and there is, thus, much to be discovered through the application of phenomenological methods, which enable people to leave behind the natural attitude or, at the very least, become critically aware of the natural attitude and thus, attain "a greater critical understanding of the assumptions in operation in a person's lived experience" (Landridge, 2007, p. 17). The objective of transcendental phenomenological reduction is to help the researcher to put aside the natural attitude or the preconceived assumptions in order to see the "things themselves."

Is it possible to truly bracket presuppositions and preconceived ideas? Transcendental phenomenologists that follow Husserl believe this is possible. Giorgi (1997, p. 240) believes this is attained by entering an attitude of phenomenological reduction to:

i. bracket past knowledge about a phenomenon, in order to encounter it freshly and describe it precisely as it is intuited (or experienced), and
ii. withhold the existential index, which means to consider what is given precisely as it is given, as presence, or phenomenon.

Giorgi (1997) argues that no research study can be deemed phenomenological if some sense of the reduction is not expressed and used. Ashworth (1996) proposes that at least 3 specific areas of presuppositions need to be put aside: scientific knowledge, theories, and explanation; truthful or inaccurate statements being made by the participant; and personal opinions and experiences of the researcher which would obscure descriptions of the phenomenon itself.

Existential phenomenologists like Heidegger and Merleau-Ponty believe that researchers can never truly bracket off all their presuppositions and as Merleau-Ponty (1962) declares, attain a 'God's eye view' of the lifeworld and lived experience. These phenomenologists emphasize the grounded nature and embodied nature of 'being-in-the-world' (Heidegger, 1962, Merleau-Ponty, 1962). Therefore, researchers especially those of hermeneutic sensibility, would deem it impossible to put aside or bracket their prior experiences or presuppositions. Instead, they argue that it is an awareness of their pre-existing values and presuppositions that make it possible to study and question them in light of new evidence (Halling et al., 2006).

Finlay (2009, p. 12) argues that "researchers need to bring a "critical self-awareness of their own subjectivity, vested interests, predilections and assumptions and to be conscious of how these might impact on the research process and findings." As such, researchers' subjectivity should be foregrounded to separate what belongs to the researcher and the researched. The researcher's self-reflection comprises a vital step of the research process, and presuppositions and preconceived biases need to be brought into awareness to separate them out from participants' descriptions (Colaizzi, 1973). Van Manen (2002) proposes a version of the reduction which he terms "hermeneutic reduction":

> One needs to reflect on one's own pre-understandings, frameworks, and biases regarding the (psychological, political, and ideological) motivation and the nature of the question, in search for genuine openness in one's conversational relation with the phenomenon. In the reduction one needs to overcome one's subjective or private feelings, preferences, inclinations, or expectations that may seduce or tempt one to come to premature, wishful, or one-sided understandings of an experience that would prevent one from coming to terms with a phenomenon as it is lived through.

What van Manen (2002) is suggesting is the practice of critical self-awareness regarding presuppositions and bias in order to be as open as possible to the content and significance of the phenomenon and the practice of "radical openness to the phenomenon." Yet on the other hand, he cautions that it is probably impossible to set aside all preconceived ideas and therefore these assumptions and prejudices need to be explicated in order to remove their obstruction for the phenomenon to speak what it wishes to speak. van Manen (2002) advocates another type of reduction: 'heuristic reduction'. This consists of adopting an attitude of child-like wonder in the face of the world. He argues that although it may be strange to adopt 'wonder' as a method in human science inquiry, adopting this approach leads to removing the attitude of taken-for-grantedness of everyday reality.

To Gadamer (1997) knowledge in the human sciences always encompasses self-knowledge. The researcher needs to have a phenomenological attitude, which is to be open to the phenomenon and this process includes recognizing one's biases.

> This kind of sensitivity involves neither "neutrality" with respect to content nor the extinction of one's self, but the foregrounding and appropriation of one's own fore-meanings and prejudices. The important thing is to be aware of one's own bias, so that the text can present itself in all its otherness and thus assert its own truth against one's own fore-meanings.
>
> Gadamer, 1997, pp. 271

I recognize the need for a 'phenomenological attitude', that is to adopt the attitude of openness in the design and conduct of this research study. I agree with van Manen (1990, 2002), Gadamer (1997) and Finlay (2012) on the need to critically reflect on my presuppositions and biases and to foreground and

explicate them throughout the research process and in the writing. Hence, the reduction that I practice is those notions and methods based on the 3 phenomenologists mentioned above.

3.3.4 Hermeneutics and Hermeneutic Phenomenology

The word, 'hermeneutics' originates from the Greek word, *hermeneuin,* which means 'to interpret' (Moran, 2000, p. 271). Initially concerned with the interpretation of biblical texts, hermeneutics has since been developed into an approach or a set of strategies to interpret all types of texts, not just religious ones (Speigelberg, 1976, Crotty, 1998). In the investigation of the human experience, hermeneutics extends beyond the description of fundamental concepts and essences to uncover meanings rooted in daily life practices. As these meanings may not be visible to participants, a hermeneutic inquiry would aim to uncover and interpret the meaning from participants' narratives. Meaning in hermeneutics, is perceived as being unstable and temporary as it is constantly open to insight and interpretation. Thus, hermeneutics presents one way of enhancing the researcher's understanding of the phenomenon through the interpretation of texts. In the act of interpretation, meaning is negotiated between the researcher and the text. Therefore, hermeneutics is usually considered as the science and art of interpretation, and of meaning (Friesen et al., 2012).

Heidegger perceived hermeneutics, not as a set of principles but as a method for the phenomenological explication of human existence (Crotty, 1998). The revelation of 'being' happens through the phenomenological method and hermeneutics aids in further understanding of its meaning and structure. In reading the text, meaning is not associated with the author of the text nor to its historical and cultural contexts but to the text as exemplifying the phenomenon (Moran, 2000). Hermeneutic phenomenology, hence, is the study of experience with its meanings, and in common with hermeneutics, it is continuously open to re-interpretation and revision (Ray, 1994, Finlay, 2009).

Ricoeur (1991, p 25-26) suggests that *"*phenomenology remains the unsurpassable presupposition of hermeneutics (while) on the other hand, phenomenology cannot constitute itself without a hermeneutical presupposition." It is therefore not feasible to explore experience without concurrently studying its meaning; it is not viable to examine meaning without experiential grounding. In addition Ricoeur (1991, p, 39), suggest that language is inextricably linked in this reciprocal dependency of meaning and experience:

> Experience (not only) *can* be said, it *demands* to be said. To bring it to language is not to change it into something else but, in articulating and developing it, to make it become itself.

Thus, language does not simply have a descriptive function, but one that is "expressive, and co-constitutive" of experience (Henriksson and Friesen, 2012, p. 3). Language is a constituent of the situation and not the person; it exists before the individual and is related to history and culture. Human beings are inducted into a world of language from their birth and, thus comprehend the world through language (Moran, 2000). Language or more specifically 'conversation' can expose something that was formerly hidden. It is through language for Heidegger (1962) and Gadamer (1997) that things which matter to us stand out and it is through *conversation* and *dialogue* that I will aim to capture portions of the lifeworld of the participants in this study in relation to their learning with smartphones.

Gadamer believed that historical and cultural understanding was developed through language and he was interested in elucidating the conditions in which such understanding took place (Schwandt, 2000). The following 3 sections discuss Gadamer's conditions of understanding: bias and prejudice, fusion of horizons and the hermeneutic circle.

3.3.5 Bias and Prejudice

Understanding is also, fundamentally related to self-understanding which comes from history and tradition with its own prejudices and biases. However,

bias and prejudice are not viewed negatively by Gadamer (1997, p. 271) who suggested that the important thing is to be aware of one's own biases as all understanding involves some form of prejudices but that these prejudices gave the "the hermeneutical problem its real thrust." They are a product of race, gender, class, and culture, providing contact to the world and therefore to understanding. According to this perspective, understanding cannot be ahistorical and value-neutral as advocated in positivist philosophy and research.

Attentiveness to researcher biases and prejudices resonates with the issue of the phenomenological reduction discussed earlier. Foregrounding my biases and prejudices means acknowledging and then setting aside these presuppositions and preconceived ideas to gain fresh perspectives. In designing and conducting this research study, I wrote down my biases and prejudices in a journal and field notes before, during and after interviewing my participants. In reflecting on these presuppositions regularly, I had to remind myself to keep an open phenomenological attitude all the time and to set aside preconceived assumptions or theoretical frameworks that I had read.

It was a difficult journey to be 'open' and free of preconceived ideas. As an ideal, it was a good target to aim for. In actual practice, I found I had to continually give this my full attention in order to see the experience as it wants to be seen. I found dialogue with my first and second supervisors helped me in seeing different perspectives; so too were the feedback, critique and comments I received as a the result of seminar and conference presentations on this study in the UK, USA and Portugal which clarified my understanding and position on some issues in the research study. As a result, I became more aware of my biases and prejudices and learnt how to put them aside to describe, clarify and interpret the phenomenon with an open attitude.

3.3.6 Fusion of Horizons

Gadamer (1997) believed that a "horizon" constitutes a range of vision that includes everything seen from a particular vantage point. It is also the

prejudice of foreknowledge which represents the limit beyond which we cannot perceive. This limitation comprises the horizon of a particular hermeneutical situation and a human being who has a "horizon knows the relative significance of everything within this horizon, whether it is near or far, great or small." (Gadamer, 1997, p. 301). Horizons are not fixed but overlapping and continually developing, as we constantly have to test our prejudices. Gadamer (1997) argued that questioning of prejudices is a fundamental aspect of the interpretive process as it aids in the creation of new horizons. An important element of this testing is the understanding of the history and traditions of the past and embracing them in the fusion of horizons. Thus, the present-day horizon cannot be created without the past.

The merging of horizons results in a new, richer and more developed understanding which is greater than the previous understanding. Lawn (2008) argues that one benefit of the 'fusion of horizons' is being able to broaden one's own cultural horizon and engage with another that could be strange and remote from one's own. As such, this process of merging of horizons can free us from cultural relativism. Through the research process, the horizons of the researcher and interviewees can merge through the language of the conversational interviews and the understanding of the experience that result. I appreciate and endorse the testing of prejudices through an exploration and foregrounding of my biases and prejudices in relation to the phenomenon being investigated so that my presuppositions can be brought into question.

3.3.7 Hermeneutic Circle

The hermeneutic circle (Figure 3.1) refers to the process of interpretation that occurs in a cycle, is dynamic and has no subject-object distinction. It is described as a "process of moving dialectically between a background of shared meaning and a more finite, focused experience within it" (Thompson, 1990, p. 243). Understanding is thus perceived as moving between the parts and the whole, each giving meaning to the other such that understanding is circular. The meaning of a single word, for example is recognised in reference

to the whole sentence, and in return, the meaning of the whole sentence is reliant on the meaning of the individual words in it (Crotty, 1998).

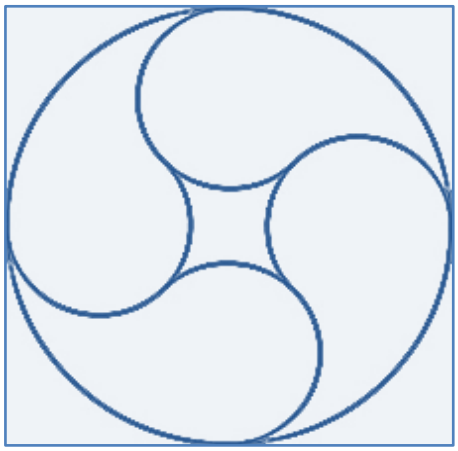

FIGURE 3.1. HERMENEUTIC CIRCLE: PARTS TO WHOLE EXPERIENCE

Hence, the interpretive process moves from components of experience to the whole experience and back again and is repeated to enhance the depth of understanding and engagement with texts (Laverty, 2003). Gadamer argued that this form of understanding is widespread and not restricted to academia or scientific inquiry (Thompson, 1990). The circle is not an infinite, recurring loop; every instance the reader goes round the circle, understanding of the unity of the whole grows and matures (Thompson, 1990).

This notion of the hermeneutic circle is applied in this research study. The participants' stories were not linear but contextual. The accounts of their experiences moved back and forth, from past to present, and from the main subject, 'learning with smartphones' to individual mobile practices. These stories were equivalent to the hermeneutic circle in that they moved from the parts to the whole and back again and were repeated. In the analysis and interpretation of the texts, the hermeneutic circle was applied again, as the engagements with the texts moved from part to whole, from components to the total experience, and were repeated to deepen the engagement and understanding.

3.3.8 The Turn to the Text

Gadamer (1997) proposed that understanding of the world was through language and, more specifically, speech and conversation that were central to all interpretive understanding. As hermeneutics is concerned with the understanding of texts, in hermeneutic phenomenology, the study and understandings of texts is subsumed under the understandings in speech and conversation. Hence, Gadamer's (1997) concept of 'conversation' is applied to the understanding of texts and this has relevance to my research study given that the thesis is presented as text and what is located in writing reveals itself for public access. In fact, hermeneutic phenomenological research involves the situating of the experiences of research participants in a structure that will enable reflection at a later date, as and when necessary.

The main objective of the hermeneutic phenomenological research process is the creation of a phenomenological text, but this text is more than the communication of information. van Manen (1990) suggests in hermeneutic phenomenology, 'anecdote' or 'story' functions as a key methodological device. He argues that 'anecdote' is not defined as simple stories meant to illustrate or "butter up" or "make more easily digestible" a difficult and boring text (van Manen, 1990, p.116). He draws attention to the anecdotes used in the writings of Sartre, Marcel and Merleau-Ponty to suggest that anecdotes can be understood as a methodological device to make understandable some concept that escapes us.

Anecdotal narratives (stories) are significant for hermeneutic phenomenological research as they function as experiential case material on which reflection is possible. According to van Manen (1990, p. 121), "anecdote particularizes the abstracting tendency of theoretical discourse: it makes it possible to involve us pre-reflectively in the lived quality of concrete experience while paradoxically inviting us into a reflective stance vis-a-vis the meanings embedded in the experience". In other words, the significance of the anecdotal narrative is located in its ability to:

i. to compel: a story recruits our willing attention
ii. to lead us to reflect: a story tends to invite us to a reflective search for significance
iii. to involve us personally: one tends to search actively for the storyteller's meaning via one's own
iv. to transform: we may be touched, shaken, moved by the story; it teaches us
v. to measure one's interpretive sense: one's response to a story is a measure of one's deepened ability to make interpretive sense

van Manen, 1990, p.121

Drawing on van Manen's (1990) conceptualization, anecdotal narratives are used in this research study as a main methodological device to invite the reader into the lived quality of concrete experience and also to reflect on the meanings embedded in that experience.

3.4 RESEARCH DESIGN IN PRACTICE

From the review of literature in Chapter 2, the phenomenon known as mobile learning is considered increasingly important within education with many researchers and educationists noting its potential to enhance or transform education in informal and formal settings. Most of the literature reviewed indicates that research studies mainly used quantitative or mixed method approaches to investigate this phenomenon, and these approaches have been useful in establishing a base of knowledge on m-learning. The gap identified from the literature review suggests a need for more qualitative studies as a sufficiently rich picture of m-learning, particularly one in its naturalistic settings would require research from across different paradigms. Furthermore, hermeneutic phenomenology has not been undertaken as a research methodology in m-learning.

My personal learning journey in this research study exemplifies the shift in focus from a quantitative/mixed methods approach to a qualitative approach. In the beginning, I was inspired by Clough et al. (2008)'s study on informal learning with smartphones and PDAs. Drawing on their 'Informal Learning Mobile Framework', I wanted to replicate the study in Malaysia in order to

investigate how young people learn with their smartphones using a mixed methods approach. However, in my pilot study in January to February 2012, I discovered the limitations of the survey method. I wanted a more in-depth and nuanced analysis of this topic, given the complexity of the subject of learning and the survey and supporting interviews could not yield this desired outcome. In particular, from some of the insights derived from my pilot study interviews, I became more interested in the everyday meanings accorded by young people to their learning with smartphones.

Hence, my research aim and research questions changed to the following:

> Research aim: To establish an understanding of what it means to learn with smartphones

i. What is this experience of learning with smartphones like?
ii. How do the student participants perceive the nature of their learning with smartphones?
iii. How is the learning related to participants' identity formation, identity management and presentation of self?

The learning young people do with their smartphones in their everyday lives are fragmentary, incidental, contextual, and episodic in nature and thus, difficult to gain access to and study (Pachler et al., 2010a). Moreover, this learning is intertwined with the daily, mobile use of social media and other digital technologies (Merchant, 2012a). A study using the experimental method will not be able to capture the essence of the learning in naturalistic settings. Using the mixed methods of a survey and interviews would be able to provide a breadth and some depth to the findings. Yet, they are still not able to supply the fine-grained analysis that is required from an investigation of fragmentary and incidental learning with smartphones. The methods discussed earlier are not able to answer effectively the questions of the meaning and structure of smartphone learning and how the participants perceive this learning.

Using a quantitative or mixed methods approach would mean the assumption is that the nature of knowledge is objective and there is only one form of reality, excluding context. This is not desirable for my study as I aim to explore the phenomena of learning with smartphones from the perspectives of the young participants in their natural settings of everyday lives. The assumption I make therefore, is that these participants have their own multiple perspectives of how they use their smartphones for learning, and each of this perspective is unique and valuable in contributing to knowledge on m-learning.

If the research aim is to explore how individuals learn with their smartphones and to uncover the meanings of these experiences, then a paradigm within which subjectivity is valued is important. The interpretive paradigm is thus most appropriate for the examination of individualized learning experiences while maintaining the setting and the larger context (Patton, 2002). Participants' personal learning experiences and their mobile practices are subjective in nature and would be deprived of their rich meaning if objectified and stripped of context.

Of all the qualitative methodologies, hermeneutic phenomenology is the most appropriate methodology for the investigation of mobile learning as it is uniquely suited to study the essential meanings of lived experiences. Phenomenology comprises its own "philosophical and theoretical approach premised on a phenomenological concept of experience as well as a research methodology consistent with this theoretical framework" (Cilesiz, 2011, p. 493).

Utilising phenomenological methodology and methods enable the discovery of the meaning of such learning from the participants' experiences and perspectives. Hermeneutics enhances the interpretive element to illuminate assumptions and meanings in the text that participants themselves may have trouble expressing (Crotty, 1998). Language and communication are entwined and hermeneutics proffers a method of understanding the human experience that has been situated in context and through language (Gadamer, 1997, van Manen, 1990). In sum, hermeneutic phenomenology enables meanings of

experiences that have been ‘taken-for-granted’ and hidden to be revealed, clarified and interpreted, and for the researcher to add her own interpretation. In particular, phenomenology as an approach to studying experiences can accomplish important functions in the study by:

i. enabling an in–depth, many-sided and comprehensive study of the experiences of smartphone learning
ii. offering a theoretical and philosophical framework consistent with its own methodology and methods
iii. supplying comprehensible guidelines on selection of participants, collection of evidence of lived experiences, analysis, interpretation, ethics and validity, which would assist its adoption in the field

Its strengths lie in its ability to provide richer, denser and more rounded descriptions of the lived experiences of young participants in Malaysia learning with smartphones.

Hermeneutic Phenomenology, as research method is a critical and rigorous, exploration of phenomena. Giorgi (1997) argues that any research method must arise out of attempting to be open to the phenomenon. No method should be indiscriminately imposed on a phenomenon since that would damage its integrity. van Manen (1990) observes that hermeneutic phenomenology does not prescribe fixed methods in the conduct of research. However, as an aid to researchers, he does outline 6 methodical steps for the research process, although he emphasizes that these steps are neither absolute nor fixed. They are:

i. turning to a phenomenon which seriously interests us and commits us to the world
ii. investigating experience as we live it rather than as we conceptualise it
iii. reflecting on the essential themes which characterise the phenomenon
iv. describing the phenomenon through the art of writing and rewriting
v. maintaining a strong and oriented pedagogical relation to the phenomenon
vi. balancing the research context by considering parts and whole.

van Manen, 1990, p. 30

These 6 broad steps inform this study, as they are a useful guide in the research process. Although these 6 steps appear chronological and sequential, particularly Steps 1 and 2, there can be a forwards and backwards movement with regard to the steps when orientating oneself to the research phenomenon. For example, in the describing and writing of the phenomenon, there can be a return to the investigation of the themes, and a consideration of the parts and the whole, and back again; a circular movement that is dynamic and repeated until the process is saturated and no new insights emerges (van Manen, 1990, Gadamer, 1997).

3.5 THE RESEARCHER'S ROLE AND BELIEFS

3.5.1 Role and Beliefs

Denzin and Lincoln (2000, p. 6) suggest that the interpretive researcher is aware that research is "an interactive process shaped by his or her personal history, biography, gender, social class, race, and ethnicity, and those of the people in the setting." As an educationist, I hold the view that technology in education can be a tool to be used in and outside classrooms to improve learning. My personal history is an exemplification of how education has enabled learners to acquire knowledge, skills and certification and, in the process attain better economic and social standing. As such, I value formal education but I am keenly aware that much of the learning that is taking place with mobile and digital technologies could be in informal contexts. I am interested to explore the use of these technologies in the classroom.

Essentially, in the conduct of this research, my role was that of an insider (Bartunek, and Louis, 1996, Dwyer and Buckle, 2009). I possess *a priori* knowledge of the Malaysian education system as I was educated in Malaysia (primary to Form 6 levels) and was a Dean of Social Studies and Director of Studies in a private tertiary college from 2008-2010. Thus, I had some knowledge of the secondary school curriculum, the private tertiary system and the state of technology-enhanced learning in Malaysia. I am familiar with the languages spoken, identities and experiential base of the participants. Having

an insider status enables greater acceptance from the participants and enhances the depth and breadth of understanding of their experiences.

I am however, aware that my views and beliefs should not impinge on this study and that I should practise the open phenomenological attitude (van Manen, 1990) to enable new insights from the participants to filter through the lens that I have adopted in this study and to allow for any unplanned changes in direction. Not all the views and beliefs I hold were shared by the participants. I learnt that after I had articulated my theoretical perspective and research design, I had to explore the phenomenon from all angles so as anchor the evidence in the theory. To achieve this, I had to listen harder and with great sensitivity to the participants' accounts.

As an experienced educationist, there may be a perceived power relationship between the student participants and myself. I sought to alleviate this distance by dressing very casually for interviews and chose casual venues for interviews in order to achieve better rapport and engagement. Knowing the cultures in Malaysia may not ensure complete understanding of participants' experiences as there are many sub-cultures, so there is a need for researcher reflexivity and the 'bracketing' of presuppositions and assumptions (Dwyer and Buckle, 2009).

3.5.2 Reflections on Biases and Presuppositions

Reflexivity is considered to be of crucial significance in the design and conduct of a hermeneutical phenomenological research (Ajjawi and Higgs, 2007). During the course of the study, there was critical analysis of the research experience, and the relationships between the researcher, participants, and the research processes and these are explicated in this dissertation. As the researcher, I was careful to maintain "hermeneutic alertness" (van Manen, 1990) which is the reflexivity required to examine my assumptions and biases. I kept a Reflective Journal and comprehensive field notes as a record of how I reflected on assumptions: my personal assumptions and those in the literature. Figure 3.2 shows how I examined some of my presuppositions prior

to the commencement of the study. Appendix 1 has further samples of my Reflective Journal and provides evidence of the researcher reflexivity that I engaged in before, during and after the conduct of the study.

12 June 2012

Now that I have made a 180 degree turn in my research design and am conducting a purely qualitative study, I need to examine some of my biases and prejudices before I commence the interviews.

I think that the Malaysian education system, particularly at primary and secondary levels, is out of date. My visits to secondary schools as part of the school outreach project for KDU College in 2011-2012 gave me the impression that the schools are still stuck in the 1970s when I had left the system. Teachers were still lecturing in the classroom and students sat in the same arrangement that I had experienced in the 1970s. I also had heard "stories" of the school curriculum and the teaching and learning activities from my colleagues and current tertiary students in KDU College. None of them was complimentary.

As such, I must guard against my biases about the present education system. I may think that I know about these school cultures but my knowledge may be outdated or incomplete: like a drop in the ocean.

FIGURE 3.2. REFLECTIVE JOURNAL, 1 JUNE 2012

3.6 SELECTION PROCEDURES

This section describes the context and participant selection in this study in order to establish its scope and limitations and, to enhance its transferability.

3.6.1 Research Context

Malaysia has a population of 28.3 million people with Malays comprising 63.1%, Chinese, 24.6%, and the Indians, 7.3% of the total population (Department of Statistics, Malaysia, 2010). The education system consists of a compulsory 6 years of primary education, starting at the age of 7 years and 5 years of secondary education (Ministry of Education, 2012). At secondary school levels, students have access to national stream secondary schools and

international schools. At tertiary levels, there are a range of public/private colleges, polytechnics, public/private universities and university colleges (Ministry of Higher Education, 2013).

Education is viewed by Malaysia as a fundamental necessity in its drive to attain economic growth and national development, as “here is no better predictor of a nation’s future than what is currently happening in its classrooms” (Ministry of Education, 2012, p. E-1). Parents also view academic success as a benchmark for future career success. However, in recent years, the Malaysian education system has come under increasing critique and debate as feedback from employers have shown that Malaysian graduates lack critical thinking, technical competence and information technology skills (The World Bank, 2010, NEAC, 2010). Therefore, the Malaysian government has been actively promoting the use of communicative and digital technologies among its youth and considering the implementation of mobile devices into Malaysian school classrooms (Tan, 2012).

This study is located in Malaysia as it is a significant context to study the phenomenon of learning with smartphones. The geographic locations chosen in Malaysia for the phenomenological interviews were in Northern West Malaysia (Penang and Kedah), Kuala Lumpur (capital of Malaysia) and Southern West Malaysia (Malacca): a variety of settings with a mix of secondary schools and tertiary colleges to provide diversity in the learning experiences of the participants.

3.6.2 Sampling

As consistent with the interpretive research paradigm, participants were selected using purposive sampling strategies like snowball sampling to provide information rich studies for detailed analysis (Patton, 2002, Denzin and Lincoln, 2000). Landridge (2007, p. 58) suggests that in hermeneutic phenomenological research, the sampling is usually purposive and homogenous as the aim is “to recruit a sample of people such that the researcher can make claims about these people and their particular shared

experience." As such, the research studies are idiographic and there should be no generalization beyond that particular sample. In phenomenological research, sample sizes are likely to be small due to the time consuming nature of the analytical process although the actual sample size depends on the topic under investigation, the constraints of the research study and the interests and capacity of the researcher (s) (Landridge, 2007).

Several recruitment strategies were used in this study. They include using my network of family members and friends to gain access to teachers, college lecturers and tuition teachers. Potential participants were identified and through email messages and mobile communication, their suitability was assessed. 3 of the students were recruited through snowball sampling. For 3 rounds of interviews conducted from July-September 2012, the participants were paid a token sum of RM$50.00 (10£) for their transport costs and time.

3.6.3 The Participants in This Study

TABLE 3.1. PROFILE OF PARTICIPANTS

Pseudonym	Sex	Age	Location	Educational Background	Ethnicity	Type of Smartphone
1.Al	M	19	Kedah	Private Tertiary College, Diploma	Eurasian	Sony Ericsson
2. Stevie	F	16	Penang	Form 4, National Secondary School	Chinese	iPhone
3. Jack	M	19	Kedah	Private Tertiary College, Diploma	Malay	Nokia EG
4. Andy	M	19	Kuala Lumpur	Private University College, A Levels. Biz Degree	Chinese	iPhone
5. Eng	M	18	Kuala Lumpur	Private University College, A Levels	Chinese	Sony Ericsson
6. Ben	M	17	Kuala Lumpur	Form 5, National Secondary School	Indian	HTC, iPhone
7.Bloggergirl	F	16	Kuala Lumpur	Form 4, National Secondary School	Chinese	iPhone
8. Mei Ling	F	18	Malacca	Form 6, National Secondary School	Chinese	Samsung
9. Eunice	F	18	Malacca	Form 6, National Secondary School	Eurasian	Samsung
10. Chuck	M	17	Penang	Form 5, , National Secondary School	Chinese	Samsung
11. Deepzter	F	19	Penang	Private Tertiary College, Diploma	Indian	HTC
12. Zerros	M	18	Penang	Private Tertiary College, Diploma	Malay	Sony Experian

In this study, it was determined that structured in-depth interviews with 12 individuals would meet the aim of an in-depth investigation (Table 3.1). This was also the stage where saturation of data occurred as no new information was emerging (Landridge, 2007). The 12 students recruited were 16-19 years, currently in secondary schools, and private tertiary colleges. Students younger than 16 years old were excluded as it would be more difficult to get access to them and to obtain parental consent (See Appendix 2 for Informed Consent Forms) for the interviews. The focus of this study is on teenagers; hence, the cut-off age is 19 years old.

TABLE 3.2. SCHEDULE OF MEETINGS

Pseudonym	Individual Or Pair	Location	Date of Interviews	Duration of Interviews
1.Al	Individual	Kedah (conducted in Penang)	12.7.2012; 9.8.2012; 7.9.2012	55 minutes, 43 seconds 51 minutes, 9 seconds 75 minutes, 38 seconds
2. Stevie	Individual	Penang	11.7.2012; 23.8.2012; 20.9.2012; 29.12.12 (email)	61 minutes 42 seconds 104 minutes 22 seconds 65 minutes 26 seconds
3. Jack	Individual	Kedah (conducted in Penang)	30.7.2012; 23.9.2012	58 minutes, 04 seconds 90 minutes, 28 seconds
4. Andy	Individual	Kuala Lumpur	22.7.2012; 14.8.2012; 11.11.2012 (email)	57 minutes, 05 seconds 61 minutes, 22 seconds
5. Eng	Individual	Kuala Lumpur	22.7.2012; 14.8.2012; 17.10.2012 (email)	52 minutes, 50 seconds 70 minutes, 10 seconds
6. Ben	Pair	Kuala Lumpur	20.7.2012; 15.8.2012;	55 minutes, 08 seconds 110 minutes, 5 seconds
7.Bloggergirl	Pair	Kuala Lumpur	20.7.2012; 15.8.2012; 25.10.2012 (email); 20.11.2012 (email)	55 minutes, 08 seconds 110 minutes, 5 seconds
8. Mei Ling	Pair	Malacca	24.7.2012; 17.8.2012; 13.9.2012	57 minutes, 20 seconds 100 minutes, 47 seconds 70 minutes, 47 seconds
9. Eunice	Pair	Malacca	24.7.2012; 17.8.2012; 13.9.2012	57 minutes, 20 seconds 100 minutes, 47 seconds 70 minutes, 47 seconds
10. Chuck	Individual	Penang	9.7.2012; 24.8.2012; 21.9.2012; 19.11.2012(what's app)	61 minutes, 36 seconds 82 minutes, 46 seconds 75 minutes, 20 seconds
11. Deepzter	Individual	Penang	17.7.2012; 10.8.2012; 22.9.2012	52 minutes, 42 seconds 51 minutes, 20 seconds 50 minutes, 30 seconds
12. Zerros	Individual	Penang	15.7.2012; 3.9.2012; 24.9.2012	65 minutes 56 seconds 63 minutes, 28 seconds 68 minutes 6 seconds

There was a deliberate mix of students from different educational backgrounds as Malaysian secondary schools presently bans the bringing of smartphones to schools, while private tertiary colleges and universities generally allow their use in classrooms. There would be a diversity of learning experiences in formal and informal settings. The other secondary criteria for the sampling (Table 3.1) were based on ethnic identity (Malaysia is a multicultural nation), gender, location and at least one year of experience with using smartphones. Table 3.2 shows the dates, locations and duration of each of these meetings.

3.7 COLLECTING THE LIVED EXPERIENCES

The evidence of the lived experiences of the participants was collected from July to December 2012. Table 3.3 displays the alignment of the research questions with the research methods and periods of investigation.

TABLE 3.3 RESEARCH QUESTIONS, COLLECTION METHODS AND TIME FRAME

Research Questions	Collection Methods	Time Frame of Study
1. What is this experience of learning with smartphones like? **2. How do the student participants perceive the nature of their learning with smartphones?** **3. How is the learning related to participants' identity formation, identity management and presentation of self?**	1. Purposive Sampling 2. Initial Participant Contact 3. Interview 1 4. Reflective Piece Briefing 5. Personal Communication 6. Field Notes 7. Researcher's Journal	1. Initial Participant Contact: June 2012 2. Interview 1: July 2012
	1. Interview 2 2. Field Notes 3. Collection of Reflective Writing 4. Personal Communication 5. Researcher's Journal	1. Interview 2: August 2012
	1. Interview 3 2. Field Notes 3. Collection of Reflective Writing 4. Personal Communication 5. Researcher's Journal	1. Interview 3: September to December 2012 2. Personal Communication September to December 2012

3.7.1 Interviews

The most broadly accepted method derived from hermeneutic phenomenological methodology is the qualitative interview (van Manen, 1990).

It facilitates a deep investigation of the phenomenon: there is the exploration and collection of participants' stories told in their own words, and the development of a conversational relationship between the researcher and the participants regarding their lived experience (Ajjawi and Higgs, 2007). The choice of semi-structured interviews was to offer better scope or richness in data compared with structured interviews, and to enable participants choice to reply to questions, and to narrate their experiences without being constrained to specific answers (Ajjawi, 2006, Ajjawi and Higgs, 2007). Another benefit over unstructured interviews is the comparison of some standard questions across interviews.

Interviews are a form of self-reports and while they are important and required for inquiry into the human experience, they should not be "misconstrued as mirrored reflections of experience" as "people do not have complete access to their experiences" with their limited capacity for awareness or recollection (Polkinghorne, 2005, p. 139). As Denzin and Lincoln (1998, p.12) suggest:

> Any gaze is always filtered through the lens of language, gender, social class, race, and ethnicity. . . . Subjects or individuals are seldom able to give full explanations of their actions or intentions; all they can offer are accounts, or stories, about what they did and why.

It is thus important to develop interview questions that would facilitate more in-depth probing of experiential accounts and produce better quality evidence (van Manen, 1990). Transcriptions of each round of interviews were completed before the next round, in order for interview questions and themes to be developed and for clarification of any prevailing issues. There was also reflection on the information and issues arising from each round of interviews before new questions were developed.

Interview 1 was concerned with 'What does learning mean to you?' and 'What is your experience of learning with a smartphone like?' (See Appendix 3 for the sub-questions). Interview 2 was a further exploration of the themes in Interview 1 and the new themes of 'Influences of Parents, Families and Friends' and 'Searching for Information'. Interview 3 investigated how

participants used their smartphones for reflection, collaboration, language learning and learning on the go (Appendix 3). In addition to giving examples of how they use their smartphones for learning, participants were asked to describe their thought processes, feelings, body positions, and physical settings during those experiences.

Participants were given the interview guide at the beginning of each interview. This provided a road map of how the interviews would be conducted. This technique were significantly more beneficial to the introverted participants who preferred knowing the questions at the start of the interview as it gave them time to think and recollect their experiences. There was flexibility for other questions and clarifications during the interview process and participants introduced some new themes and topics into their experiential accounts.

In interpretive research, the researcher is a crucial instrument and good interview skills and techniques are therefore essential (Landridge, 2007, Polkinghorne, 2005). 3 techniques suggested by Minichiello et al. (1995) were used when conducting interviews in this study. They comprise funnelling (general opening questions and narrowing down), story-telling (getting participants to narrate their experiences) and probing (prompting clarifications and further details).

Other interview techniques include making the participants feel safe and comfortable, creating rapport and revisiting participant concerns in order to elicit relevant and deeply personal information (Landridge, 2007, Polkinghorne, 2005). However, techniques alone would not ensure good quality evidence in interviews. The interviewer should also have good interview skills and experience. I had attended training in active listening, counselling and interview techniques before in previous positions. In addition, I had hitherto conducted research interviews for market research projects and course proposals.

Hermeneutic phenomenological interviews were however, different from my previous interviews in that they required a greater degree of descriptiveness

around single events and more time set aside for reflections. As Polkinghorne (2005) advises, it is the researcher's task to help the participant to unpack an experience in order to gain access to more nuanced descriptions and multi-layered levels of the experience. In each interview there would be "individual differences of interviewees and the unpredictable flow of a research conversation" and hence, good interviewing depends more on "the skilled judgment of the interviewer to move the conversation along" (Polkinghorne, 2005, p. 143).

In these interviews, I orientated myself to the phenomenon and stayed focused on the main research questions. At the same time, I had to demonstrate sensitivity to participants' concerns, issues and even their body language in order to encourage them to speak more freely and at more profound levels. Therefore, I exercised judgment as to when to allow the thread of conversation to continue or digress and when to pull the conversation back to the main themes.

In this study, each interview lasted from 52 minutes to 110 minutes and was recorded and transcribed verbatim. Most interviews were with individual participants except for 2 cases, where participants asked to be interviewed with their friends (see Table 3.2). There were 3 rounds of interviews with each participant. 2 participants (Jack and Ben) were unavailable for the 3rd interview. Additionally, clarifications and some deeper probing of issues with some participants were conducted in the months of October to December 2012 through email messages and *What's App* chats (see Table 3.2).

3.7.2 Reflective Written Exercise

Participants were asked to submit a reflective written exercise after Round 1 interviews (Figure 3.3 for the list of questions). The aims of this exercise were fourfold: first, to determine the participants' understanding of the research phenomena, which were using smartphones to learn and more specifically, using the mobile Internet and Internet community to learn knowledge and skills; second, to increase understanding of these phenomena in their daily practices;

third to identify areas for probing further in the Round 2 interviews; and four, to collect photographs or artefacts of how they perceived they had captured the learning experiences.

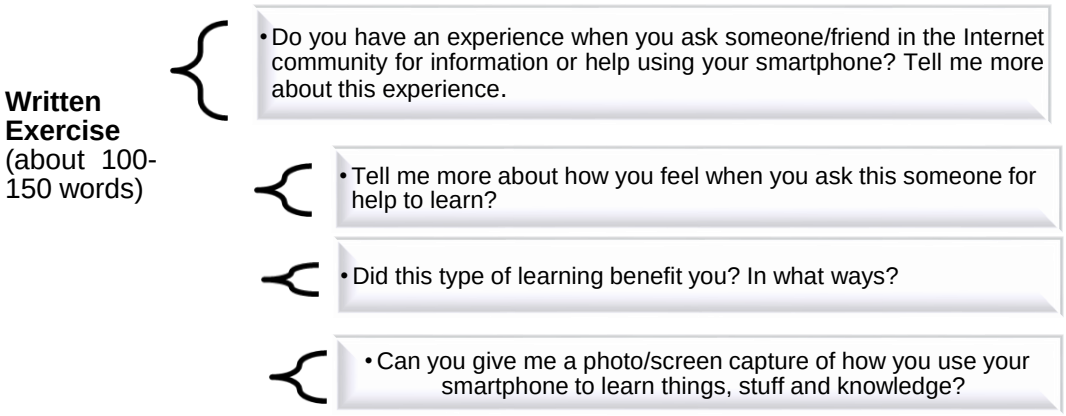

FIGURE 3.3. WRITTEN REFLECTIVE EXERCISE

Some of the participants were not comfortable with expressing themselves in writing and instead submitted photographs or screen captures. Reflection about their experiences engendered a more lively description and deeper discussion of the same questions in the Round 2 interviews. An example of one of the participants, Andy's reflective exercise is in Appendix 4.

3.7.3 Field Notes

During the course of the interviews, there was a deliberate maintenance of the reflexivity required to reflect on situations and stories rather than accepting them at face value or imbuing them with pre-conceived suppositions. Field notes that were written down after the interviews were instrumental in recording the researcher's insights and reflections for a critical examination of the emerging issues. These field notes were based on a model suggested by Groenewald (2004, p. 15):

i. Theoretical notes (TN) — 'attempts to derive meaning' as the researcher thinks or reflects on experiences
ii. Methodological notes (MN) — 'reminders, instructions or critique' to oneself on the process

iii. Analytical memos (AM) — end-of-a-field-day summary or progress reviews

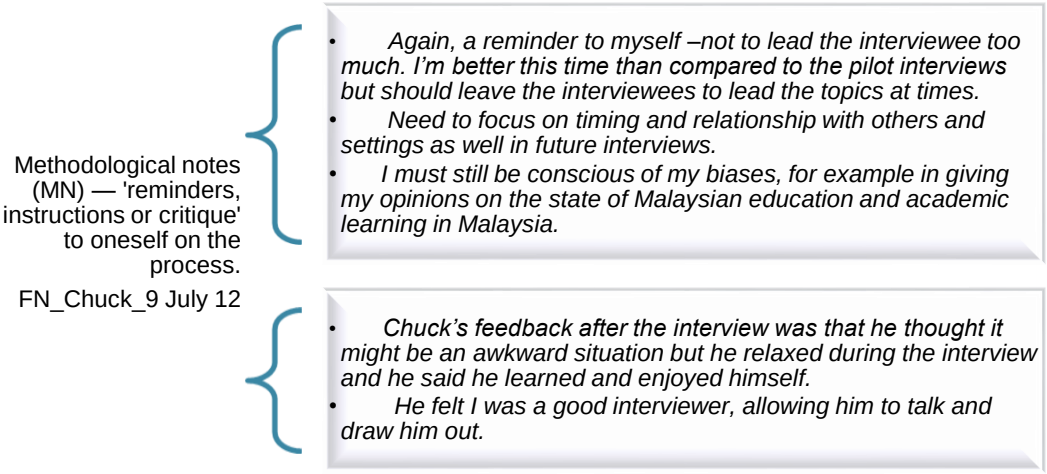

FIGURE 3.4. EXCERPT OF FIELD NOTES OF INTERVIEW WITH CHUCK, 9 JULY 2012

An excerpt of the methodological notes is given in Figure 3.4 above. Appendix 5 has an example of detailed field notes written after the first interview with one of the participants, Chuck. These self-critique and reminders were useful in maintaining an open phenomenological attitude and setting aside presuppositions throughout the interview process. It was a struggle to maintain this open attitude as can be seen by another excerpt from my field notes dated 11 July 2012 (Appendix 6).

By Round 2 of the interviews, one technique was discovered to keep participants talking longer and preventing interjections into their views. This can be seen in the field notes recorded on 15 August 2012 after the interview with Bloggergirl and Ben (Appendix 7). From the earlier interviews in Round 1 and 2, I had observed that if I continued to write and avoid eye contact with the participants, they continued to talk and elaborate on their statements without much prompting. This could probably be attributed to the Asian culture of 'shyness' and eye contact seemed to be an unconscious signal to the participants to stop talking. By adopting this technique, the distinctive voices of the participants were emerging.

Another interviewing technique used was reflecting back what had being said by participants. This was from my previous experience as a pastoral care counsellor and the repetition of an important phrase or words allowed time to write it down and was also useful to capture the right words as sometimes the participant did not speak clearly or mispronounced or had difficulty with certain words. Although the interviews were recorded on my smartphone, writing down notes helped me to understand the interviews better when I transcribed them and it allowed the participants to talk more when I was not making eye contact with them (Appendix 7).

Gadamer (1997) argues that as most of reality happens in a routine fashion, with very little reflection by people, the researcher must endeavour to bring the unconscious forward into the conscious domain in order for participants to express their daily suppositions and existences. Thus, the researcher works together with the participants to search for meanings about the phenomenon, taking on the role of co-learner and endeavouring to be educated by the people involved in the study.

As I was involved in an intense learning cycle during the research project, I was compelled to reflect on my individual and social pre-understandings. For example, one of my pre-suppositions was that it would be beneficial for smartphones to be introduced into classrooms as it could introduce new ways of learning and teaching. I was surprised when all the 12 participants were against the introduction of smartphones, as they believed that the device would produce more disadvantages than advantages. My initial thought was that they were like horses with their ‘blinkers’ on as in the excerpt of the theoretical notes that I had written down (Figure 3.5).

However, I reflected upon what they said and asked further questions, and as I analysed and wrote about what this opinion meant, there was this realisation that I was the one with blinkers on and one of the essential meanings of learning with smartphones is the fit of technology to the purpose (Figure 3.5). The participants could not imagine using the mobile and digital technologies for their formal learning as their perception was that these technologies were

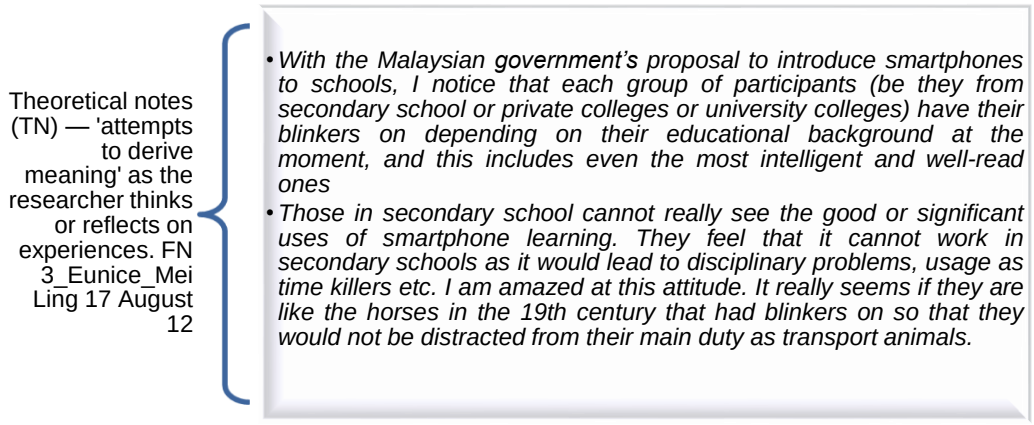

FIGURE 3.5. EXCERPT OF FIELD NOTES OF INTERVIEW WITH EUNICE AND MEI LING, 17 AUGUST 2012

primarily for their own daily, informal needs and their preference was for the separation of these 2 domains. In addition, their institutions of learning had not generally used smartphones for learning and they had no positive model of learning with smartphones for comparison. As a learner, I widened my horizons of understanding and through Gadamer's (1997) fusion of horizons, reached a deeper understanding of the essential meanings of learning with smartphones. In this aspect, Gadamerian philosophy enhanced the way I engaged with my research methods.

3.7.4 Personal Communication

The participants' communication with me was through email messages, *Facebook* messages and phone calls to confirm venues and times. Some participants requested for changes to transcripts or their pseudonyms. Confirmations were made regarding the accuracy of the transcripts through such personal communications.

3.8 DATA MANAGEMENT AND ANALYSIS

3.8.1 Data Management

The data or evidence collected has to be coded according to the sources of

information as it assists in the identification and analysis processes (Miles and Huberman, 1994). A descriptive coding system was used, consisting of the source of the collection, the participant's name and date of the collection, for example, 'IN 1_Al_12 July 12 (Interview 1, Al, 12 July 2012). The coding system for the quotations used in this study comprises the name of the participant, source of the collection and line numbers of the particular document as in 'Ben, Interview 1, L: 25-27'. As the collection of evidence grew throughout the study, databases of the sources of information and a meta-log of the research process were created and maintained. These form the basis of records available for audit of the rigour, trustworthiness and transferability of this study (Koch, 2006, Groenewald, 2004).

Paper copies of the transcripts, field notes, informed consent forms, and personal communication are maintained in files and locked in cupboards in the researcher's home. Electronic versions of these data including the analysis and interpretation files are kept in password protected databases with versions stored in different databases.

3.8.2 Data Analysis and Interpretation

The aim of phenomenological analysis is to grasp and clarify the meaning, structure and essence of the phenomena under investigation and to transform such analysis into findings (Patton, 2002). Although there is no fixed method of hermeneutic phenomenological analysis, guidance from van Manen's (1990), Gadamer's (1997) and Hycner's (1985) methodical procedures were of significance in this study.

3.8.2.1 Reading

Reading is not a passive act in a qualitative analysis (Drey, 1993, Williamson, 2005) as it is comparable to gardening: digging and loosening the soil is preparing the ground (reading) before the seeds can be sowed and the roots grow (analysis). Reading is necessary for ideas to emerge from the collection of evidence to the analysis and interpretation stages. The shifting and

emergent nature of qualitative inquiry blurs the distinction between the collection of evidence and the analysis stages (Patton, 2002) and during the course of the interviews, ideas surfaced about the direction and shape of the analysis.

3.8.2.2 Development of Themes and Sub-themes

To understand the essential meanings of a phenomenon is to reflectively analyse “the structural or thematic aspects of that experience” (van Manen, 1990, p. 78). 3 procedures are recommended by van Manen (1990, p. 93) to isolate these structural or thematic aspects: “the wholistic or sententious approach; the selective or highlighting approach; and the detailed or line-by-line approach" are used in this study. Each process directs the researcher to a different analysis of the text based on the scale of the examination. The ‘holistic’ approach seeks the overall meaning of the text; the ‘highlighting approach’ concentrates on phrases or sentences that stand out in the text or illuminates the research questions; the detailed approach is a careful inspection of the text sentence by sentence. All 3 approaches were used in this study and their detailed applications are fully described in Chapter 4.

Hycner (1985, p. 282)’s guidelines for the analysis of phenomenological data also directed the analysis in this study. He suggests that in delineating general units of meaning, it is important to conduct the “very rigorous process of going over every word, phrase, sentence, paragraph and (to) note significant nonverbal communication in the transcript in order to elicit the participant's meanings.” This step is essential as it indicates being close to the literal evidence and assists in identifying codes and patterns. Following Hycner’s next steps are to delineate units of meaning relevant to the research questions, which is to determine if what the participants have said responds to or illuminates the research questions; and to cluster these units into themes.

The primary sources for analysis were the interview transcripts (*452* pages) and the written reflective exercise. Each interview was personally transcribed within a week of the interview and coded with the interview number, participant

information, location, date and duration of the interview. As suggested by van Manen (1990, p. 93) and Hycner (1985), appropriate phrases that emerged as relevant to the research questions were captured in simple statements that were then categorised in themes and sub-themes. Certain words and phrases that recurred as commonalities across participants' lived experiences were highlighted in the original transcripts, copied and pasted into new documents and carefully coded under possible themes and categories, for example, 'Mobile Applications', 'What is Learning?' and 'Influences'.

There was continual comparison of the data to establish similarities and differences with each unit of data analysis. Adhering to Gadamer (1997)'s strategies of the 'hermeneutic circle' and 'fusion of horizons', the texts were read as parts and re-read as the whole, to enable new meanings and perspectives to emerge from these readings and analysis. Key linking words from each transcript were categorised in columns to represent main ideas. This then enabled the emergence of clusters of ideas and concepts which form the basis of initial themes and sub-themes. After dialoguing with the texts (van Manen, 1990), themes and sub-themes were revised and new ones emerged. Redundant words and repetitive lists were removed and overlapping words and lists were re-examined and re-categorised. Coding lists were maintained during these cycles of analysis, for example, 'Analysis 3, Theme: Influences, Sub-theme: Friends'.

3.8.2.3 Interpretation

Interpretation refers to the meanings derived from the analysis of the collected evidence in this study. Patton (2002, p. 480) defines interpretation as:

> ..attaching significance to what was found, making sense of findings, offering explanations, drawing conclusions, extrapolating lessons, making inferences, considering meanings, and otherwise imposing order on an unruly but patterned world.

As this is a hermeneutic phenomenological study, the interpretive meanings are as significant as the experiential descriptions of the lived experiences

(Ricoeur, 1991). In seeking interpretations for the meanings of the lived experiences of learning with smartphones, I was cognizant to the claim that interpretive approaches can result in multiple interpretations of the findings. I have provided a description of the analytical and interpretive processes in this chapter and in Chapter 4 as part of the audit trail to enable readers to assess the validity of my interpretations. In particular, the rationale of my interpretations, that is, the choice and use of linking key words to develop themes and sub-themes are made available for scrutiny.

Analysis usually paves the way for interpretation but in a hermeneutic phenomenological study, the intuitive grasping of some essential meanings may begin as early as the data collection process (Groenewald, 2004). Interpretation continues through the analysis stage in an evolving and integrative manner using Gadamer's (1997) notions of the 'hermeneutic circle', 'prejudice' and 'the fusion of horizons.'

The hermeneutic circle refers to the interpretive process that moves from components of experience to the whole experience and back again and is continued to deepen the depth of understanding and engagement with texts. The researcher's prejudice and presuppositions are acknowledged and considered as valuable in hermeneutic phenomenological research. The hermeneutic phenomenological reduction that I practiced was that of maintaining an open attitude to the phenomenon. This means foregrounding and acknowledging my biases and prejudices in order to set them aside before, during and after the commencement of the study. In Gadamer's (1997) conceptualization, one horizon is the researcher's prejudice and the other is the subject on hand. The aim is for a fusion of horizons as the researcher dialogues with the texts to bring about understanding of the research phenomenon under study.

Another strategy advocated by van Manen (1990) is paying attention to and understanding the nuances of language, to listen to "the deep tonalities of language that normally fall out of our accustomed range of hearing" (van Manen, 1990, p. 111). This essentially, means to listen 'to the language

spoken by the things in their lifeworlds, to what things mean in this world' (van Manen, 1990, p. 112), which may embrace the need to listen to silence:

> Phenomenologists like to say that nothing is so silent as that which is taken-for-granted or self-evident…Silence is not just the absence of speech or language. It is true that in our own groping for the right words we sense the limits of our personal language. Speech rises out of silence and returns to silence, says Bollnow (1982). Not unlike the way that an architect must be constantly aware of the nature of the space out of which and against which all building occurs, so the human scientist needs to be aware of the silence out of which and against which all text is constructed.
>
> van Manen,1990, p. 112

Another important feature is actually time: time to reflect, time to discuss and garner feedback and critique from peers and supervisors and 'time and stillness' for the ideas and meanings to emerge. I was able to make some 'breakthrough' in my thinking using these strategies. One example of a 'breakthough' was a change in my perception of using smartphones in the classroom. My original view was that smartphones would be able to help transform teaching and learning in the classroom. However, after hearing the perspectives of the students and reflecting upon them, I realised that the fit of the technology was of paramount importance.

Yet another change is my thinking came after I received feedback from my supervisors. My initial analysis had good descriptions of the essential meanings but I was experiencing some difficulties in presenting critical interpretations of these meanings. I realised after reflecting and dialoguing with the texts, that I was experiencing some cultural barriers in making strong claims to new knowledge.

3.9 QUALITY IN THIS STUDY

Research quality in the interpretive paradigm can be evaluated using a number of approaches and criteria. From a pragmatic approach, criteria related to the given study may be chosen or developed by researchers from the literature. Koch (1996) argued that the criteria selected should adhere to

the methodological and philosophical assumptions on which the research is constructed. Accordingly, the criteria of rigour, ethical conduct, and trustworthiness (credibility) are chosen as appropriate for this research.

3.9.1 Rigour

Landridge (2007, p. 80) argues that rigour in a phenomenological research study is "produced through the systematic application of key methodological principles", and is seen as "an essential part of the qualitative (phenomenological) research process." Lincoln and Guba (2000) suggest that attainment of rigour would entail the meticulous collection of evidence and analysis, transparency in detailing these methods and consistency in working within the philosophical suppositions and traditions of the research approach and paradigm. These strategies identified in the literature (Whitehead, 2004, Koch, 2006, Ajjawi and Higgs, 2007, Landridge, 2007) as increasing rigour in phenomenological research have been used in this study:

i. congruence between the chosen approach and methods
ii. extended engagement with the participants and the phenomenon
iii. multiple methods of data collection
iv. participant feedback
v. auditable records
vi. peer feedback and discussions

3.9.1.1 Congruence between the chosen approach and methods

An essential prerequisite of a well-designed research study as discussed earlier is congruence between the chosen approach and the methods of inquiry used. In this chapter, I have discussed in detail the philosophical foundations of hermeneutic phenomenology, and its historical development and relevance to this research. Every research decision on methods had been a reasoned one, undertaken to reflect the theoretical framework of hermeneutic phenomenology and then made explicit to readers of this thesis.

3.9.1.2 Extended Engagement with the Participants and Phenomenon

Extended engagement with the phenomenon was achieved over a period of more than 2 years. Engagement with the participants was for 6 months for the 3 rounds of interviews (Table 3.2). In addition, there were follow up interviews through emails and *What's App* chats with some participants (Table 3.2). During the process, I built rapport with the participants and was generally successful in getting them to uncover experiences and meanings that had been unreflected and subconscious related to smartphone learning.

3.9.1.3 Multiple Methods of Data Collection

In addition to the semi-structured interviews, evidence was collected through a written reflective exercise and photographs or screen captures. These provided multiple constructions of the phenomenon under study and added to the depth and richness of the evidence collected.

3.9.1.4 Participant Feedback

Participant feedback and validation of the interview transcripts was achieved by sending the transcripts for comments. Some participants who called themselves "Grammar Nazis" wanted some grammatical changes to the interview transcripts. I advised them that since the interviews were informal, and we had used slang and the Malaysian form of English, "Manglish", and the transcripts should be a verbatim version. They agreed not to change the grammar in their interviews subsequently. Another participant made some sensitive remarks regarding her personal activities on her smartphone which she asked to be taken out and I agreed to it. Generally, the participant feedback was that the interviews transcribed verbatim were true to their manner of speech and the contents were validated.

3.9.1.5 Auditable Records

Auditable records refer to the decision trail which details all decision making

taken in this study which includes the development of the research design and methods used. The audit trail functions in 2 ways: first, to achieve transparency by allowing readers to evaluate the quality, rigour and trustworthiness of the research, and second, as a methodological instrument that helps the appraisal and progress of the research process by researchers themselves (Koch, 1996, 2006, Lincoln and Guba, 2000, Whitehead, 2004). The auditable records for this research comprises the transcript files, informed consent forms and analytical files recording all methodological, ethical, analytical, and background decisions, reflections and personal thoughts.

3.9.1.6 Peer Feedback and Discussions

As a deliberate strategy for quality assurance, seeking the feedback and critique of peers is encouraged in qualitative research (Landridge, 2007). From the choice and direction of my research topic to the analysis and interpretation of the evidence, I had chosen to present my thoughts, decisions and findings in departmental seminars, and local and international conferences (2012-2013). The critique and feedback were useful in my active reflection process on both the content and process of the study, “thus maximizing the chance those findings will be robust and persuasive” (Landridge, 2007, p.81).

3.9.2 Trustworthiness

Guba and Lincoln (1989) suggest that to determine trustworthiness in a qualitative study, the criteria of credibility, transferability, and dependability should be used. In this study, the following criteria were adopted to enable readers to read and assess the selection and implementation procedures, and the findings and analytical processes.

3.9.2.1 Credibility

Credibility refers to faithful and rich accounts of the experiences that fellow researchers and readers can recognize when confronted with them (Guba and Lincoln, 1989, Koch, 2006). A study is considered credible if readers can

recognize and identify with the experiences described in the study, the "phenomenological nod" as suggested by van Manen (1990, p.27). In this study, the interview transcripts were given to the participants who confirmed that the accounts were faithful to their experiences. In the writing and re-writing, I made great effort to stay true to what had been said and interpreted by the participants.

In hermeneutic phenomenology, the influence of the researcher on the conduct and presentation of the study is acknowledged. Therefore, the trustworthiness of a study also depends on the credibility of the researcher. Whitehead (2004) suggests that hermeneutic phenomenological research depends on the self-awareness of researchers to make explicit their influences. Thus, significant information about the researcher should be included to enable readers to judge "the credibility of the research in relation to intellectual rigour, professional integrity and methodological competence, and the influence of experience and background on (the researcher's) approach" (Whitehead, 2004, p.516). In this chapter and preceding chapters of the thesis, I have described my professional background and my journey of confronting my presuppositions in order to maintain an open phenomenological attitude before and during the study process through the use of a reflective journal and field notes.

3.9.2.2 Dependability

Koch (2006) argues that one method to show that a study is dependable is for its research processes to be audited. Auditable records and the decision trail have been are also used to assess the rigour of a study. If there should be discrepancies, then the researcher must return to the records to show how each theme is derived from the descriptions and how all conclusions are grounded firmly in the evidence or explained by the researcher's interpretive framework (Koch, 2006).

Detailed records have been kept in this study with archives of interview recordings, transcripts, analysis and interpretation records, field notes,

chronological notes of interviews, and personal communications. These records have been maintained and backed up in personal computers and hard drives protected by passwords and are available for auditing purposes. The process of design and conduct of the study was made transparent to readers as the researcher described precisely the research design, implementation and analytical processes, the obstacles encountered and the solutions taken to rectify the problems.

3.9.2.3 Transferability

Lastly, transferability or "fittingness" of the research findings to other settings has been recommended as an important sign of quality in qualitative research (Guba and Lincoln, 1989, Hammersley, 1992). It is the task of the researcher to describe the context satisfactorily or to produce persuasive accounts such that readers can evaluate for themselves the applicability of the research findings to their own contexts (Koch, 1996; Landridge, 2007, Ajjawi and Higgs, 2007).

An account that persuades the reader to the validity of this research and its applicability to other contexts can be achieved if the researcher has managed to provide a clear, well-reasoned and justifiable account of the research journey and the outcomes. For example, rigorous analysis using rich descriptions of the contexts and the participants' words, where possible enhances authenticity and transferability (Lincoln and Guba, 2000). This study endeavoured to produce persuasive accounts of the research using the strategies mentioned above. In addition, by submitting conference papers to international conferences in the UK, the USA and Portugal, the ensuing critical discussions with conference reviewers and participants produced greater clarity and further reflections and these, in turn, engendered more persuasive and critical accounts of the research study.

The context for the research study was discussed in detail to enable readers to assess if they could replicate this type of study in their own settings. One issue that could affect transferability is the relativist perspective of each

participant regarding his/her individualized learning. However, in the analysis of the findings, there were many learning experiences that the participants had in common with each other. Their initial notion of learning with smartphones was restricted to searching for information on the mobile Internet for leisure or homework. They were also very similar in using their smartphones for social networking and playing games, being unaware of the incidental learning that occurred because of those experiences. Their choice of mobile applications (example, *Facebook, Twitter, What's App, YouTube Foursquare*) may vary but the general learning experiences remained similar.

Hence, the broad similarity of these participants' learning experiences suggest that this study may be transferable in other contexts as young people with smartphones today share generally similar preferences with regard to mobile applications and mobile tools (example, the camera, recorder, video maker).

3.9.3 Ethical Conduct of the Study

In all phenomenological research involving human participants ethical considerations must be kept firmly in mind throughout the entire research process (Landridge, 2007, Groenewald, 2004). The major issues during the collection of evidence involve obtaining informed consent from participants, maintaining confidentiality and anonymity, giving voice to those who wish to be heard and, making participants feel comfortable during the interviews. Ethical approval for this study was obtained from the School of Education Research Ethics Committee, Durham University prior to the commencement of the interviews.

3.9.3.1 Informed Consent and Permission

Landridge (2007, p. 62) describes Informed consent as "the most fundamental of all ethical principles" and it involves providing full knowledge about the research study and its implications to participants before getting their agreement to participate. Sim (1998) suggests that informed consent consists of 4 integral components: disclosure (furnishing sufficient information),

comprehension (understanding the information), and competence (capability of participants to decide rationally), and voluntariness (no compulsion). The operationalization of informed consent in education research is usually in the form of a formal contract between researcher and participants through a consent form (Bradshaw, 2002, Hammersley and Traianou, 2012).

In this research study, participants were provided each with an informed consent letter comprising a cover letter and a consent form (Appendix 2). In this letter, the following information was given in plain and simple English:

i. the purpose of the research project
ii. the procedures of the research
iii. the risks and benefits of the research
iv. the voluntary nature of the research
v. the right to discontinue at any juncture of the research
vi. the steps taken to protect the confidentiality of the participants

The age of the interview participants ranges from 16-19 years old in 2012. Hence, informed consent letters were also given to their parents, and parental consent forms were sought from participants who were 16-18 years old (Appendix 2). The 19 year old participants in tertiary colleges believed that they were mature enough to sign the consent forms on their own. After a discussion with them, and as a sign of respect for their autonomy as young adults, this process was accepted.

At the beginning of the Round 1 interview, there was a discussion with all participants regarding the informed consent letter and form to ensure that they understood the information, their responsibilities and rights and had opportunities to raise questions or doubts. In addition, my name card with my e-mail addresses and mobile phone number was given so they and their parents could contact me if they had any further enquiries. Participants were also reminded that they could withdraw at any stage of the research study and could stop the recording of the interviews if they wanted to. Written consent was thus obtained from all participants (and their parents where applicable).

3.9.3.2 Confidentiality and Anonymity

As Hammersley and Traianou (2012) explain, one fundamental principle in educational research is to 'minimise harm'; physical, financial or reputational, and not only to the participants but to others who may be associated with the participants. This would mean keeping information collected confidential and respecting the privacy of the individuals. Wiles et al. (2009) explains that underpinning the concept of confidentiality is the principle of respect for the autonomy of the participants. This means that any information collected of the lived experiences of the participants are not to be disclosed without permission.

Although the notions of 'confidentiality' and 'anonymity' are related, anonymity is a subset of confidentiality as it represents the operationalization of the latter. In research contexts, "confidentiality means (1) not discussing information provided by an individual with others, and (2) presenting findings in ways that ensure individuals cannot be identified (chiefly through anonymisation)" (Wiles et al., 2008, p.418).

The use of pseudonyms is suggested by ethical guidelines and methods textbooks to anonymise research participants. In this study, pseudonyms were adopted for all participants. They chose their own pseudonyms or were given one to match their interests or hobbies. This process was particularly enjoyable to some participants who were delighted to choose their own names. For example, 'Al' (animal lover) was the pseudonym for a participant who loves animals; 'Eng' is the short form of Engineering, so chosen by a participant who wants to pursue Engineering at university; 'Stevie' is named after Steve Jobs as the participant admires him; and 'Zerros' is the name of a manga character as the participant is passionate about reading manga. The only participant who wanted her own nickname to be retained was 'Deeptzer" and this was agreed upon after she asked for the change in an email.

The information collected was saved in password protected files and hard copies were kept in locked cabinets to maintain confidentiality. In discussions

with my supervisors and presentations of findings at conferences and seminars, pseudonyms of the participants were used throughout.

3.9.3.3 Giving Voice and Avoiding Discomfort

Getting the perspectives of the participants on how they used their smartphones to learn was a key aim in this study and one that required careful attention. Thus, giving voice to these participants required that I create an environment that encouraged them to be safe, comfortable and relaxed. Gurevitch's (1990, p. 183) description of an ethics of dialogue as "… a set of three obligations: the obligation to speak, the obligation to listen and the obligation to respond" was a useful guide in this aspect of the study. In my reflective journal, I had written down some thoughts prior to the start of the interviews and these involved not responding too quickly to the participants' replies, interjecting into their responses and not introducing presuppositions into the conversations.

In addition, I had to be cognizant to the power dynamics between the participants and myself. As an experienced teacher/lecturer and manager, the participants may feel intimidated by me or experience anxiety regarding the interview process. I made the conscious decision to dress down in shorts/jeans and tee shirts when I had my interviews and was very informal and casual in my chats with the participants. In addition, the interviews were conducted in my home, fast food restaurants or the participants' homes. The preludes to the interviews usually involved lunch, dinner or tea and these sessions were very useful in creating rapport and instilling confidence in the participants. In Malaysian culture, food has always been used to create and maintain bonds among families, friends and communities and this strategy was used effectively in this research study.

3.10 LIMITATIONS OF THE RESEARCH DESIGN

The research study here is inspired and informed by phenomenology and more specifically the literature on hermeneutic phenomenology. It

emphasizes language as a means of entering the lifeworld of the research participants and Gadamer's understanding of conversation as a method of creating meaning. This is one drawback of the research approach as obviously all existence cannot be reduced to language and, therefore, the way to 'being-in-the-world' through language is only ever limited. The basis that all understanding is interpretation and interpretation can alter over time means that any assertions made can only ever be tentative and conditional. Critics are uncomfortable with this premise on the lack of universality, or fixed immutable properties to human phenomenon (Finlay, 2012).

Hermeneutic phenomenology is an exercise in subjectivity and inter-subjectivity, and hence, has been open to criticisms of a lack of rigour (Sandelowski, 1986). In particular, some hermeneutic phenomenologists have advocated the use of the arts like poetry, literary prose, and art to be included as part of the collection of evidence, analysis and writing up (van Manen, 1990). van Manen (2007, p. 25) suggests the use of such rhetorical devices are to "stir our pedagogical, psychological or professional sensibilities". Critics therefore argue that this research approach belongs to the arts and even, more specifically the creative arts, as it is too poetic, too descriptive and too interpretative to be anything other than an art form (Sandelowski, 1986, Crotty 1996).

I tend to agree with Finlay (2012) when she suggests that there is a place for both rigour and resonance in this research approach. There are contexts when the research is best presented through a systematic application of the research methods and the scientific credentials of the research study. There are other occasions when the research resonates better with the use of creative devices. In the context of my dissertation study, rigour is emphasized, as it is an important criterion to support the trustworthiness of this research project.

Another weakness is the proliferation of different phenomenological and hermeneutic phenomenological methodologies that there have been

inconsistent applications of methods to theoretical underpinnings. As Finlay (2012, p, 19) observes:

> ..researchers should be clear about which philosophical and/or research traditions they are following. I have concerns about research which purports to be Husserlian when, for example, there is no evidence of any reductions being attempted. Similarly, researchers who claim to have bracketed and, therefore, transcended their assumptions while using a hermeneutic approach would seem to be both naïve and confused.

As such, in my research study, the use of methods, analysis and interpretation is linked to van Manen (1990, 2002)'s and Gadamer's (1997) theoretical perspectives on hermeneutic phenomenology in order to aim for theoretical and methodological consistency.

3.11 SUMMARY

In this chapter, the rationale for the use of an interpretive paradigm and more specifically, a hermeneutic phenomenological approach has been presented. Drawing on the phenomenological literature, the research questions in this study were developed. 4 key concepts within phenomenological literature: 'lived experience', 'consciousness', 'the lifeworld' and 'the phenomenological reduction' were discussed in order to apply these conceptual terms to this study.

The differences between transcendental and hermeneutic phenomenology were examined and a justification given as to why a hermeneutic phenomenological approach is better suited to the aims of this study of smartphone learning. In addition, my understanding of Gadamer's concepts of 'bias and prejudice', 'the hermeneutic circle' and the 'fusion of horizons' were explained and linked to how these were applied in this study. The data collection and analysis processes, and the role of interpretation in this study were discussed. The limitations in this research approach have been identified in order to rectify some of the weaknesses identified.

4 ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

In qualitative research there is no one commonly accepted method for data analysis and interpretation although it is good practice to align the methods to the theoretical and philosophical assumptions underpinning the study (Denzin and Lincoln, 2000, Williamson, 2005). In phenomenology, various authors have suggested different systematic methods of analysis (van Kaam, 1966, Colaizzi, 1973, van Manen, 1990, Giorgi, 1997). As this is a hermeneutic phenomenological study, the analysis and interpretation of the interviews were guided by van Manen's (1990), Gadamer's (1997) and Hycner's (1985) methodical procedures.

This chapter gives a detailed account of the strategies and steps used in the analysis and interpretation of the evidence collected. It examines how some preliminary analysis occurred during the stage of the participant interviews and how these early analyses are linked to the rest of the study. This is followed by a detailed description of how some of the themes and sub-themes emerged. To further illustrate the stages of analysis and interpretation, one of the participants' 'stories' is described as an example of how the themes and sub-themes are analysed after dialoguing with the texts, reflection and the writing and rewriting processes.

4.2 STRATEGIES FOR ANALYSIS AND INTERPRETATION

van Manen's (1990) 6 methodical steps provided guidance for the conduct of this study. They are discussed in the following sub-sections.

4.2.1 Turning to a Phenomenon of Interest

van Manen's (1990, p. 31) first step is to discover an aspect of human life that

is of interest and to then make sense of the human experience through a deep questioning of the phenomenon. The subject that interested me was learning in informal contexts and more specifically, learning with smartphones in everyday settings. This complex and multi-layered subject has yet to be researched using hermeneutic phenomenology and the outcome would yield new understandings and insights that are not available using other methodologies.

After deciding on the phenomenon of interest, the next step was to formulate the research questions. They are:

i. What is this experience of learning with smartphones like?
ii. How do the student participants perceive the nature of their learning with smartphones?
iii. How is the learning related to participants' identity formation, identity management and presentation of self?

During the investigation of the experiences of the participants, it was useful and important to continually refer to these research questions. They functioned as a compass to guide in the framing of interview questions and in the subsequent analysis and interpretation. There was also a re-iterative process of checking to ensure that the right methods were used throughout the research process.

4.2.2 Investigating Experience as We Live It

To the phenomenological researcher, personal experience is the beginning of all research. van Manen (1990) suggested that the phenomenological description should focus on specific events using experiential terms in order to offer a direct description of the experience. To investigate the lived experience, van Manen (1990)'s advice was followed:

i. describe the experience as you live through it avoiding as much as possible causal explanations, generalizations, or abstract interpretations

ii. focus on a particular example or incident of the object of the experience: describe specific events, an adventure, a happening, a particular experience
iii. try to focus on an example of the experience which stands out for its vividness, or as it was the first time describe the experience from the inside as it were; almost like a state of mind: the feelings, the mood, the emotions
iv. attend to how the body feels, how things smell, how they sound
v. avoid trying to beautify your account with fancy phrases or flowery terminology

van Manen, 1990, p. 66-67

During the interviews, the participants were asked to focus on specific events and to describe them in detail. For example in Round 1 of the interviews, participants were asked these questions:

What is your experience of learning with a smartphone like?	Can you give an example of how you use your smartphone to learn?	Tell me more about how you feel when you use your smartphone to learn? What are your moods and feelings like when using the smartphone for learning?
	What are the mobile apps that you use the most for learning? Tell me your experiences of using them.	What time (s) do you usually use these apps for learning? Is there a specified time and place? Tell me more about where and why…. What goes on in your mind when you are learning?

FIGURE 4.1. EXAMPLES OF INTERVIEW QUESTIONS

As can be seen from Figure 4.1, the questions focused on specific events and details, and the follow-up questions probed for details on physical settings, emotions, states of mind and moods. This was aimed at reconstructing the experience as it was lived in as vivid a detail as possible.

4.2.3 Reflecting on Essential Themes

van Manen (1990, p. 77) advises that “the purpose of the phenomenological reflection is to try to grasp the essential meaning of something.” It refers to the

reflective and thoughtful grasping of what renders an experience its distinctive significance and how it makes a difference between “appearance and essence” (van Manen, 1990, p. 31). This would mean a bringing into focus what has been obscure and unintelligible in the natural life, a sharpening of the vision to see what lies beneath the phenomenological ‘natural attitude.’

Kakkori (2009) contends that van Manen’s use of the term ‘essence’ is problematic as under descriptive phenomenology, ‘essence’ means ‘universal’ as in the essence of a phenomenon is universal. Modern hermeneutics does not recognize nor endeavour to achieve this universal essence. However, van Manen (1990, p. 39) explains the “essence may be understood as a linguistic construction, a description of phenomenon.” Here, van Manen clarifies his use of the term, ‘essence’ and this study agrees and adopts it as referring to ‘essential meanings’ in the description of the phenomenon.

3 strategies recommended by van Manen (1990, p. 93) were used to determine the essential meanings in this study: “the wholistic or sententious approach; the selective or highlighting approach; and the detailed or line-by-line approach." Using a reflective journal, field notes and dialogues with my supervisors, colleagues and conference participants, phenomenological reflection was maintained throughout the study and were instrumental in helping me to uncover the essential meanings of the participants’ learning with smartphones.

4.2.4 Describing the Phenomena – The Art of Writing and Rewriting

Language and thinking are intertwined and as Merleau Ponty (1973, p. 142) observes, “when I speak, I discover what it is I wished to say.” Writing is the written form of language and thoughtfulness applied to an aspect of experience. van Manen (1990, p.111) believes that writing is an important part of research, and hence, “creating a phenomenological text is the object of the research process." As a result, writing is significant as “it places consciousness in the position of the possibility of confronting itself, in a self-reflective relation" (van Manen, 1990, p. 129). In the process of writing and

rewriting, the researcher reflects and understands at a deeper level, the essential meanings of the phenomenon under study.

In the description of the lived experiences of the participants, their actions, feelings and attitudes have to be made visible to the reader. While most of the words have been uttered by the participants, in the narrative accounts and interpretations, critical reflection on my choice of words, and the positioning of the words and phrases was necessary to represent the essential meanings of the phenomenon. In the writing and rewriting process, there was repeated engagements with the research questions, examination of the transcripts and themes, and deliberation on my presuppositions and prejudices so that I was approaching the phenomenon with an open phenomenological attitude. Gadamer's (1997) 'hermeneutic circle' is thus, applied to achieve the 'fusion of horizons' as the new horizon that emerges, has immeasurably deeper, richer and more developed understanding which is greater than the previous understanding.

4.2.5 Maintaining a Strong and Oriented Approach to the Phenomenon

As a research approach, hermeneutic phenomenology is very demanding of the researcher as there must be a constant focus on the fundamental research questions and notions to avoid being diverted. The researcher should approach the study with integrity and not settle for falsities or superficialities (van Manen, 1990). To avoid a loss in focus, van Manen recommended that researchers maintain a strong and oriented approach to the phenomenon. This would entail the re-iterative development of engaging with parts of the research process and connecting back to the research phenomenon.

In this study, the phenomenon of learning with smartphones was always kept in the forefront, with the main question, 'What does it mean to learn with smartphones?' used as a guide to draft interview questions, conduct the interviews and analyse the collected evidence. To reflect on the research processes and to maintain a strong and oriented approach to the phenomenon, field notes and a reflective journal were used.

4.2.6 Balancing the Research Context by Considering the Parts and the Whole

The researcher should constantly examine how the parts of the research design contribute to the overall structure/ text. There is also a need to step out of the research processes and reflect on the overall research design. By continually deliberating between the parts and the whole, the researcher is applying Gadamer's (1997) 'hermeneutic circle'. van Manen (1990) introduces this circular process as a procedural step but he does advise that this step can be part of a forwards and backwards movement among his 6 proposed procedures. This consideration of the parts and the whole and back again was practised continually in this study.

There was a constant dialogue between seemingly significant words, phrases, and notions and a continual questioning of what was being said as part of the interview and analysis processes. In the beginning, there was the focus on individual texts and narrative stories. As the words, phrases and notions emerge, they were then evaluated against such questions as "Do other participants share this view or notion?" and "What does this mean to the phenomena under investigation?" One example in this study was when Deeptzer, one of the participants made this comment in a Round 2 interview about using her smartphone in her college classroom:

> It's just that you question yourself on things you want to know, all you can think about is getting the answer and once you get the answer, you're happy and some people tend to forget about it after that.
>
> IN 2, L: 72-74

This was an interesting notion and there was probing for further experiences and views from Deeptzer as shown in the interview transcript (Figure 4.2). In my field notes, (Figure 4.3) I wrote about this emerging concept: of a quick, convenient search for information, a search for quick answers, just for the sake of answers with not much engagement with the text or the activity. I questioned what I heard and wrote down: "Did the rest of the participants do the same or have the same view as Deeptzer?", "Did their learning with

smartphones comprise mainly of this sort of quick, convenient learning?" and "Is this an important feature or essential meaning of the phenomenon under investigation?"

Interviewer	*Ah..so you forget about it straightaway. So there's no real learning, no deep learning?*
Deeptzer	*Umm, ya (nods her head)... Uh... you have a question, you want an answer and it feels nice that you can get an answer as soon as possible.*
Interviewer	*Okay.. Now I want to ask you. If we have this type of learning, let's probe a bit deeper now. So, do you think this type of learning, although it's very good but you say you tend to forget about it, do you see it as something which is not a useful type of learning?*
Deeptzer	*At times, learning on the go, sometimes you want answers to certain questions, it just is like wanting to know the answers for the sake of knowing the answers and nothing else....But certain things, you want to know about it more, so you continue reading about it, so sometimes it depends on the situation and what the question is. So certain things ..you tend to forget the answers and you've solved whatever you want to solve. But certain things stay in your head because you really want to know what it's about, why it is like that*.

FIGURE 4.2 EXTRACT OF INTERVIEW (IN 2 WITH DEEPTZER_10 AUGUST 12, L: 75-94)

In the interview with Deeptzer, I was struck by how she described smartphone learning as being quick, convenient and precisely because of this easy access, it was not valued learning and easily discarded. As an example. she cited how she would always look for anwers on her smartphone in class, just to satisfy her desire to do well in class, to look for the answers quickly and that made her feel smart. But after getting the answers, she would promptly forget about them. So, this kind of quick search and easy answers did not prompt her to learn more widely or deeply. As a result, I started thinking about the analogy of fast food like McDonald's – quick, easy, convenient food but immensely forgettable and not so good for the overall health. I started using this analogy to test with both Bloggergirl and Ben. They agreed only to a certain extent. They said that if they wanted to, if it interested them, then they would go deeper into the learning with the use of the smartphone.

Field Notes, FN_Deeptzer 15 August, 12

FIGURE 4.3. FIELD NOTES OF INTERVIEW WITH DEEPTZER, 15 AUGUST 2012

The rest of the participants were asked about Deeptzer's view of learning with smartphones. All of them agreed that they did engage in this type of quick, searches for information to satisfy their curiosity on the spot or to fulfil a purpose, like for example to answer a teacher's questions. However, they also

explained that they used their smartphones to search for topics when they became interested in something and if they became more engaged with the text and topic, they would continue for hours or days on this topic and search various websites for the information (Figure 4.3).

Deeptzer in Figure 4.2 said she did have prolonged engagement with some topics as well. Therefore, my use of the McDonald's analogy (Figure 4.3) to describe the quick searches for information was not significant after further investigation. What emerged was a continuum regarding their use of smartphones for the search of information: from quick basic searches to intense and prolonged search for information depending on their interest, motivation and purpose (Figure 4.4).

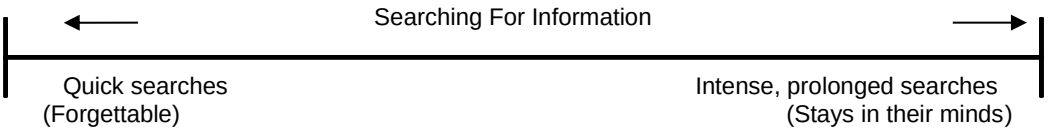

FIGURE 4.4. CONTINUUM OF SEARCHING FOR INFORMATION ON SMARTPHONES

All participants equated their learning with smartphones as searching for and reading information on *Google* or *Yahoo* apps. Their purpose was to increase their general knowledge or to fulfil functional purposes like finding a restaurant for dining or to check on meaning of words. This was their immediate response and reflection of how they saw learning with their smartphones. In the analysis and interpretation of the texts, there was a need to examine if this continuum of searching for information (Figure 4.4) represented an essential meaning or THE meaning of using smartphones to learn.

In my dialogue with the individual texts and the overall text, I had to balance the parts with the whole. I had to answer the questions: "Where does this notion fit in the overall picture?", "Is this a significant feature or meaning?" "Does this fit into the theme of 'Convenience' or 'Personal Agency' or 'Value'? "How significant is this part to the whole?"

After several dialogue sessions, revisions, and reflections, the texts begin to reveal themselves and 'speak': learning with smartphones does mean searching for information either for short or prolonged periods. It is an essential meaning of learning with smartphones as it represented how the participants perceived the value of their use of smartphones for learning. They were able to evaluate the value of their own learning and understood that at times, not much learning took place if all they did were to use it to look for quick answers, or for the sake of getting answers to show off to their peers. Yet, they were also conscious that this ability to search for information at anytime, anyplace enabled them to learn deeply, and differently to build on their general knowledge and to pursue interests and hobbies. That was the value that the smartphone brought to them, and which they prized very highly.

The above-mentioned example illustrates how parts of the research outputs and processes are continually subjected to scrutiny and reflection to see if and where they contribute to the overall structure/ text. In summary, van Manen's (1990) advice of balancing the parts and the whole in the research process was observed consistently in this study.

4.3 UNCOVERING STRUCTURES OF EXPERIENCE

According to van Manen (1990), descriptive accounts of lived experiences are the foundations for uncovering the themes of the phenomena being described. In this study, these accounts of the lived experiences of participants learning with smartphones arose from the transcriptions (452 pages) of the 3 rounds of interviews, the written reflective exercise and the field notes. Hence, the researcher examined and re-examined the transcripts, field notes and exercise to identify phenomenological themes which "may be understood as *structures of experience",* that is, "the experiential structures that make up the experience" (van Manen, 1990, p. 79).

4.3.1 Field Notes and Transcriptions

Field notes are a form of "memoing", a record of what the researcher sees,

hears, experiences, and thinks during the course of the collection of evidence (Miles and Huberman, 1984, p.69). Groenewald (2004) notes that as researchers have a tendency to get too involved in the data collection process, there is a need to balance this by reflecting on what is happening through the field notes. This section examines how field notes could be perceived as "part of the analysis rather than the data collection" (Morgan, 1997, pp. 57-58).

In this study, the field notes and transcriptions were written within a week when the interviews ended. These had to be finished before each round of interviews commenced, for example, the Round 1 interviews had to be transcribed in July before Round 2 interviews were conducted in August 2012. The observation and theoretical sections in the field notes were useful in my hermeneutic phenomenological reflection as I transcribed the interviews and thought about the next round of interview questions and the clarifications that I wanted to pursue with individual participants. One example is in field notes written after the interview with Chuck on 9 July 2012 (Figure 4.5).

Theoretical notes (TN) — 'attempts to derive meaning' as the researcher thinks or reflects on experiences. FN 1_Chuck_9 July 2012

When asked if reading is difficult with a smartphone screen which is far smaller than a laptop, he said that he had adjusted to reading with a smartphone screen; in fact he felt that he is not used to reading from his laptop anymore: the screen is too wide. He is more comfortable reading using his smartphone, as he can hold the phone to read with one hand, just as he holds a book to read. It is the tactile feeling of holding something to read which he says is important to him. He does not get the same feeling or sensation when reading with a laptop. This, he says, is like reading an actual book and turning the pages: it's something soothing, reassuring to him that reminds him of the pleasure of reading. When he reads reviews on his smartphone, he writes down notes on a piece of paper. He likes this tactile feeling of writing using a pen and holding a smartphone, like he holds a book for reading.

*Chuck appears to treat his smartphone as if it's a book, a physical book and he describes his feelings of reading with the smartphones in very tactile terms**. My perception** (and it may be premature at this point) and **understanding** are that there may be something interesting here to explore. Are some people beginning to adapt to reading on their smartphones (despite my presupposition that the screen is too small) and the device is becoming a form of a book to them? Their reading habits may be attuned to the physicality of the smartphone device.*

FIGURE 4.5. EXCERPT OF FIELD NOTES OF INTERVIEW WITH CHUCK, 9 JULY 2012

The use of the words, "***My perception"*** and ***"understanding"*** suggests the occurrence of intuitive grasping and inference (Figure 4.5). Thus, as the researcher, I was undertaking a preliminary form of analysis and interpretation based on what I had seen and heard. It is of importance, however, that at this stage, the researcher is not prematurely categorizing or pushing an earlier presupposition into the grasping of the phenomenon. In the extract above, as the researcher, I exhibited some form of **reflective awareness** by noting that "My perception (and it may *be premature* at this point) and understanding are that there may be *something interesting here to explore.*" I was conscious throughout the study that I must not allow my presuppositions to overwhelm my active listening and sensing of the participants' experiences.

I began to reflect on the question: "Are some people beginning to adapt to reading on their smartphones and the device is becoming a form of a book to them?" and pursued this question with the rest of the participants. My thoughts were recorded in another field note entry, 13 September 2012 which reflected an emerging awareness of the smartphone and its uses (Figure 4.6):

Theoretical notes (TN) — 'attempts to derive meaning' as the researcher thinks or reflects on experiences. FN 3_Eunice_Mei Ling_13 September 2012

An interesting theory/meaning that I have been pursuing since July is whether the participants are viewing their smartphones as replacements for books. So far, Chuck has been the one who has described his reading using his smartphone in very tactile terms. His descriptions of how he sets up his reading: putting on music, getting big soft cushions, lying down to read: suggest to me that he is in fact reading using his smartphone. The same pleasurable activity that he previously associated with reading with a book, he has transferred onto reading with his smartphone. However, not all the participants share this adaptability. Chuck. Mei Ling and Stevie are the ones who appear to share the same traits and habits with their smartphones. Mei Ling before she goes to sleep, would check some English Language app to learn some English before she sleeps.

The rest of the participants describe lying down on their beds just before sleep as their most relaxed and enjoyable part of using their smartphones to read articles or e-books or their social media messages. This is the most distinctive habit or ritual that emerges from their descriptions. It appears that this is what the participants associate with pleasure and enjoyment in the use of their smartphones: this type of learning new knowledge and skills is different form how they see their academic learning.

FIGURE 4.6. EXCERPT OF FIELD NOTES OF INTERVIEW WITH EUNICE AND MEI LING, 13 SEPTEMBER 2012

From their answers, it would appear that this comparison of smartphone to a book does not describe the participants' experiences adequately. The habits and processes associated with reading a book are similar in some aspects but dissimilar in others as unlike a book, the smartphone is also used as a communication device for social networking, a diary/journal to record reflections and a device to create songs, photographs and videos for their pleasure and learning. I dialogued with the texts and reflected on the question, "Are some people beginning to adapt to reading on their smartphones and the device is becoming a form of a book to them?" using van Manen's (1990) and Gadamer's (1997) strategies. In particular, I began to examine the silences around this issue: 'What is not being said here? Why is it not being said?'

Therefore, this 'germ' of an idea or interpretive meaning was tested and re-tested in the face of emerging evidence. If it was not validated, then I had to reflect more and decide either to leave it aside or to see if I had interpreted it correctly. I made the decision not to hastily come to any conclusion yet but to wait till all the evidence had been collected and to examine it using the hermeneutic strategies mentioned in the next section.

Transcriptions are also considered part of the analysis stage and they involve noting down important paralinguistic and non-verbal communications (Hycner, 1985). Appendix 8 has an example of the transcript of the interview with Al, one of the participants with the accompanying field notes. In the interviews which were transcribed verbatim, there were inclusions on the pauses, exclamations and observations on laughs, smiles and other body language displayed by the participants.

One interesting observation is how participants were so attached to their smartphones that during the interviews, many of them were fiddling with them as they talked, referring to the smartphones and literally opening pages/screens to show what they meant and generally displaying a sense of physical and emotional attachment to these devices. This observation does support one emerging sub-theme: the relationship smartphone users have

with their devices. The analysis and interpretation of this sub-theme will be discussed further in Chapter 5.

4.3.2 Reading and Immersion with the Evidence

After the interviews were transcribed, the transcripts were filed and grouped under title of the interview, each participant's name, and date of the interview. They were then read and re-read together with the field notes for an initial analysis.

4.3.2.1 The Detailed Reading Approach

van Manen's (1990) strategy of examining every sentence or cluster of sentences was applied to answer the question, 'What does this sentence or sentence cluster show about the phenomenon?' This is the stage which Hycner (1985) describes as delineating units of general meaning and being close to the literal data. An example of the initial analytical and interpretive notes is shown below (Table 4.1).

From the initial analysis in Table 4.1, it can be seen that Al used his smartphone to learn French which is a required second language for his diploma course. The emerging conceptions from the analysis are those of 'ease', 'convenience' and 'immediacy' which are associated with using an e-dictionary application (app) downloaded into his smartphone to learn French. This detailed reading approach was used with all the interview transcripts and the key ideas and concepts were then listed and tabulated as part of the first stage of analysis. Appendix 9 has a more detailed analysis of Interview 1 with Al (9 July 2012).

4.3.2.2 The Highlighting or Selective Reading Approach

Another approach used with the detailed reading approach was the selective reading approach. This involves reading the text several times to answer the question, 'What phrase(s) or statement(s) appear profoundly revealing, true or

TABLE 4.1. INITIAL ANALYSIS OF INTERVIEW 1, AL, 12 JULY 2012

Original Transcript of Interview 1 with Al, 19 year old student	Meaning	Concept
(Lines 29-36) **I: So now, let's come to your smartphone…ok? If it's your smartphone, what kind of learning do you use your smartphone for? Do you think that you have actually learned using the smartphone?** **AL: Yeah I actually learned a lot using the smartphone. Maybe from my French language.** **I: Ok.** **AL: I usually download dictionary stuff, because it's easier that way than to carry a book around. I download the French dictionary from the Internet, and if I want to find out what a French word means, the answer is already there in the smartphone.** ***(Lines 49-58)*** **AL: Yeah it helps me a lot.** **I: How does it help you?** **AL: Errr for example during class.** **I: Ok.** **AL: The lecturer gives a word and I don't know its meaning, or maybe we have to write an essay or something and you can use your book.** **I: Mm-hmm.** **AL: So instead of using the book we use our smartphone.** **I: So that you can get the translation straight away?** **AL: Yeah.**	What kind of learning do you use your smartphone for? I learned a lot using my smartphone. For learning French. Downloaded French dictionary. Easier than to carry a book around. Answers in smartphone. Downloaded app from Android Market in smartphone App does not take too much memory, 5MB Helps learning French in class. The lecturer uses a French word, I don't understand. Instead of using the French dictionary (book), I use my smartphone to get translation *straight away*	Smartphone learning (SL) = learning French SL = downloading dictionary app from Google Market SL = easier to learn new words (than having to carry a book) SL = convenience of app to find answers on French words SL = translations given immediately as compared to time taken with book

essential about the phenomenon or experience being described?' The selective reading approach was used during the second stage of the analysis as statements or phrases were selected, highlighted and then tabulated. Examples are:

> It's definitely more convenient, it makes life more interesting! (laughs). It***makes learning an entire..different.. a new thing***. It no longer is such a

> BORE, like the way it used to be, just books and books.... Some boys like my brother, he hates books. He just hates them! But you give him the smartphone and the amount of learning he does, it just amaze you. Different, different, it's the same learning but ***different approach and different results***.... It's like getting to know a new person, you just want to know more about it. You have to experiment with it.
>
> Stevie, Interview 3, L:370-372, L:376-377

> Which is why this ***Wattpad app***, and maybe some other sites which they are just ***normal people like us,*** *and they like writing and commenting and stuff.* Or they just like to critique. So they post in their writing, and they don't get anything in return, but they do it because they are…they just like it and maybe ***they are just trying to get people to look in their views, and they also help people***, like for example some movie reviews on *Twilight* which I read, and they don't just critique it just because they don't like it. They have reasons and evidence to support it. And when you read it you get into it, and it helps. And then when you talk to your friends about how horrible *Twilight* is, it helps a lot.
>
> Chuck, Interview 1, L: 476-482

The highlighted phrases appeared very significant to the research question, 'What does it mean to learn with smartphones?' Both quotes were selected and put into another list of selected statements for further analysis and interpretation. Stevie's quote was grouped into an initial theme, 'Learning is Different'. As I reflected on what Stevie's quote meant, I began to grasp that learning with smartphones was perceived as different from learning with books, learning in the classroom and learning using laptops or desk computers. I looked for evidence of this theme in the transcripts of the other participants and found that all of them referred to this difference and usually compared it to books or academic learning. After reading and re-reading, and moving from other texts to the whole and back again to this quote, there was a reconceptualization of the theme, 'Learning is Different' to 'Differences' encompassing the sub-themes of 'Different Types of Learning' and 'Different Ways of Learning.'

Chuck's quotation on why he and other people used the *Wattpad* app on smartphones seemed particularly significant as it indicated the use of this app for learning on how to write stories. He described a community where

participants grouped together; motivated by their desire to learn and to help each other by reading and critiquing each other's works. In the process, they learnt from each other, and received emotional support and recognition of their work (through the votes and comments). In my initial analysis, it appeared that this quote highlighted the theme of 'Communities of Practice'. After several rounds of reading the transcripts, analysing and practising the hermeneutic phenomenological strategies this meaning of learning from others in an online community was re-categorized under the main theme of 'Difference' and under the sub-theme of 'Different Types of Learning.'

4.3.2.3 The Wholistic Reading Approach

In this reading approach, the text(s) is read in its entirety to answer the question, 'What phrase or sentence may capture the essential meaning or key significance of the text as a whole?' In my initial search for themes, one phrase from a participant, Stevie emerged and continued to linger in my consciousness as being very significant: "*learning an entire…different.. a new thing".* The text was examined again to find if this conception of learning with smartphones as a different form of learning was shared by other participants. I discovered that all of the participants shared this perception. Examples are:

> How they use it for learning? They use it to search up general knowledge. Sometimes they need song lyrics and all that, then they download audio books, and record the teacher's lectures. I also do that, but on my iPod,….And they can read books, on the smartphone, story books and all that.
>
> Eng, Interview 1, L: 236-238, L: 240

Eng described the smartphone as a multi-functional tool in the daily mobile practices of his friends. It was used to download audio books for reading, to record lectures, to search for information on topics of general interest or music lyrics. Learning with a smartphone occurs in these different ways as seen through Eng's experience and those of his friends.

Another participant, Zerros has this to say about the different ways of learning with a smartphone:

> To call this kind of learning… it's about like..more like easy and simple. Easy and simple because you can take and learn, you can learn when there's for example in McDonald's, you have wi-fi, so sometimes in Gurney (Plaza) you have free wi-fi, you can go everywhere ….also in Penang, you have free wi-fi, right?
>
> Zerros, Interview 2, L: 196-198

Zerros describes learning with smartphones as occurring anywhere, in spaces such as fast food shops, shopping malls or any place that has free wi-fi connectivity. Learning is thus different from the learning of the past, as it can take place anywhere with Internet access. Using the cross reference technique, other participants also made references to learning in different spaces, which meant that learning was not only occurring in the classroom but in other spaces and across time, where the smartphone is utilized in daily life. Quotations were grouped together under the similarity of ideas and analysed in the same manner. This became the sub-theme of "Different Ways of Learning" under the theme, "Difference."

This wholistic reading approach was used together with the 2 other reading approaches as it represented a good balance between the whole and the parts and prevented a more 'personal' reading of the text that were beyond the literal evidence (Landridge, 2007).

4.4 PROBLEMS WITH USING NVIVO FOR CODING

The first attempt to explicate the themes and sub-themes was through the detailed reading and wholistic reading approaches. From the 2 reading approaches, key phrases and sentences were selected for coding using the NVivo software. I had read some phenomenological dissertations that had used NVivo for their analysis and authors like Landridge (2007) mentioned its usefulness in producing a fine-grained analysis. I spent several weeks learning to use the software and produced my first attempt at delineating the themes. However, I found that the presentation of the themes using this software was too structured and the coding process too mechanical.

In hermeneutic phenomenological analysis, van Manen (1990) advises on an intuitive grasping of the phenomenon through the 6 broadly defined steps mentioned earlier. The use of NVivo and its structured coding processes appeared to run counter to an intuitive and sensitive grasping of the embedded phenomena of learning with smartphones in everyday practices. My decision, therefore, was to use instead a manual tabulation of the themes and sub-themes using all 3 reading approaches suggested by van Manen (1990).

4.5 PROBLEMS WITH HERMENEUTIC PHENOMENOLOGICAL REDUCTION

There is no attempt in this study to follow the phenomenological reduction (bracketing) as proposed by Husserl (1970 trans). Instead, there is concurrence with existential phenomenologists like Heidegger (1962) and Merleau-Ponty (1962) that it is impossible for a researcher to completely 'bracket' presuppositions and prejudices. This study adopts the stand that 'bias' and 'prejudice' are valuable to the research study but that the prejudices of the researcher needs to be subjected to critical examination and to be foregrounded in the study to examine how they may impact the study. In addition, the researcher must maintain a critical self-awareness and open phenomenological attitude throughout the study to guard against the encroachment of such prejudices and presuppositions (Gadamer, 1997, van Manen, 1990, Finlay, 2012).

Using van Manen's (1990) strategies like 'hermeneutic reduction' (the questioning of my presuppositions and their impact in the reflective journal and field notes) and 'hermeneutic alertness' (reflecting on the evidence without accepting them at face value or imbuing them with presuppositions) helped in developing critical self-awareness.

However, it was a struggle to maintain this open phenomenological attitude. One example was how past theories and knowledge of other scholars in the

field interfered with my reading, analysis and interpretation of the evidence. In my first attempt at producing the themes of this study, I discovered that I had produced a list of themes partly based on how mobile learning was currently perceived by present scholars like Sharples et al. (2007a) and Pachler et al. (2010a) under categories such as 'Collaborative Learning', 'Reflective Learning' and 'Communities of Practice'. I was not listening deeply enough to the texts and allowing some of my past knowledge to encroach into my analysis. I realized this as I reflected on my findings and discussed my initial themes with my 2 supervisors. In my reflection below which I sent to my supervisor, Dr Alan Walker-Gleaves, dated 23 February 2013, I explained how my reading of the extant literature was interfering with my analysis and interpretation:

> *I've thought about your feedback and suggestions which were very useful. Sometimes, in dialogue with my data and literature, I can be caught up in data overload and not be able to see the forest from the trees. Therefore, it's incredibly helpful for you to point out areas in which I'm muddling in or stuck at.*

FIGURE 4.7. EMAIL CORRESPONDENCE, 23 FEBRUARY 2013

Thus, in this manner, through reflection, self-critique and critique of impartial observers, I was able to develop and maintain critical self-awareness and an open attitude, albeit with some struggles.

4.6 DEVELOPMENT OF THEMES AND SUB-THEMES

In hermeneutic phenomenology, the development of themes is less prescriptive (compared to descriptive phenomenology) and is directed more by the relationship between researcher and the text, described by van Manen (1990) as having a dialogue with the texts. There is also a purposeful movement away from a mechanical application of coding to uncover meaning hermeneutically, with the researcher acknowledged as having an important role in the co-construction of meaning (Landridge, 2007).

A theme is an attempt to grasp the phenomenon under investigation and there

are both explicit and implicit themes. Explicit themes are those that are easily revealed or stood out during the analysis as being significant. Implicit themes are not usually discerned on first listening or reading, as they are the hidden meanings behind the words. In examining the text, there were hidden meanings behind volumes of text that could only be grasped under sifting through the text several times, balancing the parts to the whole and immersing in the data.

4.6.1 Preliminary Analysis

In the coding of themes and sub-themes, this study was informed by the ideas of van Manen (1990), Gadamer (1997) and Hycner (1985). The analytical process comprises the following:

i. Key words and phrases were grouped under concepts or similar ideas
ii. Concepts after dialogue with the texts and reflections became sub-themes and themes and were represented in lists
iii. Lists in tables were examined from the perspective of parts and the whole and changes made with each revision
iv. Redundant words or repetitive lists were taken out
v. Overlapping lists and words were re-examined and re-categorised

Figure 4.8 shows the recursive process of the development of themes and sub- themes.

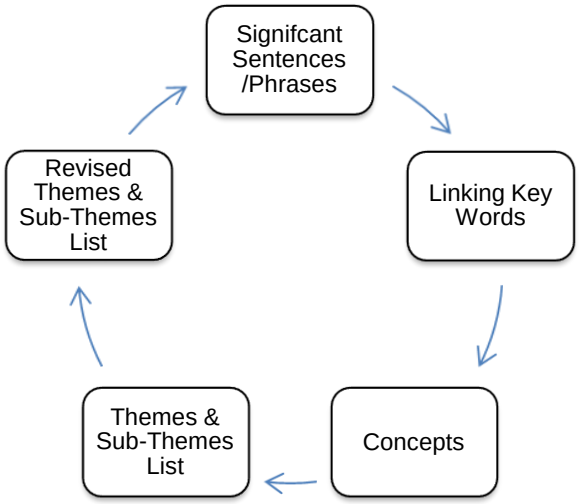

FIGURE 4.8. RECURSIVE PROCESS OF DEVELOPMENT OF THEMES AND SUB-THEMES

A detailed description of how some significant sentences and phrases were developed into linking key words and concepts is shown in Table 4.2. Ben's love of reading developed because his parents explicitly bought him books and encouraged his reading habit and this love of reading was then transferred to reading on his smartphone. Linking key words were 'love of reading influenced by parents' (Table 4.2). Bloggergirl had a similar experience where her parents and her family bought her books, and brought her to book sales. Linking key words were 'direct influence on reading'. These linking key words were then categorized under 'explicit expectations and influence of parents' (Table 4.2).

Andy had a different perception from Ben and Bloggergirl (Table 4.2). He believed that it was his own self-will that influenced him in the use of the smartphone. This was categorised under the linking words of 'self-will, parents don't influence us' and under the concept of 'self–will and self-efficacy'. This concept of parents not influencing the use of smartphones added a new dimension to the concept of 'influence'. Some questions that emerged in the analysis of this initial concept of 'influence' were, 'What were being said here? What was NOT being said?' Andy's quote was later added to another sub-theme of 'Self Identity' under the theme of 'Me, Myself, I'.

These concepts were later grouped into sub-themes and themes. An example is the development of the sub-themes, 'Parental Influence', and "Family Influence' and the theme of 'Influence" in Table 4.3. Appendix 10 has a more detailed analysis of the development of the sub-themes and the theme of 'Influences'. This theme, that is, 'who and what influences the participants to learn with their smartphones' generated 5 sub-themes: 'Friends' Influence', 'Family Influence', 'Parental Influence', 'Media Influence', and 'Teachers' Influence' in order of significance.

Table 4.2. EARLY ANALYSIS WITH BEN, BLOGGERGIRL AND ANDY AS EXAMPLES		
Significant Phrases and Sentences	Linking Key Words	Concept
• They just give me books and ask me to read and obviously as a kid, you have nothing to do and it does get boring after a while so ..I kind of picked it up. Ben, Interview 2, L:317-318 • Partially it could be my background. Reading was something I picked up and I enjoyed, so the ability to read wherever, and that **advantage came with the smartphone**, that came by habit**.** Ben, Interview 2, L:399-341	Love of reading influenced by parents Love of reading picked up, flowed into reading with smartphone	Explicit expectations and influence from parents
• My *influences* were very clear cut. **My parents** started me teaching how to read when I was 2. They focused a lot more on me than my sister, I was the eldest and I was the only one kid. They would read to me **all** the time. So it started with how to read. At first it was ***memorising***, then it went on to other things. I think it was helped that my **entire family bought me books**. It was easier to buy me books then as they would know what books I already have but now it's harder. Then **my mother** starts bringing me to **book sales** until now, bringing me to book sales, **book shops**. Bloggergirl, Interview 2, L: 430-435	Parents teaching reading & how to memorise Direct influence on reading	Explicit Influence of Parents and Families
It's **my own drive**. **Parents don't really influence us**, not on this generation...Um..I realise that kids nowadays, we don't really take advice from our parents.. like for us, unlike you're brought up wrongly lah. We know what is right for ourselves. Andy, Interview 2, L:232-234	Own drive, parents don't influence us	No parental influence, self will, self efficacy

TABLE 4.3. DEVELOPMENT OF SUB-THEMES AND THEME

Significant Sentences & Phrases	Linking Words	Concept	Sub-theme	Theme
Ya! Like initial influence was my parents but then as I started reading on my own, they didn't care anymore. Now it's the "you read too much kind of thing". **Ben, Interview 2, L:411-412**	Love of reading influenced by parents	Explicit expectations and influence from parents	Parental Influence	Influence
Partially it could be my background. Reading was something I picked up and I enjoyed, so the ability to read wherever, and that advantage came with the smartphone, that came by habit. **Ben, Interview 2, L:399-341**	Love of reading picked up, flowed into reading with smartphone			
My *influences* were very clear cut. My parents started me teaching how to read when I was 2. They focused a lot more on me than my sister, I was the eldest and I was the only one kid. They would read to me all the time. So it started with how to read. At first it was *memorising*, then it went on to other things. I think it was helped that my entire family bought me books. It was easier to buy me books then as they would know what books I already have but now it's harder. Then my mother starts bringing me to book sales until now, bringing me to book sales, book shops. **Bloggergirl, Interview 2, L: 430-435**	Parents teaching reading & how to memorise Direct influence on reading	Explicit expectations and influence from parents and family	Parental Influence, Family Influence	Influence

In terms of the degree of influence, friends were the most influential as they were the people who introduced the participants to new apps, new models of smartphones and new mobile learning practices. Family members like elder siblings, cousins or uncles were the next most influential as they directly influenced the participants with their mobile learning practices and recommendations. Parents had a less direct influence as most were considered technologically inept by their children. However, all parents were the main reason why the participants wanted to do well in their studies and many parents had explicitly advised their children to make the most of smart devices to do well in academic studies and to help them prepare for a future career. Media and Teachers' influences were more marginal and affected only some of the participants.

4.6.2 Delineating the Themes and Sub-themes

Using lists of themes and sub-themes were a useful and straight-forward way to scan the emergence of concepts and ideas and to determine if they were answering the research questions set out at the beginning of the study. The lists were a visual summarised representation of the analysis which enabled me to decide if more dialogue with the texts were needed, or if the themes had to be re-interpreted or re-categorized. Using this *reductionist* technique, there were several incarnations of the lists of themes and sub-themes during the progression of analysis and interpretation (Figure 4.9) that was for a duration of 5 months. The list of themes and sub-themes changed as a result of feedback from my supervisors, conference reviewers and participants and my self-reflection.

The final list of themes and sub-themes in May 2013 is shown in Figure 4.10. The themes had been reduced to 4: 'Difference', 'Me, Myself and I', 'Value' and 'Influences'. The sub-themes were categorised under the form of questions as this enabled greater specificity in focus.

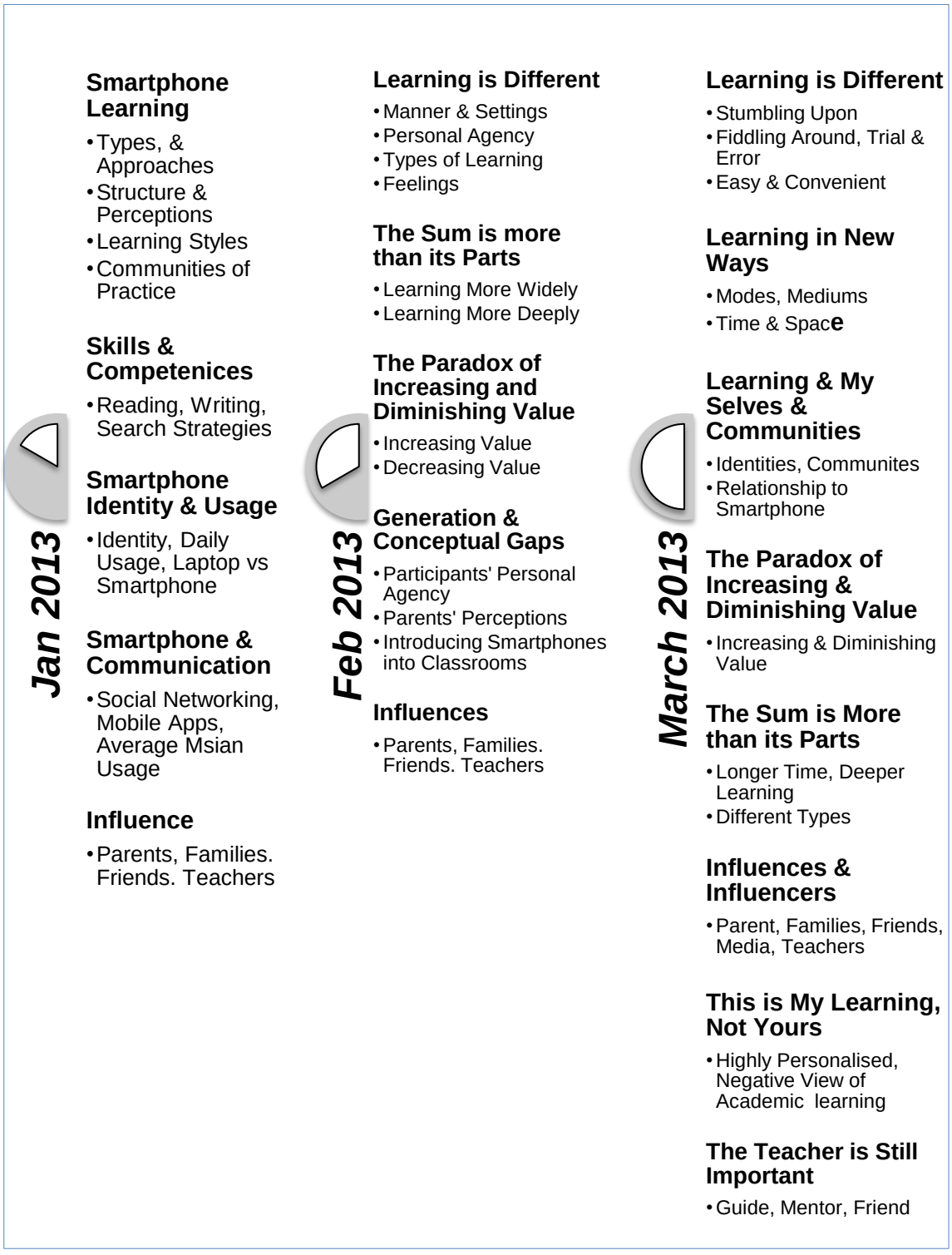

FIGURE 4.9. DEVELOPMENT OF THEMES & SUB-THEMES, JANUARY–MARCH 2013

A. DIFFERENCE

- What are the different types of learning with smartphones?
- What are the different ways of learning with smartphones?

B. ME, MYSELF, I

- What distinguishes my learning from academic learning?
- How do I portray myself to others?
- What are my communities or affinities?
- What is my relationship to my smartphone?

C. VALUE

- What is the value of my learning with smartphones?
- How do I evaluate the value of my learning?
- How do others perceive the value of my learning?

D. INFLUENCES

- Who influences me in my learning with smartphones?
- Who influences me in my academic learning?

FIGURE 4.10. FINAL LIST OF THEMES AND SUB-THEMES, MAY 2013

4.7 STEVIE'S STORY: BALANCING PARTS TO THE WHOLE

As part of the analysis, the stories of the 12 participants were examined in depth. Accounts of their stories were written from the transcripts and the process of writing and re-writing engendered interpretations of the essential meanings of their experiences. This section presents Stevie's story to situate it as an individual or 'part' of the whole structural and textual analysis and this short vignette is then related to the totality of the learning with smartphones experience.

Stevie (pseudonym) is 16 years old and a Form 4 student in St Georges (a leading mission school in Penang, Malaysia). Stevie's father and mother own business companies, with her mother in possession of a branded bag business. She has an older brother who is in KDU College (private tertiary institution), pursuing a Diploma in Business course.

Stevie looks confident and is assertive. She has a highly analytical mind, with good organizational ability. She wants to study actuarial science in the USA and her long term aspiration is to emigrate there. To improve her chances and prepare herself for university, she is currently taking private lessons in calculus.

Stevie has an iPhone, 4S and it is encased in a brown and beige teddy bear case. She bought this iPhone from the money she received from relatives and her parents after the Chinese New Year (It is a tradition for children and young adults to receive gifts in the form of money during Chinese New Year). Her smartphone case looks cute and unique and it is a present from her best friend's mother.

Learning to her is:

> Learning new stuff…Learning all over. It doesn't matter if it's not in school. It doesn't even matter if it's not a subject that I am learning. As long as I am learning something, I know something that I don't know, then, it's considered learning to me
>
> Interview 1, L: 15, 20-22

She has a negative view of academic learning and schools in Malaysia:

> A lot of copying and memory…. Teachers like to tell us to memorize this and memorize that, and it's so wrong.
>
> Interview 1, L: 479, 482-484

> We need to understand it, not memorize it. What's the point of memorizing, there's no point…. It's started to become thinking questions, I think long ago, even just a few years ago, it was all about memorizing. You can memorize, you are a successful person. That's how they drew the line.
>
> Interview 1, L: 573-574,576, 578-579

Theme: Learning is Different

Learning with smartphones to Stevie is different from academic learning as it is fun and enjoyable as she is able to experiment with it, and it is like getting to know a new person:

> It's definitely more convenient, it makes life more interesting! (laughs). It makes learning an entire..different.. a new thing. It no longer is such a BORE, like the way it used to be, just books and books.... Some boys like my brother, he hates books. He just hates them! But you give him the smartphone and the amount of learning he does, it just amaze you. Different, different, it's the same learning but different approach and different results.... It's like getting to know a new person, you just want to know more about it. You have to experiment with it.
>
> Interview 3, L:370-372, L:376-377

Sub-theme: Learning New Things in New Ways

Stevie believes that mobile applications are the best technologies that have been developed as they make learning easy and convenient.

> That's why people like to go for smartphones. **The apps are what defines smartphones.** If you don't have the apps, it'll just be another normal phone.
>
> Interview 3, L: 160-161

Using language learning apps, she is able to improve her English and learn new languages like Thai. She does her learning when she is bored and is able to master basic Thai phrases. She believes that her smartphone apps give her an advantage over others and she feels "remarkable" because she feels smart and is able to learn new languages without paying for books or classes.

> Yes! (smiling) Like smartphones, like iPhones, the apps they have, not sure, I don't know what that category is called but I've come across apps where they have *Learn English, Learn Malay, Learn French, Learn Thai.* I downloaded *Learn Thai* as I've friends in Thailand. I want to learn a bit that's why I downloaded the app.
>
> Interview 3, L: 97-100

> Ya, when I'm bored, I just go to the app. I'll type like 'how are you doing?' and it'll say in Thai… Ya, it translates for me and spells it out.
>
> Interview 3, L: 102-105

> I'm learning Thai..the days and the dates. Only the basic ones
>
> Interview 3, L: 113

> I feel awesome! I feel remarkable! I know these things, do YOU? (laughs)…. YES! It beats going to the bookstore and buying the book.
>
> Interview 3, L: 118-120

She finds herself learning in new ways using her smartphone, for example using the photography app, *Instagram*:

> I am quite into photography and I am into photo apps. Like where you said there is a community where you discuss different angles and all that.
>
> Interview 1, L: 15, 30-31

> Yeah Instagram….. Very professional. You can take anything of…anything.. anything. It doesn't even matter if it's not nice. But once you Instagram it, it looks amazing…. Not really because errm, the more you are into it, you realise that if there is a popular page that you go and visit, errrm it's full of photos that are really really nice so you start to experience with yourself, with your phone…how it goes.
>
> Interview 1, L: 33, 40-41, 45-47

When she does her homework, she sometimes takes a picture of what she is doing and sends it to her friends and then they discuss through a conference call on the smartphone on what she has sent. This represents *a new way of studying* for her.

> When we are studying, or sometimes doing homework, we take pictures …like we send it over to our friends, to look over the questions and then we Skype each other about it… Yeah, very convenient. Usually when we start doing our work, we are not face to face but we have conference call and we just put it there, and it is just like in school, except that the person is not next to you. Like Question 1, and we go ahead.
>
> Interview 1, L: 233-234, 236-238

> We do it everyday. Especially for project work. We really need them… Keeping in contact. We keep in contact over Skype. That's how we do it. When it comes to school work that's what we discuss about. Our project, our folio, and our exams.
>
> Interview 1, L: 252, 261-262

> Errrr usually when we hold a conference call, phone Is all right, but when we want to see each other we use laptop.
>
> Interview 1, L: 276-277

Like many young people of her generation, she expresses a preference for visual communication. She uses her smartphone to capture and store information and images.

> It's um..if it's important information, I'd screen capture it using my phone, screen shots, then I save it… I don't have to google it again next time, I can refer to it or show it to my friends.
>
> Interview 2, L: 71-74

Sub-theme: Different Types of Learning

She finds herself using *Problem-based Learning* to solve everyday problems as when she damaged her mother's iPod:

> Well I did a lot of research and downloaded the information from the internet. I managed to get a lot of information on how to do stuff from the Internet. For example, I repaired an iPod by myself from instructions I got off the Internet. Well I spoilt my mum's iPod without her knowing, but I repaired it for her. I sat in front of the internet. I spent like, like a few hours searching for the information. And I downloaded the articles and I read and read and read.
>
> Interview 1, L: 358-362

She likes problem-solving and finds information on how to repair things:

> Errm… I like to repair things by myself … So when it's like… for example laptop, I will go for tutorial, but if it's just a passcode thing, I will read about them. Even on the Internet there are lots of people posting about I don't know how to swipe my stuff, what can I do, and then there are lots of comments and stuff, so you read the comments and you learn. And then.. yeah.
>
> Interview 1, L: 365-368

With her smartphone, she is able to have access to *YouTube* videos and learn the piano through modelling her behaviour based on what she sees and hears.

> No…like, when I am playing the piano, I put my smartphone in front, because I may forget the chords, so I put the phone in front of me with the chords displayed on it and I play the piano while looking at it. Like performances.
>
> Interview 1, L: 463-465

She plays games on her smartphone to relieve her boredom and stress. Incidentally, through her game choices, she learns valuable new skills and competencies like planning and strategy.

> *Unblock me*… It's a game where there's lots of blocks and lots of levels. It's something you do when you do when you are really really, really so bored. There's lots of blocks and there is something in the middle and you are moving the blocks around, trying to push this block into it. It's like a quiz thing.
>
> Interview 1, L: 472, 474-476

> How to handle problems… But I think just by moving the blocks you need errm strategy. Yeah. Yeah, because you need to think first, it err… depends on how many moves you need to make to make that block going to unblock it.
>
> Interview 1, L: 479, 482-484

Theme: Self Identity, My Communities and Image Presentation

Stevie's daily mobile practices and her interactions with her personal communities are factors that help in the development of her self-identity. At 16 years old, she has already mastered the lesson of presenting different images online: one for *Facebook* and another for *Twitter.*

Sub-theme: Development of Self-Identity and Self-Image

Stevie describes how she shares with her friends online and how their feedback and approval give her a sense of accomplishment and confidence.

> Yes. Happiness definitely. You know like you buy something new…your first thought would be "I need to Instagram this! I need to show my friends this… I need to show the world."
>
> Interview 1, L: 70-71

> Yeah, share with my friends. Mostly *Facebook*, we link it over…. It's more like

> our culture. I think it's more about ….like teens, in general. A teen thing.
>
> Interview 1, L: 73, 75

> Mainly. I would like to think it's a sense of confidence. Especially if like you are taking photos of yourself.
>
> Interview 1, L: 79-80

> I'm doing this… Perfecting photos, perfecting the photos. Yeah. For like, showing, getting the angle that I want through my friends.
>
> Interview 1, L: 83-84

> Mostly it's about confidence or just showing off something new.
>
> Interview 1, L: 90

Stevie and her friends present different images of themselves on *Facebook* and *Twitter.*

> For *Facebook* and *Twitter*, There is a difference for me, and for my friends as well. I found out recently that *Twitter* is like our world, Facebook is like a public area. It has become so public that anything you post there, Everyone…people who don't even know you will know about the things that you share. *Twitter* is like, you can go to a person's *Facebook* page, and *Twitter* page, and you can find that there are an entirely different person on each. On *Facebook* there are cheerful and all that. But on *Twitter* they post things like, "I am facing depression" and all that.
>
> Interview 1, L: 109-115

> Because *Facebook* is too public, errm there is also the question of face, on *Facebook* there is the unconscious part where we don't want people to judge us, and in *Twitter* it's more like a personal group.
>
> Interview 1, L: 109-115

Theme: Value of My Learning

Sub-theme: Increasing Value

Stevie uses her smartphone to search for information, anytime, anywhere and for anything as in the example when she is watching television and wants to know more about 'cerebral palsy' as the heroine of the drama has this illness.

> I was watching this movie, this Japanese drama, “One Litre of Tears”. I just went and google about the disease that the girl got? Cerebral Palsy, to know about it and the cure.
>
> Interview 2, L: 30-32

> Less than 5 minutes… It’s very quick and I do it most of the time. I check things that catches my attention.
>
> Interview 2, L: 79-82

> Ah.. I go to *Safari* for iPhones, then I type in what I want. It’s like a computer and all the information usually come out. I usually go to Wikipedia… Yes, and I set *Google* as my homepage. I then just type in what I want.
>
> Interview 2, L: 39-40, 42

Her information search strategies suggest that she is using basic searches without critically analysing the accuracy of the information in the first 2 websites displayed in search results.

> All the information will come out. Um...the key words..they have the titles. I usually take the top one…(laughs) Sometimes I do things without knowing why…. I think it’s more accurate. They usually show the most important ones on top, the most viewed, ya…. Read, read from the websites. Mostly 2.
>
> Interview 2, L: 44-54

> When I read it, I read all of it… Um...that I’m learning something new… ..Happy..uh..like when I’m watching the movie and I’m not sure what ‘cerebral palsy ‘ is and after I search it, I can understand more about it and I can relate more to the girl’s feelings. So I can relate to my movies.
>
> Interview 2, L: 58, 60, 64-66

The value of this self-learning is an increase in general knowledge. By reading readers’ comments in news articles and forums, she learns about multiple perspectives to one topic and she notes that online readers come from ‘all over the world’.

> Self-Learning. It’s for my own self. Own knowledge. It helps general

knowledge, increases my general knowledge. There are some things that they don't teach in school.

Interview 2, L: 84-85

It expands our knowledge. I don't think learning is just from the books or the four walls of our classroom.

Interview 2, L: 90-91

I think it's better because not only are you reading about the news itself, but you can read about all the comments and these are useful… You can hear what the other citizens are thinking, share your perspective, ya…. A lot, a lot of reading. Just from the keywords, everything will come out. And it's from all over the world.

Interview 2, L: 121-127

Sub-Theme: How Others Perceive Her Learning and Smartphone Use

We do read. Older generations tend to think if we're holding our phones, it means we're texting, we're not reading. What they don't know is that we might be reading through our smartphones. Just because you don't see it doesn't mean that we don't (laughs).

Interview 2, L: 105-107

I think it's a lot! I don't do it all at once but it accumulates… Per day...3-4 hours… Ya, ya!.... Cause we're unaware, we just take it, put it back, take it up again.

Interview 2, L: 109,111,114

Sub-Theme: Smartphone Learning vs. Academic Learning

I find it more accurate. Some teachers, they tend to elaborate and get out of topic. So, when you're just learning with smartphones, you don't get out of topic, you get accurate facts. And it's peaceful. You go at your own rate.

Interview 3, L: 195-197

Theme: Influences

Sub-theme: Friends' Influence

It's exciting...the titles are very important, the trending topics like in the news,

> some might be very boring. *Twitter*, sometimes your friends re-tweet and they talk about it and you become influenced and you want to know what they're talking about, what's going on.
>
> Interview 2, L: 138-140

Sub-theme: Parents; and Media Influences

> Oh, my parents are all *Apple* users, think the whole family. My friends also. It looks very cool and from the movies, you can see the stars using them and some apps only work on *Apple*. Like *Instagram*, my friends who are Samsung users, they're so sad the apps don't work on their phones. They're hoping all their machines will break down.
>
> Interview 2, L: 188-191

From the thematic analysis of Stevie's story, it can be discerned that learning with smartphones is embedded in Stevie's everyday mobile practices. Her perception of learning is of anything new that interests her and she uses her smartphone for its ease, convenience and accessibility for this purpose. She is happy and empowered to have access to these new types of learning through her smartphone. Her way of doing her homework and study has changed with the use of her smartphone. In the process, her self-identity, and management of her image becomes interlinked with her use of social networking applications such as *Facebook* and *Twitter*. She places high value on these new types and ways of learning afforded by her smartphone, although she is aware that others, notably those in the older generations may dismiss her learning efforts using this device. The main influences affecting her choice of smartphone, applications and learning are her friends, parents, and the media.

Stevie's story is a part of all the 12 participants' stories, and this thematic analysis was repeated with the transcripts of the other participants and added to the different strategies and procedures mentioned earlier.

4.8 SUMMARY

This chapter provided a detailed account of the strategies and procedures used in the analysis and interpretation of this study. Examples were given of

how key words, concepts, sub-themes and themes were derived from the transcripts of interviews to explore the meanings of learning with smartphones. Some problems encountered were noted and discussed as in the application of hermeneutic phenomenological reflection and the use of the software, NVivo. The search for the essential meanings resulted in 4 major themes, 'Differences', 'Me, Myself, I', 'Value' and 'Influences' with their accompanying sub-themes. These themes and sub-themes would be discussed in detail in Chapter 5.

5. FINDINGS AND DISCUSSION

5.1 INTRODUCTION

The findings of the investigation into the phenomenon of young people learning with smartphones are discussed in this chapter. 4 major themes ('Difference', 'Value', 'Me, Myself, I' and 'Influences') emerged in this study and they are presented in Figure 5.1. Each theme and its sub-themes are discussed in detail in this chapter to illustrate the participants' lived experience of learning with smartphone. No one theme or its sub-themes are able to adequately represent the meaning of learning with smartphones due to their overlapping and interdependent nature. It is the complex interplay of all the themes and sub-themes that give rise to its essential meanings. To answer the research questions in this study, attention has been given to how the participants perceive their learning in relation to the notions of embodiment, sociality, self-identity, spatiality, temporality and discourse.

5.2 PERCEPTIONS OF LEARNING

How do the participants view learning? The association of learning is generally with schooling or academic learning. Their perceptions of learning is however, broader and encompasses different types of learning that can be found outside the classroom such as learning from friends' demonstrations, and learning collaboratively from others. Learning means the increase of knowledge, or the application of this new knowledge as can be seen from Ben and Bloggergirl's quotations:

> You see someone do something, maybe you see him do it a few times then you kind of get the hang of it. Or you saw him do it once and you are intrigued by it. So you kind of do it more, or you try and figure it how to do it.
>
> Ben, Interview 1, L: 25-27

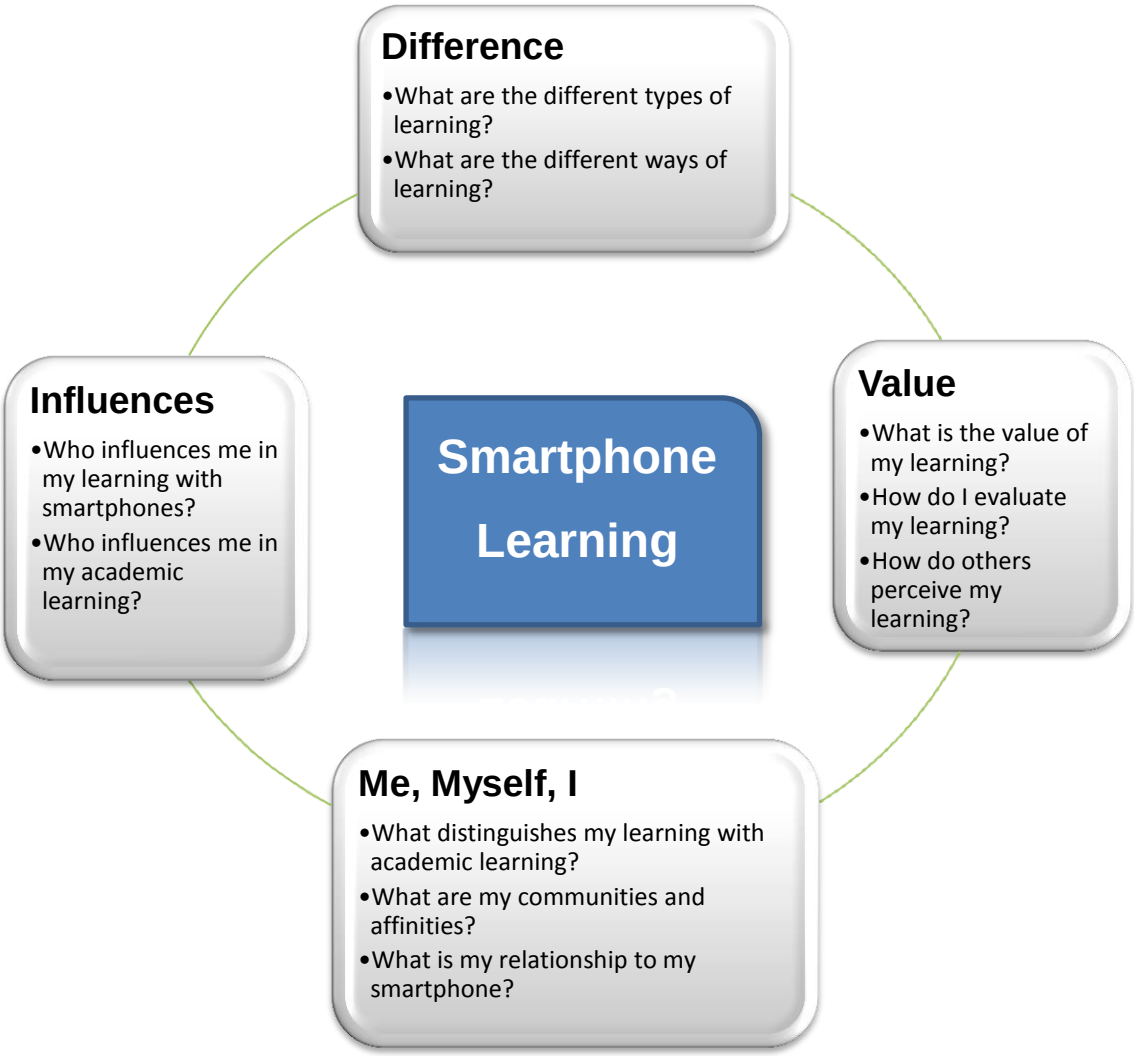

FIGURE 5.1. THEMES WITH SUB-THEMES COMPONENTS

> Actually, I'm not sure how to describe it but it's the fact that once you learn something new, then it becomes a part of your general knowledge and you look at life it bit differently because you know that thing exists.
>
> Bloggergirl, Interview 2, L: 793-95

Participants' conceptions of learning thus, consist of the following:

i. Learning new things, new knowledge
ii. Memorising, absorption of facts
iii. Utilising new knowledge in practice
iv. Constructing new meanings
v. Seeing things in new ways
vi. Changing in some ways as a result of the learning

vii. Learning in new spaces (not just the classroom)
viii. Utilising multiple types of learning

The first 5 notions of learning are similar to Säljö's (1979)'s conceptions of university students' learning. The 6th notion of learning as bringing a change in the learners themselves agrees with Marton et al. (1993)'s conception of learning. Nevertheless, in this study, the participants perceive their learning with smartphones to be more than the 6 notions stated above. With the use of mobile and digital technologies, they experience multiple types of learning, beyond what they are familiar with in the classroom and are learning in new spaces and ways. The experience of learning with smartphones encompasses more than Marton et al. (1993)'s notions of learning: participants' learning is associated with self-identity and management of their images; dependent on their perception of its value and subject to influences from their peers, parents and the community at large.

Their experiences of learning support some current theories in m-learning such as Sharples et al. (2007a)'s and Pachler et al. (2010a)'s conceptions of learning as meaning-making and conversation across contexts. Their patterns of online use are similar to some of the findings by Eynon and Malmberg (2011, 2012). Their development of self-identities, presentation of selves to different audiences, and influences on their mobile usage are part of the meanings they associate with smartphone use and these agree with studies on digital engagement and identity (Buckingham, 2008, Stald, 2008, Drotner, 2008).

However, the meanings derived from participants' experiences of learning with their mobile devices are more complex than these notions. Beyond the *serendipitous* and fragmentary learning of everyday mobile practices, there is evidence of deep, prolonged and *purposive* learning activities. Participants value both forms of serendipitous and purposive learning and different purposes guide their selection of the learning practice. What emerges therefore is a new, complex picture of young people's learning with

smartphones in their everyday worlds. These meanings are discussed in the themes and sub-themes in the following sections.

5.3 THEME 1: DIFFERENCE

The participants' perception of learning with smartphones was in contrast to academic learning as studying in schools and colleges constitute the major part of their lifeworlds. It was "different" as in Stevie's quote where she described learning with smartphones as "*learning an entire..different..a new thing*" and comparing it to a new, different person that she wanted to get to know. Stevie identified this type of learning, as "*it's the same learning but different approach and different results."* This perception of 'difference' in the way participants learn has been found in studies of online use (Pachler et al., 2010a, Lankshear and Knobel, 2011, Eynon and Malmberg, 2012) and the personalized and customised ways young people engage with their mobile devices and media (Livingstone and Brake, 2009, Helsper and Eynon, 2013).

In what ways is the learning different in this study? Firstly, the mobile devices are increasingly used in innovative, new ways for purposes of communication and studying. Secondly, there are new and different types of learning afforded by the use of this smart device and mobile technologies from which participants derive satisfaction, joy and a sense of empowerment.

5.3.1 Different Ways of Learning

5.3.1.1 Anytime, Anywhere, Embedded in Daily Lives

The participants' daily lives and mobile practices were 'taken-for-granted' and part of their 'natural attitude to life' (van Manen, 1990, Heidegger, 1962). Using hermeneutic phenomenology as a way into the lifeworlds of participants, the interviews and subsequent analysis thus, examined the 'pre-reflective' condition to reveal new and forgotten meanings. As Andy, one of the participants explained:

> Never bothered. To me, it was always there. ***Take the learning for granted***.
>
> Interview 2, L: 419

Everyday mobile practices were therefore, in the contexts of communication, social networks, entertainment, and the acquisition and exchange of information and artefacts. Personal lifeworlds were filled with content that they generated on a daily or occasional basis in the form of blog writing, text messaging, *Facebook* and *Twitter* entries, music and lecture recordings, homework assignments, school projects and photographs. Learning with smartphones was thus, as suggested by other studies (Pachler et al., 2010a, Merchant, 2012a), embedded and situated in the everyday practices of their smartphones. Accounts of Bloggergirl's and Deeptzer's practices are below:

> How many hours per day? Let's see. I'm awake for at least 15 hours a day. It would be safe to say that I use my phone at least 10 hours a day, which is quite an unhealthy number haha. Of course, this is if I'm not in school. On a daily basis, I would have to say picking up random articles is still on the top of the list, especially through social networking sites. But another thing that I search for every day has to do with pop culture. I always check my *YouTube* timeline and *Instagram* for new updates from the rich and famous…it IS something I do on a daily basis.
>
> Bloggergirl, Interview 3, L: 30-38

> And then first thing, I check is *Facebook* (laughs). No, first I check for texts, then I check *Facebook*…It's like once I open my eyes, it's like phone first… In between classes um….like okay, let's say, me and my friend need to discuss our assignment and all, then we'll be on our phones or laptops. Most of the time, it's our phones because we walk around college, to the foyer, ya.
>
> Deeptzer, Interview 3, L: 317, 319, 330-332

Their learning is interwoven with their daily social networking, communication and entertainment practices. Their mobile lifestyles meant that some of these learning practices occurred in the college classroom, others in between classes and for secondary school participants, most of the learning using smartphones are in informal contexts. This mobility in their learning has been suggested by Kakihara and Sørensen (2002) and Kukulska-Hulme (2011)

who propose that m-learning is learning in spaces (conceptual, social) and places and across time dimensions.

5.3.1.2 New Ways of Studying

What emerges as new knowledge are the ways participants use their smartphones to support their studies. Current research (Eynon and Malmberg, 2012, Helsper and Eynon, 2013) reveal patterns of online use, with young people using the Internet to support academic achievement and to do their homework. These studies use mainly quantitative methods and broad patterns of use are found. The contribution of this study lies in the more in-depth picture that emerges of participants' uses and motivations.

Participants were adept at using the various affordances of the smartphone and the Internet for learning. Some participants like Eng reported using the smartphone to record lectures in order to reflect on what was said earlier.

> When I go on the bus, very *boring*, so I listen. When I'm on the bus…. Then..you can't record the whiteboard,.. you can imagine what's written on the whiteboard, so er..I try to make sense of what she's talking about, what my lecturer is talking about. I try to recall how she presented it, how..what his or her body language and what are the main points, what she's trying to say, what he or she is trying to say…Because er..I don't know. What the guy is trying to say is through body language.
>
> Eng, Interview 2, L: 383, 385-389

Smartphones were used to place conference calls on *Skype* to groups of friends during homework or study periods every night. Eunice described how 4-5 of her friends study together every night:

> Err.. normally at night, the phone is just besides us and we on *Skype*. Friends call me at night on *Skype* and all our friends are around and the *Skype* is on. So er.. so if there is no problem, we'll be quiet lah, but if there's a problem, then we..we'll be like ask our friends. Then if anybody knows, they'll try to help us out… No, you can actually hear the flipping of pages (All laugh).
>
> Eunice, Interview 3, L: 64-67

Not all participants practised this new way of studying as some preferred to study alone. This method of studying was also practised for preparation for examinations where studying was carried out in individual homes but the smartphones and *Skype* app was switched on, "to provide company" for each other. The preferences for collaboration and consultation in group study across different contexts confirm the social nature of learning as suggested by Brown and Adler (2008) and Sharples et al. (2007a).

There are claims that young people have a preference for visual communication (Lankshear and Knobel, 2011, Pachler et al, 2010a). This is seen in this study through the practice of taking photographs of homework that they had problems with and sending it through mobile apps like *What's App* for friends to provide solutions:

> If we can't solve the problems, then we actually use phone to take a photo, and send to the others. Maths problem. Um..cause it's actually written in a paper, so we'll actually take a photo of it and send through *What's App*…. Then one of them will solve it. They will send the solution. Take a picture again and send it back.
>
> Mei Ling, Interview 3, L: 49-51

This preference for visual communication over the written text permeates through their everyday mobile practices and suggests participants' desire to save time and facilitate better communication.

Playing Musical Instruments

A new learning practice found in this study concerns the use of smartphones to support musical studies and the creation of music. *YouTube* videos were used to practise on their pianos to prepare for their music examinations:

> No. like, when I am playing the piano, I put my smartphone in front, because I may forget the chords, so I put the phone in front of me with the chords displayed on it and I play the piano while looking at it. Like performances.
>
> Stevie, Interview 1, L: 463-465

Eunice created new music which she recorded for listening and revision:

> No, because I think the songs...I don't write it down sometimes, so when the music comes to me, I just write lyrics down and I record it in my phone. I tend to forget the next minute… Ya, and go back and listen to it…. Sometimes...make it better...fix it, you know then.
>
> Eunice, Interview 3, L: 290-91, 300, 302

Beyond consumption of media, there has been active and deliberate use of these technologies for learning and studying. Participants proved to be particularly skilled with using the new affordances of the smartphone and have adapted their studying practices and communication as a result. Their prolific use of apps like *What's App, Skype* and *YouTube* for purposes of studying and doing homework every night is an illuminating example of how technology has impacted them and in turn, how they have used technology for their needs. In everyday, mundane activities such as practising the piano and using photographs to communicate and solve problems, participants demonstrate the creative innovative ways they have used technology in their everyday lives.

5.3.2 Different Types of Learning

Brown and Adler (2008) and Lankshear and Knobel (2011) suggest that the multiple modes of learning occurring with informal digital engagement be called 'Learning 2.0' or 'Social Learning'. However, the nature of the learning that is crammed into the capillaries of everyday life, and which is conducted and developed over time and multiple contexts, has yet to be fully explored, From the findings, this study argues that there appears to be mainly 2 different types of learning engendered by smartphone use: *serendipitous* learning and *purposive* learning activities (Table 5.1). Serendipitous learning embraces fiddling around with mobile applications and stumbling upon topics or information especially when participants are bored. It includes learning incidentally, when participants were playing games or social networking. Purposive learning is comprised of using smartphones to search for information to do homework or projects, exploring hobbies or communicating

with others in communities of practice. Both types of learning are characterized by learners' personal agency, satisfaction and enjoyment of their learning.

What differentiate serendipitous learning from purposive learning are temporal and purposive factors. There are quick searches for information, playing games or short reading episodes of for example, a few minutes to about 30 minutes in unplanned situations. In contrast, participants consciously set aside longer periods (for example, *30 minutes to four hours* a day) to search for information, learn languages, or to read and write with friends or other members in their communities of practice. Both types of learning can occur in formal and informal learning contexts as the older participants have used their smartphones in their classrooms.

Table 5.1. Serendipitous and Purposive Learning

Serendipitous Learning	Purposive Learning
Stumbling Upon	Doing Homework/Projects
Fiddling Around	Problem Solving
Playing Games	Exploring Hobbies/ Interests
Social Networking	Writing in Blogs & Communities of Practice
	Learning Languages
	Playing Games

5.3.2.1 Serendipitous Learning

Stumbling Upon and Fiddling Around

The rise of mobile applications (apps) such as *Flipboard, Feedly,* and *Google News* that aggregate news for readers has enabled ease of access to summarized news and information from multiple news websites. Participants reported reading news and finding out information about new things from these mobile applications:

> Yes, sometimes I read the news looking for something, like oh I want to know what's happening. Few of the times I actually look for things, but most of the time it's more like I am ***stumbling upon things***…I rather use an application that aggregates news. So it's just gives me information from everywhere so I

> don't have to like pick or I have to know what I want to read, I just read everything about that certain thing.
>
> Ben, Interview 1, L: 68-72

> I wake up, check my phone. Check messages. Normally after checking messages, if I'm bored, I'll start going the apps. From then on, I'll ***just fiddle around*** lah…. Er..I'll look through and suddenly I may see an article about something, so I'll just read. From then on, I may go ***deeper***, and ***jump*** to the next topic.
>
> Andy, Interview 2, L: 433-434, 436-37

Ben's and Andy's learning was random and occurred when they were *bored*. Similarly, most of the participants reported their reading was from news aggregators or articles posted by their friends or news agencies in *Facebook* or *Twitter*. Most of their reading would be on a more superficial level as they preferred the short summaries of the news as in:

> I read about..like cautionary news like how a girl like be careful and stuff and we got more aware….. Errrr...I read quite a lot.. I don't really go deeper into it..as long as one or two websites is enough.
>
> Eunice, Interview 1, L: 390-91, 394-95

It would appear that participants use surface approaches to learning (Marton and Säljö, 1976a, b, 2005) when they are engaged in serendipitous learning episodes as their engagements with texts and images are usually superficial and exploratory. The superficial nature of some of the participants' reading and information seeking practices support some of the claims made by Keen (2007) and Selwyn (2009) regarding young people's undiscerning use digital and mobile technologies.

Games and Learning

The teenage participants seemed to have a strong aversion to the state of boredom and many of the serendipitous learning practices occurred to relieve their tedium. Games, in particular, were used to assuage their boredom. Popular games were *Angry Birds, Angry Grandma, Fruit Ninja* and *Sims City*.

They were initially unaware of any learning benefits of games but as they were probed about the skills and the knowledge that they could have acquired, they were able to describe how these skills and knowledge were transferred to their school learning or other parts their lives as shown by Stevie's quotation:

> *Unblock me*… It's a game where there's lots of blocks and lots of levels. It's something you do when you do when you are really really, really so bored. There's lots of blocks and there is something in the middle and you are moving the blocks around, trying to push this block into it. It's like a quiz thing.
>
> Stevie, Interview 1, L: 472, 474-476

> How to handle problems… But I think just by moving the blocks you need errm strategy. Yeah. Yeah, because you need to think first, it err… depends on how many moves you need to make to make that block going to unblock it.
>
> Stevie, Interview 1, L: 479, 482-484

New skills such as budgeting, planning, organizing, problem-solving and critical thinking were perceived to have being acquired. This serendipitous learning from playing games appears to afford experiential learning and situated cognition experiences to the participants (Gee, 2008). There is thus value in the playing of games even in fragmentary phases, as participants perceive the accumulation of the learning experiences to result in positive learning outcomes and progressive reinforcement of skills. This would suggest evidence for temporal mobility (Kakihara and Sørensen, 2002, Kukulska-Hulme, 2011) as smartphone use is across, not only different physical contexts but also across time dimensions.

Social Networking

Using mobile apps on smartphones, there was frequent access to *Facebook, Twitter, Instagram, YouTube* and *Foursquare* every day. Participants' learning in the process of reading their friends' stories, viewing photographs, and making comments is usually collaborative as seen in Bloggergirl's comment:

> Actually, *YouTube, Instagram* and all these social networking sites are quite a big part of my friends' and my lives. The way we *collaborate* would be by

> using these social networking sites as a way to share information, or as a source of information.
>
> Bloggergirl, Interview 3, L: 40-42

Andy, another participant described his learning as “spontaneous” as in:

> It’s *spontaneous*… It’s out of the blue, you think of something, like say you are reading and you see a new word, an unfamiliar word. I will look it up or see what’s the meaning of the word, how to use the word, stuff like that…So… I wouldn’t have a word to describe it but it’s spontaneous for me.
>
> Interview 1, L: 478, 480-482

The knowledge generation activities displayed by the participants in serendipitous learning are usually exploratory and exploitative in nature. In their typology for the different varieties of ‘knowing in action”, Amin and Roberts (2008, p. 357) argue that the virtual dimension is characterised by “weak social ties” and “object orientation”. The appropriation of knowledge is based more on individual foraging than any participation in online communities. From the interviews, the participants’ learning practices with their smartphones appear to be based more on individual appropriation of knowledge, particularly in their ‘spontaneous’ search for information.

However, from Bloggergirl’s comments on the collaborative sharing of information in *Facebook* and *Twitter*, it would appear that individual appropriation of knowledge and individual foraging may only be the first stage. The next stage in the learning process is to share these artefacts and information deemed ‘noteworthy’ with members of the young person’s communities. The sharing may be ways to seek validation and approval from friends and members of their communities and to practice the principle of reciprocity. As Drotner (2008, p. 175) argues, mobile and digital technologies demand and afford interaction and dialogue and young people are “collaboratively developing their abilities in personal expression and dialogue in handling disagreements and questioning decisions.” Learning, thus, is part of the collaborative social practices that they enact everyday through their smartphones.

5.3.2.2 Purposive Learning

Reading and Searching for Information

Some of the learning practices described by participants have a planned element. They would deliberately put aside their leisure time for exploration of topics and subjects of interest to them. Ben explained that he would spend time to read broadly before deciding on a few topics that he wanted to pursue at a deeper level and this searching and reading could take up to 4 hours a day depending on his interest.

> I feel I rather read like 30 or 40 snippets of things. So I know bits and pieces of everything. And if it's really interesting I will come back and read it all again. Then like spending the same amount of time reading one thing…… Yes. Depth will come like… like … ***5 or 6 I want to read, so I will favourite*** it and remember it, and I will come back and read it all again.
>
> Ben, Interview 1, L: 244-246, 248-49

As Ben read, his impressions were:

> What goes through my mind? When I read? Oh errr, I actually, err I ***never really paid attention to that.*** But you could say like, it could just be like, "Oh ok I didn't know that" or "Oh, ok that's cool, that's coming out soon" or "That's happening", you know…
>
> Ben, Interview 1, L: 63-65

An interesting, new insight to emerge was the 'obsessive phase' that Ben and Andy underwent when they became interested in 'how-to-do' websites such as *Howcast* and *mahalo* and their engagement with reading and learning from these websites lasted several months. There was knowledge creation and creative expressions as their learning outcomes were in the form of learning the guitar, baking and changing car tyres as seen in Andy's account below.

> Oh….(laughs). I went through that phase, ya….. It's a lot like…let's say one time, I want to learn a new song, it so happens there is this website, I think the website was called *mahalo*. Ya, so there's the website where they teach everything, from guitar, to swimming to sewing to everything. So from there, it's like I can learn songs, so from then, I always use that website to learn

> songs. But I saw on the side bar, the recommended videos, they even have sewing or baking, so I got hooked onto it. I learn and learn that, so why not? That's learning, watching it over and over again.
>
> Interview 2, L: 362, 364-69

> Ya, I did. I played the guitar. Then there's one where they taught how to bake cupcakes. Okay, I learnt from there. There's also sewing, technical..more technical ones like changing car tyres, I actually tried, but my car is slightly different, so I had to get my dad for more ….further advice.
>
> Interview 2, L: 381-84

The learning described by the participants appears to be at first serendipitous and random but when an issue or topic interested them, there was deeper and more intense engagement for longer periods. There was purposive search for information and research in order to complete homework assignments or school projects. The turn from serendipitous and purposive learning appears to be *seamless* and participants appear to move easily from one to the other. In addition, the obsessive phases that some participants engaged in offer new perspectives on the depth of engagement and the degree of passion and curiosity displayed across several subjects and passions.

In both serendipitous and purposive learning practices, personal agency was shown in the deliberate choices of content, time usage, apps and conceptual topics that participants selected. This finding agrees with studies that suggest the importance of personal agency in mobile learning practices (Pachler et al., 2010a, Sharples et al., 2009) Consequently, a more detailed picture of mobile and digital engagement emerges than that provided by patterns of online use (Eynon and Malmberg, 2012, 2011, Helsper and Eynon, 2013).

Games and Learning

The majority of games played on smartphones were to alleviate boredom and stress. However, some games were deliberately utilized to improve critical thinking skills or to prepare for practical lessons in the future. Eng for example, played the game, *Sudoku* with the intention of training himself for his future undergraduate course in Engineering. Metacognition is shown here in this

example as Eng trains himself to think and learn more effectively (as befitting an engineer).

> Because engineering needs to think fast, cannot finish the work slowly. ….*Sudoku* is logic…your brain has to perform very fast, I think it's the same frequency as engineering. How fast you think in Engineering.
>
> Eng, Interview 2, L: 90-91, 93-94

Another participant, Al deliberately selected games that furthered his school knowledge and skills. *Bartender* and *Dinner Dash* were used to improve his knowledge of *Beverage Studies* and *Restaurant Service* respectively.

> Err….for the game, *Bartending*, in that way, I'll think about how I would improve my skills, improve things….because for the basics you can't know much, but when you think more, when you know more like what to use to get a better drink, and then you can be…you can actually get more points and you can even make better drinks … Real life, I learn how to do the cocktail….because there, they even teach you….after you mix one, they tell you….you need to add these….so you actually know what to add more and what's the amount, when you do the real one. So, you…it's not something new for you, you actually know already what you have to make and you know the right things.
>
> Interview 3, L: 24-27, 31-34

Through the simulation of mixing drinks, Al received instant feedback from the bartender avatar and suggestions on how to improve further. This experiential learning helps Al to prepare for his practical lessons in *Beverage Studies* and for his future employment. In the deliberate choice of certain games and the planned learning activities, these participants exhibit metacognitive skills and personal agency over their goals in life (Pachler et al., 2010a).

Problem Solving

There was a preference to search for online solutions to everyday problems using smartphones. These purposive learning activities enable participants to acquire "hands-on" experiences and in the process, they derive much enjoyment and satisfaction when they achieve the results they want.

> My PC had a problem, so I had to use my phone.. I went to *Google,* it was such a weird problem that I actually had to go really way into quite a few pages. Normally my principle with *Google* is that if it's not in the first few pages, it's probably not there. Maybe if I go further and further, I might be able to find it. I ended up in this really weird looking site and the answer was there but I had to talk to the admin, can you help me…. and I got an answer immediately, so at the time, okay, like good you know and they did give me somewhat of a solution but the problem with the solution was that it was so complicated that I had to find a solution to the solution, ya, but that also took a while but that was the same thing but obviously this time, it's better.
>
> Ben, Interview 2, L: 115-127

Ben's scenario is typical of the participants' use of their smartphones to 'fix' authentic problems that they face in their everyday lives. He prefers learning from answers he gets on the forums and chatting to the staff of one website to patronizing a computer repair shop. Knowledge is co-constructed (Brown et al, 1989, Lave and Wenger, 1991) as he looks for his solutions online and adapts and adopts the solution that he thinks is best.

This preference for a problem-solving approach towards new technologies is shown in Eynon and Malmberg (2011)'s profile of active participators who use the Internet most frequently. They suggest that this group of young people take more responsibility for their own learning and exhibit greater personal agency in the use of new technologies. This exercise in personal agency, problem-solving and 'trying things out' as seen in the lived experiences of most participants in this study has been found in other studies (Buckingham, 2008, Ito et al. 2010, Weber and Mitchell, 2008, Stern, 2008).

Language Learning

One noticeable trend among the participants is the downloading of dictionary applications into their smartphones. The ease and convenience of accessing their dictionaries without using a web browser was the reason given. As English is a foreign language in Malaysia, the usefulness of having a portable dictionary was much appreciated, as seen from Mei Ling's explanation below.

> Dictionary. Download…. When I found out… I used some words that I don't really understand then I will type it in the dictionary.
>
> Mei Ling, Interview 1, L: 112, 115, 120-21

Dictionary applications and *Google Translate* are used to learn other languages like French, Thai and Chinese. Zerros explained how he used his dictionary to learn the meanings of French and Chinese words:

> Language learning, using the smartphone, my smartphone. I use a little bit of dictionary such as like English and French….. These dictionaries are like applications, they can be download from the market. So you just download it and use it. So sometimes, I talking to my friends and they speak Chinese, I just go into the dictionary and find out.
>
> Zerros, Interview 3, L: 33-34, 36-38

As one of his course requirements, Jack had to learn the French language and *Google Translate* and *YouTube* videos were used to learn French. To improve their proficiency in the English Language, participants downloaded e-books into their smartphones to read. Mei Ling's motivation for reading e-books is:

> Master a language..urr.. learn more words, learn more English words that seldom use…..Life, I think…. Know about the life of a person, how it goes on.
>
> Mei Ling, Interview 2, L: 82, 84, 86

Goodwin-Jones (2011) argues that the widespread growth of mobile language learning apps combined with the technical affordances of smartphones is creating a new relationship between mobile learners and smart devices. These devices enable multi-tasking as language learners can switch from using smartphone features and apps to drawing information from the mobile Internet, making learning faster, smoother and more integrative. This suggests learning across conceptual spaces as learners switch from one topic to another as they search for the right content (Kakihara and Sørensen, 2002, Kulkuska-Hulme, 2011). In this study, participants display multi-tasking behaviour as they switch from topic, app, or content to another. However, in their choice to download the dictionary app into their smartphones, they are showing their preference for ease and convenience in their language learning

and their frequency of use in learning languages, especially in the learning of the English Language.

Learning to Be and Communities of Practice

There is evidence that some participants participate actively in online communities of practice (Lave and Wenger, 1991, Brown and Adler, 2008). Chuck is a member of the *Wattpad* community where learners post their writing and read each other's stories.

> Which is why this *Wattpad* app, and maybe some other sites which they are just normal people like us, and they like writing and commenting and stuff. Or they just like to critique. So they post in their writing, and they don't get anything in return, but they do it because they are…they just like it and maybe they are just trying to get people to look in their views.
>
> Interview 1, L: 476-482

The members of the *Wattpad* community are motivated to participate and share through the use of tools like 'Vote" to show approval, the number of 'reads' by other people to show the popularity of the story and the ultimate honour of:

> Ya, if they put it in their library. There's something called a library reading list…. Ya, because some books they like it or they want to read later or have a specific reading list, they put it in. Ya, it's an honour to be in someone's library.
>
> Chuck, Interview 3, L: 396, 398-99

As a result of participating in this community, Chuck attained 1168 reads and 114 votes, an achievement that seemed to give him happiness. His writing skills have improved from examples of good writing that he has seen and he made friends with 4 'Net Buddies" from the USA and Malaysia. These friends, according to Chuck, support each other in their writing efforts on *Wattpad* and they have used the applications, *Skype* and *What's App* to further communicate with each other and give feedback on each other's writings.

The findings in Theme 1, 'Difference' agree with Brown and Adler (2008)'s theorisations of multiple learning modes and 'learning to be' occurring in online learning. Participants' experiences of learning with smartphones involve learning from and collaboration with friends and members of communities, construction and negotiation of meanings, and reflection. The findings also support Gee (2008, 2010)'s conception of situated cognition and the value of learning through experience. Through the playing of well-designed games, or finding solutions to 'fix' problems, participants receive immediate feedback which is valuable for future problem-solving.

The picture of learning with smartphones that emerges is one of multiple aspects, complexity, and fluidity. Learning is more than situated learning (Lave and Wenger, 1991), learning as meaning making and conversation across different contexts (Sharples et al., 2007a, Pachler, et al. 2010a), and learning in multiple modes (Brown and Adler, 2008). The learning embedded in the mobile practices enacted everyday includes aspects of all the above-mentioned learning notions.

The implication of smartphone learning occurring in naturalistic settings lies in its composition and fluidity. Smartphone learning as it occurs in everyday life can be serendipitous or deliberate. Serendipitous learning can quickly transform into purposive learning and vice versa depending on the learner's interest and purpose. While the learning comprises elements of surface approaches (Marton and Säljö, 2005), there is also evidence of metacognition and deeper engagement as some participants reported how they deliberately used their mobile apps to improve critical thinking and study skills.

Arguably, these types of learning have not been perceived as valuable or significant in society today. Adult understanding of young people's online creations has been characterized by "a curious mix of intrigue, disdain and apprehension" (Stern, 2008, p. 95). To a larger extent, scholarly critique of young people's learning and online practices has been based on adult perceptions and impressions, which in turn, are grounded on dominant

conceptions of knowledge and its value to society (Stern, 2008, Buckingham, 2008, Luckin et al., 2009, Crook, 2012).

In understanding and respecting the lived experiences of young people, this study presents a divergent perspective: learning with smartphones is important as it leads to the development of self-identities, management of selves, and mindsets predisposed to individual foraging, collaboration and life-long learning. These personalized types of learning may be different from the culturally accepted forms of formal learning but they are not inferior. They have value and significance as they assist in the development of reading, writing and listening skills as young people use them in their everyday mobile practices. They also suggest learning that occurs across conceptual spaces and learning dispersed over time (Kakihara and Sørensen, 2002, Kulkuska-Hulme, 2011).

5.4 THEME 2: VALUE

5.4.1 The Value of My Learning

5.4.1.1 The Paradox of Increasing and Diminishing Value

Most research literature reveals generally positive outcomes and attitudes to m-learning (Naismith et al., 2004, Wu et al., 2012). In this study, there is a more nuanced view of the learning: it empowers and satisfies but it can be a "double edged" sword. This nuanced perspective of the value of their learning is new as participants view smartphones as engendering both increasing and diminishing returns.

Increasing Value: Multi-functionality

The smartphone and its multi-functionality have multiple meanings as seen from Ben's and Mei Ling's quotations below.

> I value the ability to know..like have..to have the Internet wherever I am, to ***learn anything every time I want***, you know, so that curiosity, normally always satisfying…It allows me like before debates, if I'm nervous, if I don't know enough, I have the ability to read, the ability to browse through ten articles or something, so I like this idea of being able to know anything I want to know at any time, ya."
>
> Ben, Interview 2, L: 765-770

> Like ***mini library***.. a place that, a thing that can be used for ***communication*** and all sorts of things…I mean because it's very useful, use it to contact people and search for something. Um... can actually ***broaden*** our ***knowledge*** too….. A place where we can ***share our views, actually opinions***….Through *Facebook* or *Twitter* (laughs).
>
> Mei Ling, Interview 2, L: 454-457, 463, 465

Chuck described the immense potential of the smartphone for learning as:

> It's like carrying ***the world in your pocket***….That's about it. The world in your pocket means ***you have knowledge in your hands***.
>
> Chuck, Interview 2, L: 508, 515

The smartphone thus, is viewed as a technological tool that brings manifold advantages and rewards to participants. This positive perception and attitude towards mobile and digital technologies have been found in many previous studies (Lankshear and Knobel, 2011, Pachler et al., 2012, Wu et al., 2012). An interesting finding in this study is the acceptance and confirmation of the booster discourse of 'anytime, anywhere, anyplace' learning (Traxler, 2009a, Wright and Parchoma, 2011) by the participants who use these terms in the interviews to show the value of smartphones in their lives.

Affective Learning

Affect is an important factor in m-learning (Sharples et al., 2009, Cochrane, 2010). Mobile devices are described as providing the 'wow' effect for learners leading to increased motivation and enjoyment (Sharples et al., 2009, p.242). Jones et al. (2006) argue that the influences on the high affective value of m-learning include fun, continuity across contexts, personal agency, and communication. Participants' experiences of learning with smartphones were

generally associated with fun and enjoyment, although some participants described moments of frustration when their apps did not work or their connectivity was disrupted. Eunice described her experience as:

> Useful gadget, can connect yourself to everyone around you…. Umm..a ***fun*** thing to do when you're ***bored***.. something that can answer your questions.
>
> Eunice, Interview 2, L: 459, 461

Perceptions of learning with smartphones were positive in comparison to academic learning in Malaysian schools. Learning with their smartphones was "spontaneous" and "happy". This learning by "trial and error" provides satisfaction, self-empowerment and joy as can be seen from Deeptzer's quotation:

> And you feel really smart in class when the lecturer asks you a question, and other classmates are still looking for the answer but you got the answer on your smartphone before anyone else got it. So you feel like a genius in class.
>
> Deeptzer, Interview 1, L: 104-106

A new dimension to the findings that is not seen in the current literature concerns the effect of boredom in participants' everyday lives. The participants all repeatedly mentioned the words, "bored", "boring" "boredom" and their purposive and serendipitous learning experiences are attempts to relieve this boredom and inject fun into their everyday lives. In their escape from boredom (with nothing to do), their learning on the smartphone provides satisfaction and fun as these teenagers are engaged with the texts and the tasks.

Body Positions & Nightly Ritual

The fun and enjoyable learning is partly a result of *body positions* adopted during the use of smartphones. A new, observable behaviour that emerges is how they prefer to lie down when using their smartphones for communication and learning. During the day, they would sit down or stand while using their smartphones, but at their most relaxed positions and times, they recounted how they would lie down on their beds to read texts, articles or e-books or

communicate with friends. All 12 participants reported this nightly ritual of lying down with their smartphones before they go to bed. As Al described it:

> I usually lie down… On my bed….At home. Cause when I play any games, I actually lie down because more relaxed. Or even write anything…Ya, even the blogs, the reviews, checking mail.
>
> Al, Interview 3, L: 180, 182, 184-85, 187

> Relax, if you sit down, it's not so fun. When you lie down, you use your phone, it's more fun….. What usually goes on in my mind is...okay being like you feel calm and you don't feel you need to rush things, like your free time and you're just using your phone and stuff.
>
> Al, Interview 3, L: 191, 194-95

The nightly ritual appears particularly significant as all participants reported this experience. This new insight into a mobile learning practice suggests the close relationship participants have with their smartphones and the importance of saying good night to their friends through their devices. They described serendipitous learning where they networked with friends, checked on messages and in some cases, there were planned nightly rituals of learning English phrases as described by Mei Ling or reflecting on mistakes of the day. One of the participants, Eunice described her ritual of writing down mistakes in her smartphone and reflecting on the day's events. She read through past mistakes listed in her smartphone notepad to avoid repetition of such mistakes in the future. Such a practice suggests reflective and critical thinking skills used in this nightly ritual.

The perception of learning with smartphones is one of increasingly value to their lives. In comparison to their peers who do not have smartphones, being able to search for information and learn new skills and knowledge gives them a head-start in their lives. The economic imperative to enhance academic achievement, better productivity and career prospects have been found in studies of informal and workplace learning and lifelong learning using mobile and digital technologies (Shuler, 2009, Binkley et al., 2010, Clough et al., 2008). The participants in viewing the value of their smartphones as devices to help them in their studies, careers and to make friends and contacts (building

of social capital) are confirming their acceptance of the dominant, subliminal message sent out by these smart devices: smartphones improve productivity, efficiency, choices and unparalleled access.

Diminishing Value: Forgettable Learning

While acknowledging the advantages that smartphones offer to them, some of the student participants display a more nuanced view to their learning: it is sometimes forgettable and superficial.

> At times, learning on the go, sometimes you want answers to certain questions, it just is like wanting to know the answers for the sake of knowing the answers and nothing else…..So certain things...you tend to forget the answers and you've solved whatever you want to solve.
>
> Deeptzer, Interview 2, L: 89-90, 93-94

> …when you look at it, it actually..everyone is self-learning and all that, but the general knowledge of certain youngsters today is very, very low and I feel maybe, it's because of this. Because they are being spoon fed with everything on the Internet. And they're not street smart. Their general knowledge is quite low, which is a very bad thing.
>
> Deeptzer, Interview 3, L: 162-165

This ease, convenience and accessibility to learning anytime, anywhere can paradoxically, have diminishing value to learners. As Deeptzer suggests, when something becomes too easy, too available, its value diminishes as learning becomes eminently forgettable, and disposable like some of their lifestyle items. By the term, 'spoon fed', she thinks that with the easily available information at their fingertips, there could be the possibility of not sieving through the information and accepting information without questioning their sources. As a result, there are self-satisfied learners who do very little critical thinking.

Technology and Transience

The easy facility and availability of online learning can result in the paradoxical

diminishing of its value. Bloggergirl was of the opinion that she treasured her handwritten diaries and journals as she had put greater effort and time into these tasks. In contrast, her online blogging or writing can be easily written or deleted and as a result, she put less value on these practices.

> We tend to hold on to material things. I think that's not only because of the technology. But because if you write something or you draw something really nicely, put more effort into it, so you are more likely to treasure it…..As opposed to doing it online where you can tweak it or have it deleted instantly.
>
> Interview 1, L: 442-44, 446

Double Edged Sword

Chuck, another participant is an avid reader of e-books on his smartphone and he spends up to 3-4 hours a day reading and searching for information. He is conscious of excessive use of his smartphone that could take over his life as he said:

> I know people who harp so much on their phones that they start neglecting their studies and friends. ***It's like a double edged sword, as mentioned like a Pandora's Box.*** It has its good and its bad (laughs).
>
> Chuck, Interview 2, L: 523-525

The smartphone is perceived by some of the participants to have both increasing and diminishing value. With its multiple affordances and digital technologies, the smartphone has opened up new worlds of learning and communication to the participants. While they are understandably enthused and excited about its numerous benefits, they are aware of some of its disadvantages. This nuanced perspective and attitude towards m-learning is a new occurrence. In contrast to some authors' claims (Keen, 2007, Selwyn, 2009) of uncritical and indiscriminate use of the Internet and new technologies, some participants are apparently using higher order thinking skills to assess and evaluate the impact smartphones have on their lives.

5.4.2 Perceptions of Others

Perceptions and Misconceptions

Research on the digital native notion has increasingly shown that young people today may not all possess sophisticated technological skills and knowledge (Kennedy et al., 2008, Jones et al., 2010, Smith and Caruso, 2010, Margaryan et al., 2011, Eynon, and Malmberg, 2011). Buckingham (2008) and Crook (2012) suggest that young people show a preference for consumption rather than production in their use of social and media technologies. This thus, confirms that for most young people, their technological use may not be as sophisticated and as wide-ranging as earlier imagined. However, there has been little to no research of mobile learning embedded in everyday practices due to the difficulty of investigating a phenomenon that may appear fluid and fragmentary in nature (Merchant, 2012a). Indeed, such learning in its naturalistic settings may be perceived as 'consumption' with no discernible learning taking place.

Participants' parents and teachers generally had these misconceptions as they perceived young people to be 'playing" and "wasting their time" with their smartphones. Zerros described his parents' reaction to his use of the smartphone:

> Usually they see me on the smartphone, they think I'm texting my friends or girlfriends, there's nothing more. That's what the.... perception of people.
>
> Zerros, Interview 2, L: 265-66

These assumptions were refuted by all the participants. Stevie, for example, gave her response to the continual and subconscious learning that she explained she did with her smartphone:

> We do read. Older generations tend to think if we're holding our phones, it means we're texting, we're not reading. What they don't know is that we might be reading through our smartphones. Just because you don't see it, doesn't mean that we don't (laughs)……(Reading estimate) I think it's a lot! I don't

> do it all at once but it accumulates…… Per day...3-4 hours…..Ya, ya! Cause we're unaware, we just take it, put it back, take it up again.
>
> Stevie, Interview 2, L: 105-107, 109,111,114

The participants may be learning more widely and deeply but the fundamental question is whether they are learning more effectively. Selwyn (2009, p. 368) argues that there are concerns with the "intellectual and academic "dumbing-down" associated with young people's digitally redefined relationships with information and knowledge" as they appear incapable of gathering information from the Internet in a discriminating mode. Keen (2007, p. 93) suggests that there is now a "younger generation of intellectual kleptomaniacs, who think their ability to cut and paste a well-phrased thought or opinion, makes it their own." These findings have implications as it suggests that young people may not be able to discriminate and construct knowledge critically in informal learning environments. From the participants' experiences, there were accounts of 'cutting, copying and pasting' as seen in Mei Ling's account:

> Not really. Depends on ...err..stuff....err..sometimes copy and paste. Sometimes write it myself after referring to topic…. Useful.. Internet is very useful, ya.
>
> Mei Ling, Interview 2, L: 163-64, 166

Of concern is the *History of Mathematics* project that she copied and pasted from the Internet without understanding much of what she had copied.

> Cause it's history, so it's really not that important, so copy and paste….. I don't really read through it, so can't really remember.
>
> Mei Ling, Interview 2, L: 175, 177

Mei Ling's rationalisation that if it is history and thus unimportant is a poor justification for her plagiarism. Although all participants recounted that they were aware of plagiarism and their teachers had discussed this topic in school, many did admit to some instances of plagiarism. It could be that their appropriation of media and information is so constant and embedded in their

daily practices that they see nothing wrong with this additional appropriation of another person's knowledge.

Selwyn's (2009) concern that young people had poor discrimination strategies when they gathered information online is validated in some cases among the participants. Some participants reported reading the first 2-3 URL links that appeared when they searched for information. Their reasoning was that since they were the most popular links used by others, they must be the most reliable.

> All the information will come out. Um...the key words….they have the titles. I usually take the top one….(laughs) Sometimes I do things without knowing why……. I think it's more accurate. They usually show the most important ones on top, the most viewed, ya.
>
> Stevie, Interview 2, L: 44-45, 47, 49-50

> First, I go to Google. Write 'the meaning of sustainable'. Then there're the links and you can find all the answers to that, lah…..The first few….. Not to say first 3 only. Not confident, then 4-6…. I just see the definitions. Then I check with my lecturer.
>
> Jack, Interview 2, L: 24-25, 28, 32, 41

Stevie only chose the top 1-2 websites shown in a search. Having taken her behaviour for granted, she was not clear about the reasons for the top 2 although she thought they should be the most accurate. This suggests that she may not be that perceptive and well-informed in her search behaviour and rationale. Jack did not demonstrate many thinking skills or use comparison strategies to get his answers. He read the first few links and then consulted with his lecturer to determine if he managed to retrieve the correct information. Participants in these examples display limited discrimination strategies.

In contrast, some of the other participants demonstrated sophisticated methods of gathering and synthesizing information.

> I'll look through the first page. Anything beyond the first page is quite irrelevant…. From my past experience, the results are unrelevant to my search. So em..., I'll cut it down to 2 or 3 choices. Okay from then on, I'll look deeper into the causes. Let's say, I get people saying that the computer fan is

> dusty. So, from there, I'll look more deeply into that option first and from there, I'll compare 2 or 3 websites to see what is their solution….Because not all websites are true. If there are other websites backing up that point, then I'll feel more comfortable.
>
> Andy, Interview 2, L: 35, 37-40

> Usually when you find out for yourself that you kind of go into it knowing that the information is someone's biased view…. So the first article you read, you tend to be more influenced by it especially if it's a biased view. Then you then skew your opinions based on it…. But then later on if you continuously read then… you build your own opinions.
>
> Bloggergirl, Interview 1, L: 140-41, 143-44, 14

Andy, Boggergirl and most of the participants display a healthy scepticism towards the reliability of the information found in the Internet. Opinions were formed and decisions made based on verifying information that they read, comparing websites and consulting with their peers, teachers and families. Although most participants claimed that they learnt such search strategies by themselves, some gave credit to some previous lessons in class where they had learnt such strategies.

In the final analysis, there appears to be a range of discrimination strategies used by participants. While there are some participants who use more sophisticated critical thinking and search strategies, others perform at levels that are more basic. There is agreement, thus, with Luckin et al. (2009), Crook (2012) and Helsper and Eynon (2013) that all young people can benefit from the teaching of such digital literacy skills in the classroom. The knowledge and training in the schools could then provide a base to support young people's learning in informal contexts and enable them to be more effective learners.

5.4.3 Evaluation of My Learning

The Whole is more than the Sum of its Parts

To the critics who deem their learning efforts with smartphones to be insignificant and insufficient, the final verdict of value and effectiveness appears to reside with the learners themselves. As their learning journeys are

individual and personalized, effectiveness is not decided by an examination system or the court of public opinion. It is decided by the individual learners who proclaim like Al and Andy in the following quotations that they have found useful purposes for their smartphone learning.

> And it makes you even more independent because er... you can get things done without the help of others. And er... a person has a maybe.. limited knowledge of something you want to know. If you want to use the smartphone applications, there's a wide range of it where even sometimes, people can't really tell you what you need. But using the smartphone, you can read up throughout everything, every inch of what you need and you know more….
>
> Al, Interview 3, L: 260-65

> I think I do learn. Because when I read a lot of things I get better, and furthermore it's convenient so I will look up more and more.
>
> Andy, Interview 1, L: 47-48

Participants, who read extensively through their smartphones, were able to see the extension of their vocabulary and improvement in the English Language. Chuck's academic success in school was attributed to his extensive reading and research online. Indeed his parents acknowledged the academic achievement to his effective use of the smartphone and encouraged his younger sister to emulate his behaviour by buying her a smartphone.

> My parents are quite fine.. in fact they encourage me to read. And they're trying to get my sister to read as well.. on her smartphone, as well. Because I read a lot on the smartphone, my sister started reading as well**.** She used to not like reading. It's not her thing.
>
> Chuck, Interview 2, L: 258-261

All participants were appreciative of the multiple perspectives afforded by their access to Internet information. When they read a topic or search for information to their problems, they had access to multiple viewpoints from various countries. In assessing the validity of these views and negotiating meanings, they learn to be better learners.

> I think it's better because not only are you reading about the news itself, but you can read about all the comments and these are useful… You can hear

> what the other citizens are thinking, share your perspective, ya…. A lot, a lot of reading. Just from the keywords, everything will come out. And it's from all over the world.
>
> Stevie, Interview 2, L: 121-127

In studies on youth online authorship (Stern, 2008) and youth digital production (Weber and Mitchell, 2008), young people deliberately seek multiple sources of feedback to their creative work. These are available in the 'Like' button and 'Comments' spaces in webpages, social networking sites and forums. In enabling and allowing access to various online feedback mechanisms and participating in these spaces, young people are arguably participating in a new type of learning where feedback (from friends and the Internet community) can be instantaneous, brutal and also, supportive. In obtaining feedback from these virtual sources and their teachers and friends in their real communities, participants perceived themselves as effective and better learners from learning with their smartphones.

The theme of 'Value' provides a new perspective on the phenomenon of learning with smartphones. Participants' nuanced perception of this learning and its value contributes to knowledge on m-learning. In their ability to assess their own smartphone learning and its impact on their lives, some participants exhibit higher order thinking skills in informal contexts which some researchers argue are rare or non-existent (Keen, 2007, Selwyn, 2009).

5.5 THEME 3: INFLUENCES

The depth and scope to which participants exploited their smartphones for learning depended to some extent on how they were influenced by their parents, families, friends and the community. The theme of 'Influences' is important as the sources of participants' motivation in m-learning can be traced to these people and factors.

5.5.1 Friends and Media

Friends were the most important source of influence in the choice of mobile

applications, model of smartphone bought or reading choices. Bloggergirl explained the motivation to own a smartphone is attributed sometimes to friends' or societal influence:

> With the exception of a few. ***It's more a friend's influence*.** Not many people are as figured out as us. A lot of people have smartphones, because they feel the need to. Because a smartphone is much more, more attractive ***or it shows your status*** of you having your smartphone as opposed to your Nokia phone.
>
> Bloggergirl, Interview 2, L: 644-647

> Before I started *Instagram*, it was all I can hear from everyone. "*Instagram, Instagram*, check this out. I just posted something on my *Instagram*. What is that?"… Ya, they're on *What's App*!! What is *What's App*? And slowly, you download it and you get addicted to it. Before you know it, you're one of them. Last time they ask me what's your *Skype* user name and I look at them and quickly go and set an account (both laugh).
>
> Stevie, Interview 2, L: 250-256

> Mostly **friends**. Then there's **advertisements**….Like now, the friends you know, everyone must have a smartphone. And they will say it's very useful....and....then...we can hear songs very useful….Internet…..social network...in better quality.
>
> Jack, Interview 2, L: 254-258

The choice of applications or the brand/model of the smartphone was influenced by friends and sometimes by the media. The *iPhone* for example, is portrayed in the media as more desirable because of its design and functions. Owning a smartphone, especially the *iPhone* is considered a symbol of possessing higher social status and as such, explains some participants' preference to owning *iPhones*.

Friends' posting of articles, jokes or stories on their *Facebook* or *Twitter* accounts would be read as sources of information and entertainment. In addition, friends' approval was important to some participants in their writing, blogging or photography efforts. Andy described how his writing was dependent on his friends' feedback:

> … maybe I post a few paragraphs on *Facebook* then I want to know their feedback, I want to know what they think about my story… If they like it maybe I will continue writing it… Quite Positive. …. And they give pointers….
>
> Andy, Interview 1, L: 135-36, 140, 142

The use of the mobile app, *Instagram* is a current craze among the participants and their friends. They use *Instagram* and other photography apps like *360 Camera* to edit and improve their photographs. Photographs when posted onto *Facebook* become a representation of their selves and function as a source of memories for themselves and their communities. To improve her photography skills, Deeptzer posted her photographs on *Facebook* for her friends' advice and inputs:

> Em....some of it….most of them just like the picture, they actually do the 'like'. Few of my friends who are interested in photography, they tend to comment on; sometimes they know how to take it from a certain angle, they just explain to you. Umm….you could also take it from this angle and you could have a beautiful picture. Through that, you also get to learn.
>
> Deeptzer, Interview 2, L: 150-153

Friends therefore, are an important influence on improving their writing and photography skills. More significantly, friends were needed for the development of their identities and self-images as participants sought approval and reassurance for their publications and communication. The media sometimes influences their choice of smartphone brands or models but has a more marginal influence on participants' learning practices.

This finding of the importance of friends as "networks of support" confirms previous studies on young people's online use (Ito et al., 2008, Eynon and Malmberg, 2012). It was found that "friends' use of technology is the most powerful network, as friends have the strongest direct effect on online information seeking skills and self-concept for learning and also has a direct effect on online information seeking for homework and everyday life" (Eynon and Malmberg, 2012, p. 524). What this study contributes in new knowledge is the suggestion that friends' influence are the also the main factor in the perceived improvement in writing and photography skills.

5.5.2 Families

Older siblings or uncles can be a source of inspiration to the participants' learning practices. Eng described how he was inspired by his older sister who used the smartphone for many learning activities online:

> Yes, example my sister, she does everything online. So smartphones, hah, even the smartphone when she goes online, she learns cooking, she learns how to...how to use stuff online.
>
> Eng, Interview 2, L: 193-195

Al described how his uncle encouraged him to use his smartphone to gain more knowledge:

> Umm..like learning. One of my uncles, he.. usually uses a smartphone. For him, he likes to go on vacations, he checks on pricing on tours, holidays…. He'll say like "Use phone to check out things. It's more better." Because he says it's easier and to make full use of today's technology.
>
> Al, Interview 2, L: 301-306

Generally, the more some participants admire and respect their siblings or family members, the greater the influence those persons have on the participants' m-learning practices. There has been inadequate research on the role of family members influencing youths' online use and this study provides new insights as to the pivotal influence of older siblings or uncles on these practices.

5.5.3 Parents

Parents' indirect influence on perceived information skills was suggested by Eynon and Malmberg (2012)'s study of young people's online information seeking behaviours in the UK. Their study found a positive relationship between parents' supportive use of the Internet with their children and self-concept for learning. In addition, parents' attitudes and beliefs about education have an influence on learners' beliefs about their own academic competence (Eynon and Malmberg, 2012, p. 525).

The influence of parents in this study was also indirect as Malaysian parents have aspirations for their children's academic studies and future careers and they view technology as tools to help their children achieve such goals. Parents' exhortations on these smart devices (usually given as gifts) were to encourage their children to use these to support their studies, although most probably they would not know how this objective could be attained. Participants generally perceived their parents as technologically backward with regard to the use of smartphones.

A new finding that has emerged in this study is the ease with which participants who were avid book readers generally transferred their reading habits onto the smartphone. The people who encouraged and influenced their reading habits were their parents. Ben explained this:

> They (parents) just give me books and ask me to read and obviously as a kid, you have nothing to do and it does get boring after a while so ..I kind of picked it up.
>
> Ben, Interview 2, L: 317-318

> Partially it could be my background. Reading was something I picked up and I enjoyed, so the ability to read wherever and that advantage came with the smartphone that came by habit.
>
> Ben, Interview 2, L: 399-341

Chuck's parents encouraged his reading habit and he became a voracious reader on his smartphone with more than 4515 e-books and articles downloaded into his smartphone. His academic success and general improvement in his writing and vocabulary have been attributed to his constant reading on his smartphone by his parents who have since bought a smartphone for Chuck's younger sister to encourage her to follow the brother's example.

5.5.4 Teachers

Ertmer et al. (2012) argue that teacher' beliefs, confidence and perceived

importance of technology to their practice can affect technology integration into classroom practices. Teacher attitude towards technology and their technological skills could significantly affect the rate of technological implementation in schools (Ertmer and Ottenbreit-Leftwich, 2010, Hew and Brush, 2007). In this study, teachers were perceived by the participants as in opposition to the use of smartphones in the secondary school classroom, partly due to the disruptive tendencies of mobile technologies. Hence, their influence on participants' informal smartphone practices was to some extent negative or insignificant. However, some participants in private colleges reported on how their lecturers actively encouraged the use of smartphones in class:

> And our lecturer is asking us a question on errmm… what kind of flavour does this wine have?...And maybe he actually has taught us the answer in the last class, but we forgot and all that. The fastest way to know the answer is through the smartphone. On the Internet...Yeah...Yeah he actually does allow us to use the smartphone
>
> Deeptzer, Interview 1, L: 44-51

Lecturers who made use of the group community page on *Facebook* to post online notes were highly appreciated by their students:

> Learning? …*The* ***lecturer likes… to post all this notes*** so… So… We will actually read from the ***Facebook***… So then they will post.. post whatever…So we'll just read… just read and go through all of it lah…. But… KCN (internal online platform)… they post there also… but now mostly it's *Facebook* because it's more easier…
>
> Jack, Interview 1, L: 311-320

Some participants described the emergence of a new group communication page on *Facebook*, where classes for example, had access to this page to read notes posted by lecturers, to have online discussions with friends or lecturers and to read notices of class cancellations or postponements. In making use of these Web 2.0 tools to communicate with students and to provide notes, lecturers cited by some participants are displaying evidence of a change in their classroom practice. This change confirms the findings from other studies (Project Tomorrow, 2011, Ertmer et al., 2012) of the emerging

change in some teachers' practices and their confident use of Web 2.0 technologies and tools.

In this study, teachers and lecturers have the greatest influence on their students in terms of *academic learning*. The participants were asked if they preferred learning on the go with mobile applications or being taught by a teacher. All except one preferred the teacher. While they were satisfied with their personal learning practices with the smartphones, they could not visualise it as the replacement for their teachers. It emerged that teachers and lecturers were not seen as providers of knowledge but more in terms of mentors, advisors or facilitators.

> I prefer a teacher….. Because if it's a good teacher, you'll understand exactly what's the problem. Then they'll give you very sound advice. If you….probably a man...not a man but a person older than me, so he has more experience, he goes through, he's been through what I've been through.
>
> Eng, Interview 2, L: 370, 372-74

> (long pause) Emmmm....teacher is still better….(long pause) Emm...because teacher...when we ask him or her a question, he will explain. Not like a computer. Besides..the problem like the questions...not in detail……Because teacher normally teach the...umm...talk about jobs and something else which the Internet will normally...not provide. And got facial expressions (all laugh).
>
> Mei Ling, Interview 3: L: 170, 172-73,

The participants trusted their teachers more than the Internet as seen by Andy's explanation:

> I saw a new term, theory and I'll look for it online. Internet cannot be fully trusted, so I'll look up a few websites and see what they..how they explain it. After that, I'll..okay maybe I've learnt something new. Then I go to my teacher and I'll explain it to her and if she agrees with it, then I've learnt something new. I feel happy that….. Just to confirm the point. Because the Internet is still not fully trustable, people can tell lies, you know people can turn the stories here and there, like politics and stuff like that. So for the teacher, they got no benefit of lying to you, so….. For the final answer. To confirm the final answer.
>
> Interview 2, L: 92-95, 97-99, 101

Therefore, the role and influence of teachers seem to be that of mentors and advisors that students trust to guide them not only in their academic learning but in their lives as well. While the literature on teacher development and technology integration tends to focus on equipping teachers with the relevant skills and providing opportunities for use of technology in the classroom (Ertmer and Ottenbreit-Leftwich, 2010, Hew and Brush, 2007, Ertmer et al., 2012), the finding in this study suggest that there could be another evolving role for teachers as advisors to the reliability, validity and trustworthiness of Internet sources. Thus, this gives new meaning to the profile of the teacher as "guide on the side" in King (1993, p. 30)'s conceptualisation of the changing role of teachers/academics as the 'sage on the stage' to a "guide on the side." King (1993) argued that there was a shift from an instructivist to a learning paradigm with the advocacy of constructionist learning approaches and the view of the teacher as a facilitator of students' engagement with texts and each other. The participants in this study perceived their teachers' roles to be more than facilitators; they saw them as guides and mentors in their lives.

One implication of this pattern of trust would be for teachers and lecturers to assume a more active role in promoting m-learning in schools and colleges. If young people trust their teachers' recommendations and advice more than those from strangers and friends, teachers are poised to have a stronger impact on how well their students learn with smart devices in formal and informal learning contexts.

The theme of 'Influences' and the meanings derived from it represents a new insight into the factors that affect participants' learning practices in everyday life. There has been research on young people's interactions with friends in the online world and their practices with social media (Boyd and Ellison, 2007, Ito et al., 2010) but there has yet to emerge studies on other influences beyond those of friends and media. In this study, participants are also influenced by their families and parents in their informal m-learning practices. In addition, teachers are found to have a strong influence as advisers and mentors in academic learning. This evolving role of teachers from transmitters of knowledge to advisors and mentors suggest that they may have a very

significant role in any school or education board's decision to implement m-learning in schools.

5.6 THEME 4: ME, MYSELF, I

5.6.1 Self and Communities

The final theme concerns identity formation among youth as they consume media and technological resources using their smartphones. Through their use of social networking sites every day, participants display their need to belong to different communities, resulting in the construction of multiple identities (Pimmer et al., 2012).

> ..you can go to a person's *Facebook* page, and *Twitter* page, and you can find that there are an entirely different person on each. On *Facebook* there are cheerful and all that. But on *Twitter* they post things like, "I am facing depression". *Facebook* is how you want people to see you. *Twitter* is who you really are…….Because *Facebook* is too public, errm there is also the question of '***face***', on *Facebook* there is the unconscious part where we don't want people to judge us, and in *Twitter* it's more like a personal group.
>
> Stevie, Interview 1, L: 112-115, 117-119

Among the most popular mobile applications used by participants are those to access *Facebook* and *Twitter*. According to Stevie, users displayed 2 different identities in *Facebook* and *Twitter.* *Facebook* entries tended to be cheerful and happy as users were presenting their 'public face'. As the Asian concept of 'face' (prestige, reputation) (Ho, 1976) is involved, *Facebook* identities are constructed and presented to enhance their status and image. *Twitter* is shared with a smaller circle of close friends where feelings and thoughts are bared. *Twitter* therefore functions for support and bonding purposes. Buckingham (2008, p. 6) suggests that identity at the intersection of technology and identity is a "fluid, contingent matter" and it is "more appropriate to talk about identification rather than identity". Thus, according to this perspective, learners learn subconsciously about identity presentation and identity management as can be seen from the quotations below:

> *Facebook* is…it's ***like an open book*** to your life. Sometimes you get addicted to your smartphone, everything you want to post on *Facebook*, you want to let your friends know what you are doing. So it's become like this thing… Errr I am having lunch now say at *Delicious*. Then I take a picture of the food, and then I say "Oh I am having lunch at *Delicious*" and you post the picture on *Facebook*. Actually these things are not really necessary to go on *Facebook*. But we actually do it because we want to let people know what we are doing……And you just want to show them what you are doing is better than what they are doing.
>
> Deeptzer, Interview 1, L: 261-265, 267-68

> So you add them on *Facebook,* you look at their pictures, you look at what they like. You look at how they type (write). Even… it tells you more about the person itself. As in like… when people talk they have their own way of talking. Some talk very sarcastically, some talk very joyfully. Things like that. So even the way you type… you can sort of tell what … what emotion they are trying to link on to their messages."
>
> Andy, Interview 1, L: 258-259, 261-63

Social networking sites like *Facebook* and *Twitter* enable the participants to 'hang out' with their friends and cultivate the sense of belonging and identity that are so important to teenagers and young adults (Buckingham, 2008).

Not all the participants were avid users or supporters of *Facebook* and *Twitter*. Some expressed their disapproval or dissatisfaction with what they perceived as the inane comments posted or "the showing off" or "keeping up with the Jones" mentality of some of their 'friends'. All, however, stated they still "*checked in*" to keep up with what their friends were doing and participate in the maintenance of their communities through posting their comments, stories, photographs and articles they want to share with friends. As suggested by Thulin and Vilhelmson (2007), the instant access afforded by smart devices means that no young person would risk exclusion from their social communities.

> ***Facebook is just deterioration of neurons***…. Err I go on *Facebook* for the sole purpose of just.. to check what has happen. … A lot of people find it easier to contact me there. A lot of people invited me for events there. You know. So I will just check and be there for maybe 5 minutes, at most half an hour then I will just close it. …. Ahh, not say because everyone's doing it, but

> because I want to be… I just ***want to be connected***. If you can't find me anywhere else, fine, find me on *Facebook*.
>
> Ben, Interview 1, L: 265, 267, 269-271, 277-78

The need to be connected to friends extends to the use of location aware applications like *Foursquare* which could be linked to *Facebook* and *Twitter*.

> Errr.. Just letting people know where I am…. Maybe sometimes you just want your friends to be there ….. Sometimes you are out but then you are… you never called your friends, and then they see you on *Foursquare* and they might just turn up.
>
> Deeptzer, Interview 1, L: 298, 304, 310-311

> For fun…. I just check in for the heck of it….. Mmmm I am not sure… just to announce to people you are there…..… I am not sure actually….. Maybe like a social consciousness.
>
> Bloggergirl, Interview 1, L: 216, 218, 222, 224

The motivations to be connected through *Foursquare* as expressed by Deeptzer and Bloggergirl seem to be based on the need for belonging and affirmation from their friends and communities. Yet there is this sense that personal agency is of prime importance in the participants' decisions of how, when and why they use their smartphones.

> *I* ***influenced myself***…. I use my smartphone like that lah because I plan it. If I decide it's good for me, then I'll use it... Like the application for the cooking. Is it useful for me? Like in the cooking application, I can apply the measurements, I can apply the terms for the cooking. I don't know what's the terms so I just go, open my app, search for the term and something like that."
>
> Zerros, Interview 2, L: 298, 312-313, 315-317

Zerros explained that the choices he made with his smartphone learning are determined by him and not due to the influences of others. Similarly, Andy described how the choice of understanding and remembering information depended on his own self-will. This is consistent with the arguments proposed by Pachler et al. (2010a) and Kearney et al. (2012) regarding m-learning: learners have control over the time, goals, pace and place (virtual or physical)

of their learning. Stald (2008) argues that youth express a strong preference for control over their lives and control of their smartphone practices is an expression of their autonomy from parents and adults. In particular, they derive much enjoyment over the autonomy of this type of learning. Yet, this exercise of personal agency is also influenced by friends, families and parents because lived experiences are always a complex interplay of many factors.

5.6.2 Relationship to My Smartphone

Being reliant on mobile devices for their everyday needs, participants developed highly personal relationships with their smartphones, describing them as "buddy", "companion", "friend" and in Chuck's case, as a "wife".

> ***My wife***. Well...girlfriend, you can switch and you can have a lot. This...I...I don't think I'm going to part ways with it (smartphone). And besides I use it way too often and it's always there for me. It helps me through a lot of things. What wives or husbands do... I can say I'm married to it.
>
> Chuck, Interview 3, L: 525, 528-530

> Errrr....something about the smartphone. Maybe I haven't said...an aid , like a ***helping buddy***. Even something that at times, you feel really bored, you fill the time where you play games, where you go to *Facebook*. Maybe when you're waiting for a bus or something, that's the time you feel bored and you want to make time go faster, so that where you play a game. Or waiting for a friend, something like that.
>
> Al, Interview 3, L: 434-438

These comparisons take the form of people metaphors, a suggestion that the devices have assumed the significance of a person; a symbol of the growing importance of the smartphone in their lives. They described their feeling of loss if they were to lose their smartphones. Smartphones, hence do not only represent their learning and life-styles, they are inextricably linked to their sense of selves, identities and personal communities (Buckingham, 2008).

5.6.3 This is My Learning, Not Yours

Pachler et al. (2010a) suggest that users of mobile technologies appropriate

socio-cultural resources for their media consumption and learning and in the process, construct their own lifeworlds and personal identities. Learning, thus, is always subjectively meaningful and highly personal as in Al's quote:

> When you use a smartphone, you'll be more independent and you….would have ways of learning things even faster cause when you search for things you want to know...for once you've read, you***….it actually sticks in your mind***. When people say to you something, you won't really get caught in your mind. But when you read something and search for it, you really know the effort you use. It makes you learn better.
>
> Al, Interview 3: L: 278-283

Academic learning or "schooling" was perceived as 'YOUR" learning as it means studying in schools, colleges and universities to obtain certification to meet the expectations of parents and society. The associations they had of academic learning were of compulsion, obligation, reward and punishment, and rote learning as seen from the quotes:

> It's very much forcing information into your brain. Especially in Malaysia where they try… exam orientation. That's how I think….. Not… well when you go to school it's not always something that you want to do or… their learning is sort of put on to you and you are obliged to do it.
>
> Bloggergirl, Interview 1, L: 31-32, 36-37

> Not because you want to do it. As opposed to subconscious learning or learning by yourself then you sort of have the passion or the initiative to do it yourself.
>
> Bloggergirl, Interview 1, L: 39-40

Therefore, ubiquitous learning with smartphones, with its positive associations to learning could create significant opportunities for education, creativity and communication. There have been recommendations in the research literature for the potential of mobile learning in educational institutions to be exploited (Sharples et al., 2007a, Pachler et al., 2010a). However, significant challenges abound as there are tensions between the traditional model of schooling and mobile learning. The present school system is structured around rigid timetables, age-grading and accepted academic accreditations

and it has struggled to adapt to new learner-directed technologies where the pursuit of learning is based on personalization and ubiquity (Collins and Halverson, 2010).

Malaysia is a good example to exemplify this tension. The Ministry of Education (MOE) in its ambition "to encourage educators and students to embrace information technology in the 21st century" proposed in July 2012, to allow students to bring mobile devices to schools in 2013 (Tan, 2012). The subsequent opposition from educators, parents and students resulted in the U turn in policy in October 2012, 4 months after the initial announcement (The Straits Times, 4 October 2012). There was mixed responses to the MOE's proposed policy (The New Straits Times, 19 July 2012, The Star, 22 July 2012). Teacher unions and Parents' Associations were reported to be opposed to this initiative. Resistance was due to perceptions of mobile phones as disruptive and potentially harmful devices to the social and moral order in schools (The New Straits Times, 19 July 2012, The Star, 22 July 2012).

As the interviews were conducted during this controversy, participants were asked for their views on the introduction of mobile phones into their classrooms. All 12 participants believed that mobile devices should not be allowed into the primary and secondary school classrooms. The fundamental reason was that mobile devices were viewed as disruptive. Their views were conflicted, as they had the desire to bring their mobile phones to school to aid in their learning but they could not envisage it being successfully used in the classroom, as they had no positive models for comparison.

> (Teachers)….won't allow it. The teachers won't know what you're going to search for. So, I mean, some students might be searching for games or searching for some irrelevant things to the topic of task. So, they would basically not allow it……Yeah, I don't think it would work. Like currently the private school, *Sri Cempaka*, they allow students to use laptops in class. They may be playing but pretending and the teachers cannot...so it's not helpful.
>
> Andy, Interview 2, L: 330-32, 335-338

> We want to say yes as we all want to bring our phones to school but in a debate, we'll say no. It does more wrong. Let's say in a boys' school, won't they use in pornography?
>
> Stevie, Interview 2, L: 357-58

Their recommendations for smartphone use in the tertiary classrooms were for recording lectures and viewing videos. They were ambivalent about using smartphones in class although 6 of the 12 participants were in private colleges where mobile device use was allowed. While giving them advantages over peers who did not have smartphones to search for answers in class, they reported that they also checked their social networking sites while the lecturers were talking and they knew this was probably not wise or correct as they disapproved of this behaviour in others.

This inability to visualize using smartphones successfully in class could be the result of what Tyack and Tobin (1994) suggest is the "grammar of schooling". Teachers, parents and students have an internalised model of what a real school should be like with its rigid structures, timetables, classrooms and lectures and there would be resistance to innovations that are perceived to be disruptive. In addition, the ubiquitous learning with smartphones, intertwined with everyday media use was seen, as "this is my learning, not yours". To have some of these mobile learning practices transferred to the sphere of academic learning was to lose the personal freedom and choice that they associate with their smartphone learning and with it, their privacy and personal space from teachers and parents. The appeal of engagement with digital media and mobile devices is probably their separation from the controlled domain of adult centric rules, conventions, and formal involvements with adults (Boyd, 2008).

The implication for formal learning is that the integration of mobile practices into the classroom may not be feasible with the present academic model of schooling. As the apprentice system of the Middle Ages gave way to institutionalized learning in the nineteenth century, mobile learning and its

different and multiple practices could be a harbinger to a new model of education.

5.7 SUMMARY

Participants' perception of their learning was that it was different in nature and manner from academic learning. As the learning practices with their smartphones were intertwined with their everyday mobile practices, learning thus occurred in multiple spaces, time and dimensions. Their social interactions (face to screen) mediated by mobile technologies were with friends, strangers or online community moderators. Participants' self-identities were developed through continual interaction and participation in favourite communities like *Facebook* and *Twitter*. Through active participation in such communities, participants learnt how to negotiate meanings and construct knowledge. In particular, some become adept at presenting themselves to multiple audiences, such as those in *Facebook* and *Twitter.*

Much of the participants' appropriation of knowledge through their smartphones is of individual foraging and hence characterised by object orientation and weak social ties. There was another dimension to their development of knowledge through their use of smartphones. Participants perceived their learning with smartphones to be serendipitous and purposive and the time for these practices ranged from 30 minutes to 4 hours a day. New innovative ways of learning and studying emerged with participants demonstrating a range of metacognitive and critical thinking skills. Much of their exploitation of mobile technologies is taken for granted, as is their learning. However, the value of their learning with smartphones is perceived generally as high although some participants do see the disadvantages of some smartphone practices. The greatest advantages the smartphone offers to them are its portability and easy access to knowledge. As Chuck has said, it is comparable to having the world in your pocket.

6. CONCLUSIONS

6.1 INTRODUCTION

The rationale and significance of the research phenomenon under investigation were presented in the Introduction to this study. Theoretical and conceptual gaps in the research literature concerning learners' everyday mobile practices, and the importance of this embedded learning were identified in Chapter 2. The 'taken-for-granted' learning experiences of 12 students in Malaysia were investigated using hermeneutic phenomenological methodology. The aim in this study was to explore 'What does it mean to learn with smartphones?' The following sub-questions were investigated, as this question comprised numerous embedded and overlapping phenomena, which required further exploration.

i. What is this experience of learning with smartphones like?
ii. How do the student participants perceive the nature of their learning with smartphones?
iii. How is the learning related to participants' identity formation, identity management and presentation of self?

In this concluding chapter, the key findings and implications of this research study are reviewed relative to the research literature for recommendations for future research, and the development of teaching practice and policy. Finally, an examination of the limitations of the research design and study is discussed in this chapter

6.2 KEY FINDINGS AND IMPLICATIONS

The use of hermeneutic phenomenology in this study facilitated the entry into the world of 'Dasein' or participants' 'Being-in-the World' (Heidegger, 1962 trans). Participants' 'being-in-the-world' experiences had been taken for granted and an investigation into their mobile learning practices revealed new

and long-forgotten meanings. As their lived experiences had been shaped by the socio-cultural and technological contexts in which they were enacted, the essential meanings derived from the findings show a complex interplay of patterns of use, motivation and influences. 4 explicative themes ('Difference', 'Value', 'Me, Myself, I' and 'Influences') emerge and they are shown in Figure 6.1 with an illustrative quotation for each theme. As the themes are overlapping and interdependent, no theme by itself, is representative or is able to solely illuminate the phenomenon. The meaning of learning with smartphones thus, is a multifaceted composition of all the 4 themes.

Difference	It's definitely more convenient, it makes life more interesting! (laughs). It makes learning an entire..different.. a new thing. It no longer is such a BORE, like the way it used to be, just books and books.... Some boys like my brother, he hates books. He just hates them! But you give him the smartphone and the amount of learning he does, it just amaze you. **Different, different**, it's the same learning but different approach and different results.... It's like getting to know a new person, you just want to know more about it. You have to experiment with it. Stevie, Interview 3, L:370-372, L:376-377
Value	**I value the ability to know**..like have..to have the Internet wherever I am, to learn anything every time I want, you know, so that curiosity, normally always satisfying…It allows me like before debates, if I'm nervous, if I don't know enough, I have the ability to read, the ability to browse through ten articles or something, so I like this idea of being able to know anything I want to know at any time, ya." Ben, Interview 2, L: 765-770
Influences	**My parents** are quite fine.. in fact they **encourage** me to read. And they're trying to get my sister to read as well.. on her smartphone, as well. Because I read a lot on the smartphone, my sister started reading as well. She used to not like reading. It's not her thing. Chuck, Interview 2, L: 258-261
Me, Myself, I	I **influenced myself**…. I use my smartphone like that lah because I plan it. If I decide it's good for me, then I'll use it. Like the application for the cooking. Is it useful for me? Like in the cooking application, I can apply the measurements, I can apply the terms for the cooking. I don't know what's the terms so I just go, open my app, search for the term and something like that. Zerros, Interview 2, L: 298, 312-313, 315-317

FIGURE 6.1.THEMES WITH ILLUSTRATIVE QUOTATIONS

6.2.1 Difference

6.2.1.1 New and Innovative Patterns of Use

In the investigation of learning embedded in everyday mobile practices, the following patterns of use are found and they agree with some current research findings:

i. communication between people, people with technology, or people's interaction with and exploration of environments and in changing contexts (Sharples et al., 2007a, Pachler et al., 2010a)
ii. appropriation of knowledge through individual foraging, with typically short bursts of knowledge gathering and knowledge generation activities (Amin and Roberts, 2008)
iii. pursuit of inquiry, creative expression, collaboration, production and publishing to audiences (Luckin et al., 2009, Crook, 2012 Stern, 2008, Lankshear and Knobel, 2011, Eynon and Malmberg, 2012)
iv. participation in communities of practice with people who share their goals, interests and activities (Lave and Wenger, 1991)

Beyond these patterns, there are emergent practices that showed participants' use of their smart devices and digital technologies to support academic learning in new and innovative ways:

i. new patterns of study group behaviour using *Skype, Facebook* and *What's App*
ii. use of photographs to capture homework problems and uploading to *Skype* and *What's App* for friends' solutions
iii. use of *YouTube* videos to practise musical instruments
iv. use of smartphone diary/memo for reflection and self-critique

These new, innovative practices reveal the seamless way participants use their smartphones to fulfil formal and informal learning needs and is a natural example to illustrate Looi et al. (2010, 2011)'s conception of "seamless learning" as bridging the gap between formal and informal learning. If smartphones were to be introduced into the classroom, young people may be able transfer such informal learning practices to support their classroom

learning or even more importantly, develop new practices to suit their particular needs and purposes.

This, however, would depend on the acceptance and validation of such informal learning practices by schools and teachers. The everyday mobile practices of participants, derived from individualized forms of communication and interaction tend to be problem-based and processual (Stern, 2008, Crook, 2012). They challenge prevailing curricular practices which are based on the belief that learning occurs in discrete steps and its outcomes can be codified, ranked and assessed. This challenge lies at the core of the debate concerning mobile device implementation in classrooms. It would therefore require reconceptualising dominant notions of knowledge and the development of "approaches that seek to balance the specific and the general, the personal and the principled, curiosity, and craft" (Drotner, 2008, p. 171).

6.2.1.2 Difference: Serendipitous and Purposive learning

As young people are intensely engaging with their smartphones every day, learning occurs as it is interwoven with these mobile practices (Pachler et al., 2010a). These new types of learning may be strikingly different from traditional classroom learning but they are arguably invaluable in enabling learners to navigate the structures and meanings of the online world and transposing such skills and knowledge into their 'real' worlds'.

2 types of learning practices emerge from the participants' lived experiences: *serendipitous* and *purposive learning*. They exist on a continuum of smartphone use shaped by temporality and intentionality. Serendipitous learning is usually unplanned and spontaneous occurrences embedded in everyday mobile practices and are of short durations. Some participants see it as 'learning on the go', 'spontaneous learning', or 'learning on the spot.' Purposive learning is of longer durations (30 minutes to 4 hours per day) and includes using smartphones to search for information to do homework or projects, exploring hobbies or communicating with others in communities of

practice. From both types of learning, participants derived satisfaction, enjoyment and empowerment as they have control over their learning.

Participants used surface approaches (Marton and Säljö, 1976a, b; 2005) for serendipitous learning as their engagement with texts and tasks tended to be superficial and exploratory. Deep approaches to learning are displayed in participants' purposive and intense engagement with topics of interest, hobbies and games. Some participants deliberately chose games to play during their leisure with the intention of improving their critical thinking, time management and planning skills. In reading e-books and learning languages, participants' intention to derive benefits from digital technologies and their smart devices was evident. The outcome of this deep learning was a change in their worldviews, mindsets and attitudes to the topics and subjects they were intensely engaged in.

Participants moved fluidly and easily between serendipitous and purposive learning in their daily practices suggesting a continuum of use rather than marked by strong boundaries between the two approaches. Their personal learning from online sources of information could be easily transposed into their 'real worlds', for example, after learning basketball tips or baking cupcakes from *YouTube* videos, they implemented the knowledge and practised the skills, and in the process, received immediate feedback from friends or families. They would return to their online world for more tips or information if they had limited success with their efforts. There appears to be an easy movement from learning from virtual worlds to testing and practising the learning in everyday worlds. As Gee (2008) suggests, this experience and testing of assumptions are key to learning that is more effective. It also suggests the mobility of the learning across conceptual spaces and time dimensions as skills and knowledge are transferred and acquired (Kakihara and Sørensen, 2002, Kukulska-Hulme, 2011).

The implication is the support that schools could give to young people to enable them to be more effective learners in informal learning contexts. From the participants' lived experiences, there appears to be a spectrum of critical

thinking, critical reading and information search skills. The better readers and the more critical thinkers among the participants attributed their competencies and skills to the teaching and influence of teachers, parents or mentors in their lives. Thus, if schools and teachers were to focus more on the teaching of such skills using not only printed texts but a variety of mediums and multimodal expressions, then learners may be able to use these skills not only in the classroom but in their everyday lives as young people appear more adaptable and flexible in the transfer of skills into different contexts.

6.2.2 Value

6.2.2.1 Perceptions of the Value of Smartphone Learning

Luckin et al. (2009, p.87) argue that young people's engagement with social and mobile technologies are biased towards consumption rather than learning, with "little evidence of groundbreaking activities and only a few embryonic signs of criticality, self-management or metacognitive reflection." Buckingham (2008) suggests that everyday uses of the Internet are based on conventional types of communication and information retrieval with no remarkable modes of creativity or transformation. Eynon and Malmberg (2011, p. 592) found in their typology of Internet users, the largest group, "the normatives" used "run of the mill technologies" for "communicating, entertaining and information seeking."

However, the everyday needs of young people may not require sophisticated technological knowledge and skills or understanding of the full spectrum of the potential of the Internet. In the ordinary, everyday world, young people arguably may be more interested in constructing and negotiating meaning from their interactions with members of their personal communities and pursuing knowledge to further their curiosity and interests. It may be necessary to move beyond the digital native debate to understand and respect young people's everyday use of mobile technologies rather than using adult (inflated or deflated) expectations and standards to judge such practices.

In contrast to being passive consumers of technology, participants were actively utilising the affordances of their smart devices and adapting their social practices to suit their everyday needs. These innovations were as appropriate to their interest and purpose. Some participants in this study demonstrated that they had the sophisticated technological expertise and knowledge to 'jail-break' iPhones (removing the limitations imposed by *Apple*) and to repair damaged devices and gadgets. Yet others demonstrated their creativity and innovation in their digital production and publishing of writing, photographs and videos.

There was some evidence of critical thinking, self-management and metacognitive reflection although there was a range of these skills and competencies among the participants. This suggests that young people in general require support in learning effective search and evaluation strategies and critical thinking skills (Williams and Rowland, 2008, Buckingham, 2008, Jenkins, 2008 and Luckin et al., 2009, Lankshear and Knobel, 2011, Livingstone and Brake, 2009, Helsper and Eynon, 2013). It is suggested that school lessons in these skills and competencies should start at primary school levels because smart device users are getting younger and it is important to ensure that as these learners go online, they should be equipped with such necessary literacy skills, search strategies and thinking skills.

6.2.2.2 The Paradox of Increasing and Diminishing Returns

Learning with smartphones was perceived to engender the paradox of increasing and diminishing returns to the learners. Participants placed a high premium on the advantages of appropriation, creation and publishing of knowledge resources at the pace, convenience, and accessibility that smartphones could afford. Learning with mobile applications and the mobile Internet is comparatively better than learning from a teacher or a friend as the individual persons have finite knowledge while the knowledge in the Internet is limitless. All participants believed that they became better, more independent and more effective learners through learning with their smartphones.

While valuing the smartphone for its benefits, some participants possessed a nuanced view regarding its significance. The learning with a smartphone was compared to a “double edged sword” or a “Pandora’s Box”. Like a Pandora’s Box, the wonders of the Internet may be manifold, positive and harmful at the same time. All participants did not totally trust the information or the people they befriended on the Internet. Other negative implications of learning online with their smartphones include observations on the seedier side or the underbelly of the Internet which could harm trusting users, and obsession with websites or mobile applications which could lead to a neglect of other aspects of their lives. This ability to differentiate between positive and negative online practices suggests these learners are in possession of higher critical self-awareness and critical thinking skills than those suggested by some researchers (Keen, 2007, Selwyn, 2009).

Another negative practice was a result of the culture of ‘quick fixes’: quick searches for answers on smartphones without understanding or verifying the information. Learners were instantly gratified by just answers, even if they were wrong ones. There were incidences of copying and pasting information they obtained through their smartphones, without attribution to sources. These negative mobile and online practices therefore, suggest an urgent need for young people and children to be taught verification and attribution of sources, online safety and metacognitive skills in schools today (Livingstone and Helsper, 2010, Helsper and Eynon, 2013).

6.2.2.3 The Whole is more than the Sum of its Parts

Participants generally expressed indignation over parents’ and other adults’ assumptions of the lack of learning in their everyday mobile practices. In their accounts, they emphasized that their learning: explicit and subconscious learning were occurring at extended periods, at a breadth and depth that many might not perceive or understand. Possessing a critical self-awareness, some participants argued that their learning was based on a continuum of use and purpose.

More importantly, participants cited some evidence of increased knowledge, greater vocabulary building, better English Language skills and better academic results as outcomes of learning with their smartphones. In one particular case, the parents of one participant used his smartphone reading habits and good academic results to encourage his younger sister to start reading on a new smartphone that they had bought for that purpose. Learning with smartphones may be distinctively different from academic learning as it is highly subjective, personalized and at times, fragmented. However, if learners perceive and believe that learning has value and worth, and this learning aids them in the fulfilment of their learning and life goals, then the learning is significant and important. *The whole of the learning with smartphones, therefore, is greater than its parts.*

6.2.3 Me, Myself, I

6.2.3.1 Multiple Online Identities, Impression Management

Buckingham (2008, p. 17) suggests "in learning with and through these media, young people are also learning how to learn" and developing particular orientations toward information, particular methods of acquiring new knowledge and skills, and a sense of their own identities as learners." Participants' development of their self-identities was in part aided by their mobile learning practices. Through foraging for knowledge, experimentation and dialogue with peers and mentors, participants' identities evolved and changed constantly in what Weber and Mitchell (2008, p. 43) suggest is a "work-in-progress, an evolving active construction that constantly sheds bits and adds bits, changing through dialectical interactions with the digital and non-digital world."

Smartphones were used by the participants to document their personal lives and share photographs, and videos with their friends and increasingly an international audience on websites such as *Facebook*, *YouTube* and *Instagram*. These photographs and videos of their everyday lives are essentially representations of their selves and by sharing these with their

communities and strangers, they afford these artefacts a certain significance, permanence and status (Pachler et al., 2010a). Photographs and videos, embodiments of personal histories, thus functioned as sources of discussion, reflection and analysis among their friends. In addition, these artefacts created by the participants enable them to have different self-images and documentary histories of their lives which in turn contribute to the formation of multiple identities (Pachler et al., 2010a, p. 13).

Different identities were developed and presented online in their favourite personal communities such as *Facebook* and *Twitter*. In an effort to impress others, 'impression management' (Buckingham, 2008) was practised with a different 'face' in *Facebook* and yet another in *Twitter. Facebook i*s considered as an 'open book to their lives' and hence, participants put their best 'face' forward as they wanted to impress members of their communities. *Twitter* has a smaller group of followers and would usually comprise of the most intimate friends. Hence, participants were more frank in their writing and sharing, most probably sharing more of their most personal thoughts and actions.

Goffman (1959) suggests that people who practise impression management would collaborate with others to perform what he termed 'front stage' and 'back stage' behaviour. In this instance, for a performance to a bigger audience, the *Facebook* community would require front stage behaviour while *Twitter* consists of more back stage behaviour among such participants. Another reason for participants' behaviour is the manifestation of the Asian concept of 'face', which essentially means the desire to manage impressions and present the best image to others. Participants' acquisition of the basics and principles of impression management was through observing others, learning from expert members in the online communities and experimentation (Buckingham, 2008, Stald, 2008).

6.2.3.2 Personal Communities, Influence of Friends

The participants expressed a strong need for belonging to their communities: their school and college friends were also found in their virtual communities.

Friends were sources of affirmation, support and advice. Friends were also instrumental in the choice of mobile applications, the brand of the smartphone and the trending articles to read. With their personal communities, young people have to continually negotiate their representations, values and their identifications in the on-going development, management and presentation of their fluid identities (Buckingham, 2008, Weber and Mitchell, 2008). From their accounts, some participants appear to be more adept in their presentation of online selves and affiliation with personal communities.

The implications therefore, are for learners to be more effective in their development and management of multiple identities and social networks online. Schools and teachers could play a more active role by including projects on personal histories and personal communities in English or History classes. Instead of presenting the histories in *PowerPoint* slides or texts, the products could be *Facebook, Twitter* or blog presentations. Other projects could be based on how learners learnt the rules and social norms of their online worlds or how and why multiple identities are presented online. This may show approval and affirmation of learners' informal learning with the inclusion of online personal communities like *Facebook* and *Twitter* into the classroom curricular.

6.2.3.3 Personal Agency and Relationship to Smartphone

Pachler et al. (2010a, p. 9) define 'agency' as the capability to build personal lifeworlds and acting "on the world with and through the use of mobile devices." Personal agency, which is the desire to exert control over how and what young people learn with their smartphones, is most likely associated with their sense of selves and the youthful aspiration to show independence from their parents and teachers (Stald, 2008). Participants in this study enjoyed a strong sense of autonomy as they were in control of their own learning. Many of them claimed that their learning practices were decided by themselves and their experience learnt through self-exploration and experimentation. However, what emerged is that learning practices and the depth and breadth of the

learning are also influenced by mentors, friends and parents. The root or source of a skill or knowledge could be attributed to these influences.

Personal agency seems related with autonomy and space from parents and teachers. This probably could be the reason why all 12 participants were negative about the introduction of smartphones into Malaysian classrooms, as they perceived their learning with smartphones to be highly individualized and personalized. Bringing their smartphones into the domain of the classroom was seen as an encroachment into their personal space and therefore, an intrusion into the personal control of their lives.

Personal agency and participants' connectedness with their smartphones appears closely associated (Pachler et al, 2012). As participants have personal ownership and autonomy over their smart devices, they develop close relationships to these phones. Participants experience an intense dependency on their smartphones, describing them as 'friends', 'best buddy', 'companion' and 'wife'. The close relationships to their smart devices are exhibited through actual physical contact with smartphones usually in their hands, in their pockets. Smartphones become more than the tools with which they view and experience the world, and negotiate and construct meanings. The use of people metaphors to describe their smartphones suggests the great importance the smartphones have become in their lives.

In schools, the same degree of personal agency as they have with their smartphones is not present because there are rules and conventions to follow. Young people would likely resist the use of such personal symbols of autonomy in the classroom which is associated with restriction, compulsion and boredom. Therefore, to transfer informal learning practices into the classroom would not succeed. It is more relevant to examine which learning practices are significant for education and which could be developed into competencies needed for more dispersed and complex learning contexts. More importantly, young people and their parents would need information and success stories of the use and impact of m-learning to be persuaded on m-learning implementation in schools.

6.2.4 Influence

6.2.4.1 Parents, Friends, Family Members, Community

The extent of learning with smartphones and its value is influenced by learners' friends, families, teachers and the community (Eynon and Malmberg, 2012). Parents' influence is limited, as they generally do not understand the potential of the smartphone for learning. Their encouragement of reading however appears to yield results in some cases, as avid readers of books among the participants transferred their voracious reading habits onto their smartphones. In another case, one mother actively encouraged her daughter to read online newspapers by modelling her smartphone reading for her daughter. This suggests an area for further research to determine the impact of parental influence on smartphone learning practices.

Other sources of influence were family members like elder siblings or uncles who were adept with using smartphones for learning. Friends were usually instrumental in their choices of mobile applications, brands of smartphones and in some cases, reading and writing habits. The media can be a source of influence as advertisements and informative articles on the use of smartphones, learning potential and mobile applications could influence learners in the way they use their smartphones for learning. The value the community places on learning with smart devices may be a significant influence on learners' perceptions.

Participants' patterns of use and motivations are affected by the complex interplay of friends', parents', teachers' and media influences. The effect and extent of these influences have yet to be explored in depth and further research in this area may yield important knowledge on m-learning in everyday practices.

The Teacher is still Important

Compulsion, boredom and memorisation were associated with academic learning for the participants. In contrast, their own personalised learning with smartphones was perceived as enjoyable, fun and relevant to their hobbies and interests. However, all participants except for one chose to still have their teachers in their learning. It emerged that teachers were no longer seen as experts engaged in imparting knowledge (King, 1993, Collins and Halverson, 2010). For this, they could go online to check their facts and read more broadly and deeply. Teachers were viewed as advisors, mentors and facilitators of their learning. They respected their teachers for their maturity and good intentions of guiding them; they trusted their teachers more than they trusted the Internet.

The implication is that teachers still play important roles in the students' learning, although their roles are changing. Participation by some lecturers in students' *Facebook* Community sites encourages students to ask questions and get advice. Students' voluntary management of these *Facebook* pages provide classmates access to information, notes, assignments and announcements. Lecturers' involvement in such websites and online forums suggest a bridging of formal and informal learning contexts (Project Tomorrow, 2011). Lecturers do not have control over these sites and their roles are mainly as informal mentors and advisers as they are listed as 'Friends' in these *Facebook* pages.

6.3 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The interpretive paradigm and hermeneutic phenomenological methodology were chosen for this study, as they were the most appropriate and congruent to explore the experience of learning with smartphones. The strength of this methodology and study lies in its rich description and interpretation of the lived experiences of the participants' learning with smartphones. This is an under-researched area of learning embedded in daily mobile practices and the

prospect is that deeper understanding into the essence of experiences “can develop as researchers build on each other’s work” (Polkinghorne, 1983, p. 46).

Findings in an interpretive study are not generalizable as there is no singular way of seeing things and no universal truth (Crotty, 1998). As an alternative to generalizability, Lincoln and Guba (1985) suggested transferability of the qualitative findings to other settings as an important sign of quality in the research. Participants’ accounts of their lived experiences of learning with smartphones were similar, with common recurrent occurrences and influences. These suggest that the meanings of learning with smartphones derived from this study may be transferable to a broader population of students. However, this is for readers to judge; my purpose was to illustrate the context of this research appropriately such that readers can evaluate for themselves the applicability of the findings to their own contexts.

In a qualitative study, the researcher is as much part of the inquiry as the purpose and the inquiry processes. The quality of the research study is dependent on the researcher’s insights, conceptual abilities and the rigour of the data collection, analytical and interpretive processes. The researcher as research instrument (Lincoln and Guba, 1985, Denzin and Lincoln, 2000) suggests that any study utilizing this approach would have to make explicit any researcher bias or presupposition in order to set them aside or explain how they have made an impact on the research processes.

In this hermeneutic phenomenological study, the notions of bias and prejudice were managed by the engagement in hermeneutic phenomenological reflection and the maintenance of an open phenomenological attitude. These involve employing the hermeneutic circle to engage in a process of moving from the parts to the whole, dialoguing with the text, permitting emerging data to stay open to divergent interpretations, and finding the temporality of truth and the horizons of the interpreter and the text. In addition, some information on my background have been provided in Chapters 3 and 4 together with the illustration of how presuppositions and biases were managed,. This is to

enable readers to assess the credibility of the research concerning methodological competence, professional integrity and intellectual rigour.

The aim of this study is to investigate the question, 'What does it mean to learn with smartphones?' through the lens of student participants. Given their dependency and their close relationships to these smart devices, the lived experiences of these participants are highly subjective and relative. This is one of the limitations of the research project, as a more complete understanding of the phenomenon of learning with smartphones would benefit from teacher and parent perspectives. Future research on smartphone learning could include investigations into the role and impact parents, friends, families and teachers have on students' mobile learning practices.

The contribution of this study lies in the extension of our understanding of everyday mobile practices, and the emergence of different types of smartphone learning and their value and significance. As there is a current theoretical gap in this multi-faceted and complex phenomenon, further research into the area of learning with smartphones could be attempted with different methodologies and a larger sample size. In addition, there could be a fine grained analysis of the learning through the lens of participants' gender, ethnic identity and socio-economic backgrounds. There could be further focus on the research of *serendipitous* and *purposive learning* used by mobile users and the value of everyday mobile practices as perceived by parents, teachers and the community.

6.4 EDUCATIONAL POLICY & PROFESSIONAL PRACTICE IMPLICATIONS

6.4.1 Implications for Educational Policy

The current debate on the implementation of m-learning in academic institutions focuses on the nature and fit of the technology to educational settings (Crook, 2012, Merchant, 2012a). Recommendations have been made for the identification of mobile/social media practices for adaptation and

accommodation into the structures of formal educational practices (Drotner, 2008, Merchant, 2012a). However, tensions exist between youths' preference for multimodal forms of expression and learning, and the cultural bias towards representational forms of production and expression in academic settings (Drotner, 2008, Crook, 2012). Some researchers (Selwyn, 2009, Keen, 2007) have questioned the value of such online informal learning, with its fragmented assemblies, narrative structures, consumption emphasis and subjectivity.

This study has offered a divergent perspective: learning with smartphones has value and importance as it leads to the development of learners' self-identities, management of selves, and mindsets predisposed to individual foraging, collaboration and life-long learning. If the 'taken-for-grantedness' of these learning practices was to be 'stripped off', assumptions of youths' technological expertise (or lack of it) put aside and such practices re-examined, we may be in agreement with the participants' perception of their value and worth.

There is thus, a compelling need for policy makers, educationists, teachers and parents to develop new ways of understanding mobile and digital technologies and new ways of interacting with the opportunities they afford. If the notion of the "grammar of schooling" (Tyack and Tobin, 1994) were to be enlarged to include the exploitation of the smartphone for learning, then it is crucial for these stakeholders to understand the new learning opportunities and benefits.

This may not mean that all everyday mobile practices should be incorporated for use in school settings. It does suggest, however, that some practices such as engagement with authentic problems, and multiple audiences could be the basis for the re-design of some school curriculums and projects. It could also mean active experimentation with mobile applications as supplementary or primary sources for teaching in subjects like English Language, Humanities, Science and Mathematics. Online dictionary and language learning applications could be further exploited by schools to extend such learning

practices outside the classroom or as “seamless learning”, that is, as a bridge between formal and informal learning contexts.

There could be a re-evaluation of curriculum design and practices to include more focus on processual and problem-based learning. Traditional notions of conceptual reasoning and abstract knowledge are still important and resolving the tensions between dominant conceptions of knowledge and alternative forms could be a question of balance. Education policy could focus on both content and process with interest-based and curiosity-driven approaches to knowledge included. This is based on the assumption that these alternate types of knowledge nurture different types of competencies that are sought after by learners and employers in the 21st century: fluency in multimodal modes of expression, on-going collaboration with peers and friends, and fluidity in transposing of skills and knowledge derived from online learning to real worlds. The inclusion of these new focuses would mean that students benefit from teacher guidance and mentoring in these areas.

Another major finding is the participants’ uneven competency levels with regard to the search for information, production and publishing of content, and reading on their smartphones. In addition, not all participants possess the critical awareness and thinking skills to analyse the online information sources. With young people intensely engaged with their smartphones and learning serendipitously or deliberately, it can be argued that schools need to provide more support in critical thinking, critical reading, online safety, and metacognition (Luckin et al., 2009, Buckingham, 2008, Pachler et al., 2010a, Livingstone and Brake, 2009, Crook, 2012, Helsper and Eynon, 2013). It is recommended that such digital literacy lessons could be implemented as early as primary school levels as there is evidence that online learners are becoming younger and younger and they should be taught the necessary skills appropriate for their developmental stages.

In any implementation of m-learning in academic institutions, all stakeholders (students, parents, educationists, the community) should be made aware of its potential and benefits. In Malaysia’s attempt to introduce m-learning, the

conversation focused on the disruptive effects of these devices in the classroom. If the Malaysian education authorities were to implement m-learning in the future, then a campaign needs to be conducted to generate awareness among the stakeholders of the advantages of learning with mobile and digital technologies. This presumes that the campaign is based on pilot projects in schools and institutions that have implemented such technologies with some degree of success.

6.4.2 Implications for Professional Practice

A significant finding of this study concerns the continuing importance of the teacher in the participants' lives. Participants no longer perceive teachers as the 'imparters of knowledge' (King, 1993, Collins and Halverson, 2010) as they recounted how they could read more widely and deeply from online sources than depend on the expertise of their teachers. However, it is clear that they all depend on their teachers to help them distinguish between truths and fiction, and the reliability of sources.

As the roles of teachers as advisors, mentors and guides become increasingly important, it is crucial for teachers and educators to understand existing online cultures to be able to reframe old contexts to integrate new ones. Teachers could incorporate lessons on online safety, online norms, impression management, and plagiarism into their teaching of subjects. Learners' interest in photograph sharing could be exploited in homework or projects that require photographic narratives. Another suggestion is that of the English Language or Foreign Language teacher promoting a love of reading, not only using the printed medium but also using online sources as well to encourage reading from print to screen. As many learners are engaged in online reading through their smartphones, mobile phones, and laptops, these learners would probably benefit from lessons in effective online reading and comprehension.

Teachers however, require support from schools and the education authorities. To date, there is still no agreed pedagogic model which offers the teaching community and education boards "with a conceptual model of the

learning potentials of these technologies and the kinds of connections these can engender across and between spaces for learning" (Luckin et al., 2009, p. 102). Teachers therefore require knowledge and training to assist their students to make appropriate choices which are contextually relevant and which utilise their continually, evolving repertoire of skills and competencies. They would require additional training in pastoral care, coaching and counselling with the evolvement of teacher roles to those of mentors and advisors.

6.5 CONCLUSION

This study provides illuminating examples of how technology has impacted young people and in turn, how they have used technology for their needs. The picture of learning with smartphones that emerges is one of multiple aspects, complexity, and fluidity. These personalized types of *serendipitous* and *purposive* learning may be different from the culturally accepted forms of formal learning but they are not inferior. They have value and significance as they assist in the development of reading, writing and listening skills as young people use them in their everyday mobile practices. Their patterns of use and motivations for learning are influenced by their friends, families and parents.

The findings would suggest the importance of understanding more about the different types of learning occurring with the use of smartphones, the values attached by learners to this learning and the transferability of such skills and knowledge across spaces, time and dimensions. Further research including careful qualitative studies are suggested to better theorise the phenomenon. Policy makers and education authorities should support a research agenda developed and aimed at theorising learning with smartphones and other smart devices using a range of quantitative and qualitative approaches. These studies should relate to one another by focusing on developing better knowledge and understanding of learning with smartphones.

Practitioners should be encouraged to experiment more with the use of mobile technologies in their lessons, and to understand their students' learning

experiences, they could undertake action research on what they have taught. If researchers, policy makers and practitioners all pay more attention to the lived experience of teaching and learning with smartphones, a better picture of this phenomena would emerge. Developing new theorisations from the lifeworlds of children and young people would enable policy makers and practitioners to develop more well-informed polices and strategies to enhance learning, either in the classroom or outside it.

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APPENDIX 1: REFLECTION JOURNAL

17 May 2012

My presentation at the School of Education Postgraduate Seminar (15.5) provided lots of critical feedback. Richard, my second supervisor was especially critical of how I could proceed using the survey that I had developed. He questioned in particular, my need for a quantitative methodological approach as this may not serve my research aims. From my review of the pilot study I conducted in January 2012, I was especially struck by how Bloggergirl talked about 'precious learning' and learning with smartphones: transience of things.

Other critical feedback included my nebulous definitions of informal learning, learning and mobile learning. I would have to re-examine my definitions.

I need to seriously consider if I should continue with Clough et al. (2008)'s framework or re-examine the basis of my research, starting from research aims. methodology and methods

5 June 2012

After my discussion with Alan, my first supervisor and doing my extensive reading on ethnography and phenomenology, I've decided to use hermeneutic phenomenology as my research methodology. This is a variant of phenomenology and it is interpretive (Hiedegger, Gadamer, van Manen) as opposed to descriptive phenomenology (Husserl, Giorgi).

I've written my research proposal for the Ethics Committee and submitted it to Alan for feedback. In doing my reading, I think I'm still very influenced by what I've read about mobile learning and the learning theories (Sharples et al. 2007, Pachler et al., 2010) and I think that I really haven't gone into that phenomenological frame of mind when I have to 'bracket' or avoid such pre-suppositions into my research.

1 August 2012

My Round I interview questions were drafted using the extant literature knowledge to guide me. For example, from van Manen (1990)'s guidance, I asked specific questions on how the participants felt and thought about their examples of mobile learning.

I'm still very influenced by Clough et al (2008), Naismith et al. (2004) and their categories of learning: collaborative, reflective, constructionist, behavioural theories. I find myself sub-consciously categorizing learning into these categories. I must re-look and examine some questions again.

I think the pre-knowledge is useful but I must not let it override my perceptions and my listening to the stories. I must guard against such initial categorizations and allow the 'heuristic reduction' (van Manen, 1990), that is the child-like wonder of exploring and discovering new things to take over. Now I'm listening harder and reading more carefully into the recordings and transcripts to come up with the next round of questions. I also see some themes/ topics emerging, for example, dissatisfaction with present formal learning, incidental learning at the 'edges' of the mobile practices, the 'taken

31 January 2013

Oh horrors! Despite what I tell myself, I've gone and done it. Faced by the sheer amount of data transcription and analysis, I've allowed myself to be 'taken over' by my previous knowledge and produced themes which are based on the different types of learning theories.

I had discussions with Alan and Richard and they're telling me that what I have are nothing new to contribute. More of the same stuff. I agree with them. I seem to be really having difficulty with seeing the forest for the trees.

I know I have some fantastic insights with some emergent themes that have surfaced, but I'm having difficulty seeing it using that phenomenological lens. I am currently re-reading the phenomenological readings again to get into the phenomenological perspective and stance again.

I'm currently preparing my conference paper for the IADIS Conference in March and I find that having this deadline helps me to increase my productivity and aids me in clarifying my thinking faster.

APPENDIX 2: INFORMED CONSENT

30 June 2012

Dear Parent/Guardian

Re: *Learning with Smartphones in Malaysia*

My name is Ms Chan Nee Nee and I am a Doctorate in Education student with Durham University in the United Kingdom. I am doing a project about how young people learn with their smartphones. Finding out about how young people learn with new technologies like the mobile phone would enable us to understand more about how learning takes place and may have possible value for learning in schools. I would really appreciate your help with this project by allowing me to talk to your son or daughter about how he or she uses the smartphone for learning.

I intend to talk to each interview participant who takes part for up to an hour and a half, depending on each individual. There will be 3-5 interviews with each participant who will also be asked to keep diaries on his/her learning. I will tape record the interviews to help me remember what they have said and to help me write a report. However, the interviews will be confidential and the only people who listen to the interview will be myself, my supervisors and my examiner, who will be checking my work. No-one will be named in the report and each participant will be given a pseudonym.

After each interview, you and your son/daughter will be given a copy of the transcribed interview for you to check if the information is accurate. A copy of the written report will also be given to you and your child for comment. At the end of the study, I will present and publish my results in order that other interested people may learn from my research. However, all information on the interviewees will be kept confidential. You may choose to stop your son/ daughter's participation in this research project at any time.

There will be no immediate and direct benefit to your son/daughter or to you, but your child's participation is likely to help us find out more about how learning with smartphones takes place and I hope that these findings would

help schools and other educational institutions improve their teaching and learning in the future.

Your son/daughter will not be provided with any payment to take part in the research. However, he/she will be given an M$50.00 gift voucher for his/her time, and travel expense.
If you are happy for your son/ daughter to take part, I would be very grateful if you could sign the attached form and return it to school.

If you would like to know more about the project or have any questions, please contact me at n.n.chan@durham.ac.uk. My mobile number is +60165579097.

Many thanks for taking the time to read this letter and for your help.

Yours sincerely
Nee Nee Chan

.

I am happy to let my son/daughter* (print name)…….....take part in the project “Learning with Smartphones”.

- I agree that the interview can be recorded.
- I understand that the interview will be confidential.
- I understand that my son/daughter can stop the interview at any time.
- I understand that I can stop my participation in this research project at any time.

Signed……Parent/Guardian

Please print your name……

Please return this form as soon as possible

APPENDIX 3: INTERVIEW QUESTIONS

ROUND 1 INTERVIEW QUESTIONS

1. What does learning mean to you?
    a. Can you give an example of learning?
    b. Where do you usually do your learning? Can you describe this experience?
    c. How do you feel when you learn? Can you describe these feelings?
    d. What goes on in your mind when you are learning?
    e. Do you learn by yourself or with others? Can you give an example?

2. What is your experience of learning with a smartphone like?
    a. Can you give an example of how you use your smartphone to learn?
    b. Tell me more about how you feel when you use your smartphone to learn?
    c. What are your moods and feelings like when using the smartphone for learning?
    d. What goes on in your mind when you are learning?
    e. Where (places/settings) do you usually use your smartphones for learning?
    f. What time (s) do you usually use these phones for learning? Is there a specified time and place? Tell me more about where and why….
    g. What are the mobile apps that you use the most? Tell me your experiences of using them.

ROUND 2 INTERVIEW QUESTIONS

a. Do you have an experience when you ask someone in the Internet community for information or help using your smartphone? Tell me more about this experience.
b. Does the smartphone help you to learn new things and skills and hobbies? Can you give some examples of these? Why do you say this?
c. Where (places/settings) do you usually use your smartphones for learning?
d. How do you search for information using your smartphone? Can you give me step by step what you do?
e. What are your reading habits like when you use the smartphone? Can you give me examples?

f. Do your parents, friends or family members influence you in your use of smartphones? Can you give examples of how they influence you? In what areas?
g. How does the average Malaysian smartphone user use their smartphones everyday?

ROUND 3 INTERVIEWS

a. Do you use your smartphone to reflect on stuff that you have done? For example, do you think back on some learning activitiy, eg. writing on your blog and examine to see if you could improve on your content or writing style?
b. Can you give me an example of how you use the smartphone to collaborate with your friends or people in your community? Example is a school project where you need to work together. Did you use the smartphone for the project? If so, how?
c. Have you used the smartphone to learn languages? Example: English or other foreign languages. Can you give me examples? How did you feel? What went on in your mind when you learn a language using your smartphone?
d. Do you prefer learning with an avatar/online learning or a teacher? Why?
e. Do you think the smartphone should be introduced into Malaysian classrooms? Why do you say so?
f. If it is introduced into classrooms, what is the best way to use it?
g. Can you give me an estimate of how much learning on the go that you do everyday? For example, the hours for searching information, playing games, social networking.
h. Tell me about your daily routine with the smartphone. Start from when you are about to go to sleep till the next night.

APPENDIX 4: SAMPLE OF ANDY'S WRITTEN REFLECTIVE EXERCISE

Exercise 1 (about 100-150 words)

1. Do you have an experience when you ask someone/friend in the Internet community for information or help using your smartphone? Tell me more about this experience.

I tend to use my computer daily for everything, so one day, my computer just wouldn't switch on at all. I switched on the power source as usual, and pressed the 'on' button. But the screen just wouldn't light up. So I used my iPhone to check out what might have been the issue about it.

A). How did I feel?

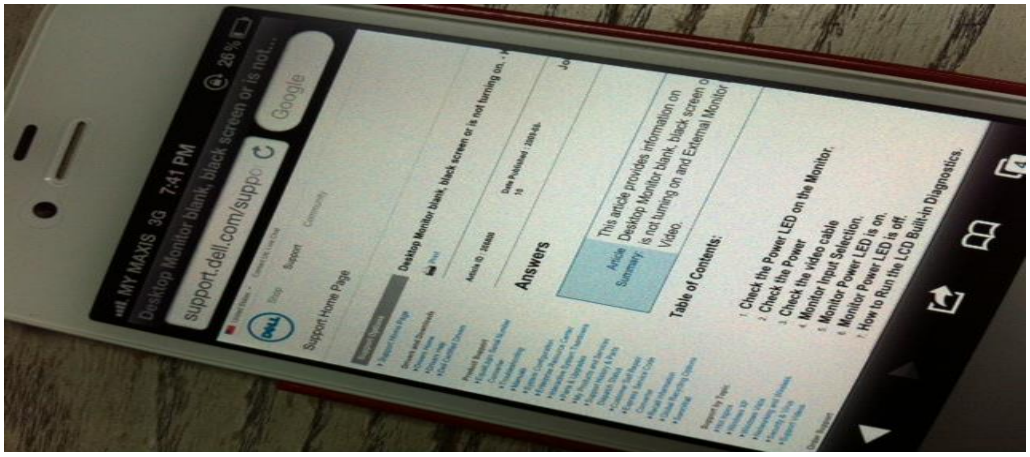
I didn't feel confident at first, as I this is quite technical and any wrong move might even cause my computer to stop working for good. So instead of following the words one, I followed the words of ten. I opened numerous forums to see if anyone else had encountered the same issue that I was facing, and fortunately for me, it seemed to be quite a common problem for everyone. All I had to do was to open up my CPU remove the chips and diskettes, give them a slight blow to remove any dust, replace them back to where they originally were and voila! My computer was back to normal.

B). Did it benefit me?

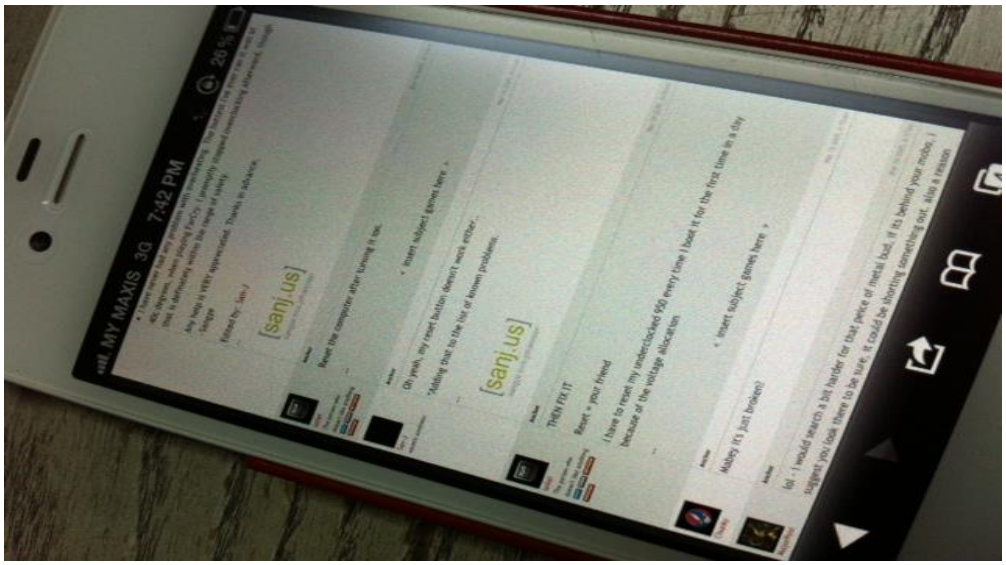
Yes it did. At least now I know that if such a minor problem occur again, I know what to do. From the answers that I've been reading through all these forums and help sites, I've learn a couple of 'safe' (By safe I mean methods that will do absolutely no harm at all to your CPU) methods to try before looking up more 'intensed' methods. Such as unplugging all the cables and replugging them back, or blowing off the dust inside the CPU.

Always start with Google, My Best Friend.

Then move on to ‘Help Sites’.



And then finally, Forums, the People’s Voices.



APPENDIX 5: FIELD NOTES OF CHUCK'S INTERVIEW

Field Notes (FN 1_Chuck_9 July 2012)

Date: 9 July 2012 (Monday)

Interviewee: Chuck in Penang

Duration: 61 minutes

1. Observational notes (ON) — 'what happened notes' deemed important enough to the researcher to make. Bailey (1996) emphasises the use of all the senses in making observations.

    - The interview took place in Chuck (pseudonym)'s apartment in Desa Bella. Chuck's parents: father studied in Harvard University and is a lawyer. Mother owns a salon. Chuck is in Form 5, a crucial year in the Malaysian secondary school system, and he takes his SPM examination at the end of 2012, the equivalent of the O Levels examination in the United Kingdom. Chuck belongs to the upper middle class society and all members of his family: father, mother and sister also own smartphones.
    - The setting: quiet apartment, with comfortable sofa in the living room where the interview took place. Chuck had requested that the interview take place in his home. He puts the music on the moment I arrived, to soothe the senses. I could tell that he was nervous at the beginning of the interview but gradually becoming more relaxed as the interview progressed. His hands shook in the beginning when he took hold of the informed consent forms and his voice quivered a bit at the beginning.
    - Throughout the interview, he took out his Samsung smartphone to show me for example, his archive of 4450 e-books, or to show me certain websites. In the midst of the interview, subconsciously, he was touching his phone, moving his fingers over the keypad and touching it for reassurance. It appears that the phone appears to be his important possession as he had to touch it time and again in the midst of the conversation.
    - He appears to be a very intelligent young person who has a passion for reading and writing. He asserts that he is so used to reading on his smartphone and any spare time that he has, he does it reading. He brings his smartphone to school and keeps it in his locker. After school, he is able to access it immediately to read or search for information.
    - Chuck appears very attached to his smartphone, which he says he would be very upset if his phone were to be lost. His main passion is reading and he has identified that he does this activity through his smartphone.

- He has high aspirations to be a lawyer or writer although he is equally motivated by the sciences. He mentioned that he has been influenced by 2 teachers in the past who have advised him and supported him in his writing.

2. Theoretical notes (TN) — 'attempts to derive meaning' as the researcher thinks or reflects on experiences.

   Sharples and Traxler's definitions of mobile learning: learning anytime, anywhere- have relevance for what Chuck describes.
   Rose (2011)'s *The Phenomenology of On-Screen Reading* can be used as a reference to probe further into reading practices using smartphones.

3. Methodological notes (MN) — 'reminders, instructions or critique' to oneself on the process.

   - Again, a reminder to myself –not to lead the interviewee too much. I'm better this time than compared to the pilot interviews but should leave the interviewees to lead the topics at times.
   - Need to focus on timing and relationship with others and settings as well in future interviews.
   - I must still be conscious of my biases, for example in giving my opinions on the state of Malaysian education and academic learning in Malaysia.
   - Chuck's feedback after the interview was that he thought it might be an awkward situation but he relaxed into the interview and he learned and enjoyed himself.
   - He felt I was a good interviewer, allowing him to talk and draw him out.

4. Analytical memos (AM) — end-of-a-field-day summary or progress reviews.

   This is a good interview as Chuck is a good interviewee with the ability to talk and discuss issues and experiences in depth.

   Learning

   - To him, learning is to get information and facts, to find out more about stuff that he wishes to know. He appears to thirst for general knowledge and to delve into many topics simultaneously: from Sciences, the Arts, how the earth works.
   - Learning is not only academic learning, in the classrooms but learning out of the classroom. He likens classroom learning to memorisation and the regurgitation of facts. To him, that does not represent the sum total of his learning. In fact, the valuable or significant learning takes place outside of the classroom. The general knowledge that he gets from reading: ebooks, Wikipedia and websites makes him, in his opinion a better person. It prepares him for the real world, not the world of examination. In his experience, some of his teachers have gotten facts wrong. He tries to point them out, outside of the classroom, after class, as he is conscious of showing respect to his teachers and of having to 'save face' for the teachers. Sometimes, his teachers may refuse to acknowledge his points and he feels

frustrated. He is unhappy with the Malaysian education system which he feels does not cherish or value independent thought.

Learning with Smartphones

- When he first received his smartphone, he felt a sense of euphoria. He could finally get hold of the apps and the features that his friends had. Although it's
- a trend to have smartphones, he feels he does not follow trends blindly. He wanted a smartphone essentially to learn new things, to do stuff that he could not do before. He went to the menu, checked out the apps and features, got advice from a friend on how to use a smartphone and played around to get used to using the applications. In the process, he felt satisfaction and happiness at learning this new device.
- This playing around and touch and experiencing stuff is one way that he learns. However, he also learns through visual and auditory means as well.
- (Note: the way he kept touching and playing with his phone subconsciously throughout the entire interview suggest a deep rooted connection to his phone; a style of learning which needs touching and showing)
- His main use of the smartphone is for reading e-books or Wikipedia where he sources for information. 70-80% of his time is taken up with reading e-books and websites, the remaining is for him to call friends or chat with them on *What's App.* He asserts that his smartphone and the Internet allow him access to free books and information which he otherwise would not have. Not all foreign books are ordered by the bookshop chains like Popular Bookstore or Borders in Penang. The cost of the foreign books would be prohibitive if he were to buy them. With his smartphone and the Internet, he gets these free of charge and he downloads these into his smartphone.
- He has downloaded 4450 e-books from the Internet, which he gets for free. He reads many genres from fiction to non-fiction. What is the benefit of this reading? Chuck is interested in reading as it opens new doors, new horizons for him. Through the characters in novels, he immerses himself in their stories, and they broaden his imagination. He is currently interested in pursuing a career in English and writing and as he is reading, he is on a meta level, reading for writing styles and grammar to improve his own skills as a writer. He feels happy, excited and satisfied to be learning through reading. He repeats the word, 'satisfied' many times.
- He reads non-fiction as well for example, on how the earth moves. He downloaded information from Wikipedia on the Black Death, Greek mythology and CDC (Center for Diseases Control) to his smartphone. The space on his smartphone is mostly taken up by downloaded information and e-books, such that

he is willing to delete and sacrifice applications and photographs in order to save space for his e-books and downloads.

- Such reading does help his academic subjects for example, the topic, CDC helps him in his Biology. Reading also improves his general knowledge and improves his language competency and ability to write. It helps him in subjects such as English Language, Bahasa Malaysia (the Malay language) and Mandarin as he uses his learning on literary styles, genres and writing and transfers such knowledge and skills onto these subjects.
- On the matter of downloads, he has to sometimes use his laptop to download the information and then transfer it to his smartphone (possibility of download speed of smartphone?). When asked if reading is difficult with a smartphone screen which is far smaller than a laptop, he said that he has adjusted to reading with a smartphone screen; in fact he felt that he is not used to reading from his laptop anymore: the screen is too wide. He is more comfortable reading using his smartphone, as he can hold the phone to read with one hand, just as he holds a book to read. It is the tactile feeling of holding something to read which he says is important to him. He does not get the same feeling or sensation when reading with a laptop. This, he says, is like reading an actual book and turning the pages: it's something soothing, reassuring to him that reminds him of the pleasure of reading. When he reads reviews on his smartphone, he writes down notes on a piece of paper. He likes this tactile feeling of writing using a pen and holding a smartphone, like he holds a book for reading,
- Using a smartphone to read is so convenient and access is easier compared to a laptop. Convenience and accessibility is top in Chuck's ranking for why he used the smartphone. He can read downloaded information immediately after school or in between breaks, at home, he reads most of the time.
- Chuck uses the laptop for gaming and research projects. He uses the smartphone mainly to read and search for information. He does not like to play games on the smartphone as he said that would be too tempting and used up his time, which he otherwise could use for reading.

Asking help from a member in the Internet community/getting support from communities of practice

- Chuck mentions 2 websites that he goes to: Watt Pad and Fanfiction. Both are like writers' clubs but Watt Pad is an application which provides access to aspiring writers to write their own stories and post them online in this site and members critique or write reviews of these stories. Fanfiction is a website to enable fans of famous books to write prequels or sequels.
- By reading the forums and discussions, Chuck is able to pick up tips on writing and styles. He finds that in writing reviews, he tends to be very sarcastic and he

seems obsessed with picking out grammatical errors of the writers and pointing them out.

- He reads book and movie reviews from fans and movie goers to get a sense of which movies he should view or what books he should read. He trusts this community of people more on their views than those of the establishment like journalists and company people.

Learning new things, skills and stuff

- He mentioned that when he needed to learn on how to care for dogs or about grooming, he went to youtube videos and websites to learn. For example, he used his smartphone to find out how chocolates and dogs do not match and he then advised his aunt not to give chocolates to her dog.
- He's interested in learning how to mix drinks and have been reading avidly on his phone on this topic.
- He's interested in cooking and recipes and though he has yet to cook something from scratch, he reads up on French and Italian recipes. In the past, he used to read recipes of food he would like and translated them into Malay for his Indonesian maid to cook for dinner. He's also preparing for study overseas, so he downloads these recipes, eg recipes from the cable show, 'Hot Guys can Cook" into his smartphone. He's interested in French recipes (thinks that French food must be absolutely the best) and Italian food as he likes pizza.
- He's also learning some French by using Google Translate. He uses Google to access French language websites as well.

APPENDIX 6 EXCERPT OF FIELD NOTES 11 JULY 2012

Methodological notes (MN) — 'reminders, instructions or critique' to oneself on the process. FN_Stevie_11 July 12

- *As Stevie's answers are short, I find myself having to speak more and probing deeper.*
- *I'm conscious of my bias against the Malaysian secondary school education and in my questions and comments on this topic to Stevie, I am showing bits of this bias.*
- *I need to acknowledge this more to my participants so that they are not swayed by my opinions*.

APPENDIX 7 EXCERPT OF FIELD NOTES 15 AUGUST 2012

Methodological notes (MN) — 'reminders, instructions or critique' to oneself on the process.

- *It's awfully difficult to 'bracket' oneself and to be constantly aware of how my biases or prejudices intrude into the conversation.*
- *I constantly remind my participants to disagree with me if I bring up certain practices or thoughts that they don't carry out or possess. I tell them to keep using their own words because that's what I'm after.*

FN 2_Ben_Bloggergirl_ 15 August 12

- *I want their distinctive voices to emerge. Of course, there is need for much probing, because the teenagers tend to give surface comments that need to be probed.*
- *Another way that I prevented myself from interjecting or giving too much of my opinions – I started writing more and more notes of the interview. I observed that when I wrote more and was not having eye contact with my participants, they tended to talk longer and in greater depth. There needed some probing, but I could do this even as I wrote.*

APPENDIX 8: AL'S INTERVIEW TRANSCRIPT

Interview with Animal Lover (IN 1_AL-12 July 12)

Interviewee: Animal Lover (Al)
School: KDU College, Penang
Smartphone: Sony Ericsson
Sex: Male
Age: 19
Duration of Interview: 55 minutes, 43 seconds
Date: 12th July 2012
Location: Interviewer's home in Tanjong Bungah, Penang

Interviewer (I): Al, thank you for coming and thank you for taking part in this interview. So I am going to ask you first, when you look at the word 'learning', what do you think learning means to you? Can you describe it?

Animal Lover (AL): Learning for me is like… Getting to know something new. Gradually… growing on something based on the knowledge that I have learned.

I: Learning something new and … improving upon your knowledge?

AL: Yeah.

I: And skills?

AL: Yeah

I: Skills also, ok. Yeah. When you think about learning, do you think about learning only in let's say in KDU, inside your classroom? Or do you think learning as in anywhere?

AL: In that way, in college… but in other ways, outside also. For example, maybe…through talks or maybe even some practical things that someone teaches you or something.

I: Ok. Good. So when someone teaches you about something practical, can you give an example?

AL: Practical… maybe, for example… my friend… errm he is working as a bartender.

I: Ok.

AL: So for now he is a beverage guy. He will teach me about the cocktails and all, like the presentations… In that way it is something practical.

I: Ok so he demonstrates and then you practice? So very good, so you are learning that. So now let's come to your smartphone…ok? If it's your smartphone, what kind of learning do you use your smartphone for? Do you think that you have actually learned using the smartphone?

AL: Yeah I actually learned a lot using the smartphone. Maybe from my French language.

I: Ok.

AL: I usually download dictionary stuff, because it's easier that way than to carry a book around. I download the French dictionary from the Internet, and if I want to find out what a French word means, the answer is already there in the smartphone.

I: Ok, very good! So you downloaded the French Dictionary into your smartphone, which website do you go to usually?

AL: Errmm… My android has the android market.

I: Ok.

AL: So if I go through that app, you get most of the things there.

I: So let's say you can get a French to English Dictionary from there?

AL: Yeah.

I: And you download it, into your…??

AL: Smartphone, yeah.

I: Does it take up too much memory?

AL: Errm.. not really, maybe around 5MB.

I: Ok, so it's very good? And it helps you a lot?

AL: Yeah it helps me a lot.

I: How does it help you?

AL: Errr for example during class.

I: Ok.

AL: The lecturer gives a word and I don't know its meaning, or maybe we have to write an essay or something and you can use your book.

I: Mm-hmm.

AL: So instead of using the book we use our smartphone.

I: So that you can get the translation straight away?

AL: Yeah.

I: Ok, very good, so it's great because it helps?

AL: Yeah.

I: And I think most importantly, is it free?

AL: Yeah.

I: Ok. Rather than buying a book right? So that's one of the ways you learn. Do you find your proficiency in French improving faster this way?

AL: Yeah. When you have a book, a thick book, you have to take the book and open it and search. With a phone you can type your word and find out more about it

I: Ah. Ok. That means when you are doing this French eh, do you only use that French dictionary in your smartphone only in the classroom or outside?

AL: Outside too. Anyway also.

I: Where do you usually type it?

AL: Mmmm…Maybe when I am taking a bus back to my hometown, maybe during the ride sometimes instead of using the book, I will be using the phone.

I: Ah. Ok. That means on a long bus journey and you are going back to Sungei Petani… So you actually use the smartphone? To check French words or you are doing …

AL: Even Mathematics too.

I: So it's anytime learning?

AL: Yeah.

I: Ok, very good. Anytime learning. Very nice eh? Catchy eh? So that Is one way in which you use your smartphone to learn? Is there any other way that you use your smartphone for learning?

AL:Mmmm…maybe with Adobe?

I: Let's say for example do you use your smartphone to err… access information, to search for information?

AL: Yeap.

I: You told me that the last time. Can you give me a specific example this time? Describe it you know, what you usually use the smartphone for?

AL: I usually use the smartphone for the Internet accessibility. Usually Google.

I: Ok.

AL: So like now, when the lecturer says, search for this, let's say a special kind of drink where it usually ferments, liquer, and you want to filter it, you use pure diamond. And inside the bottle itself are pure diamonds. And they say you get some sort of health benefit when you drink it. So he said, search for a picture of this drink. So when looking for the picture, it's easier to search on your phone rather than use your laptop.

I: So that means your lecturer actually encourages you all to use your phone to search for pictures and read up?

AL: Yeah.

I: So your lecturer is already using it in a way, using the smartphone for learning.

AL: Uh – huh.

I: Very good. He acknowledges that you all have smartphones and encourages you to use it for learning. Who is it? Prakash?

AL: Uh – huh.

I: Smart eh, he? So when you all use that, it's like an aid in the classroom? It's helping you all to check about all that?

AL: Even some of them don't have a smartphone, can share with those who do.

I: Very good. In a way you get the information in your fingertips. That's fast. So wonderful. That's one way you use it. Do you use it for other things? If I were to take a hundred percent of your time on the smartphone, what is the percentage for checking for information? How much is it for other things?

AL: For the checking of information, around 60%.

I: 60% of your time spent on your smartphone checking for information? So you use it more like a resource? Like an encyclopaedia or websites…

AL: Because it's convenient. You have a phone that you can check anything you want rather than a laptop or something.

I: Why don't you like the laptop?

AL: Usually you carry around your smartphone everywhere you go. There and back and something.

I: So you all leave your laptops at home?

AL: In a way yes.

I: And the phone is for checking?

AL: Yeah.

I: Ok, very good. Then for the other 40% , what do you use the smartphone for?

AL: Errrm, games usually.

I: How many percentage of your time for games?

AL: Errm… 40 or 50.

I: 40 or 50 also er? That's quite a lot right?

AL: Yeah, yeah.

I: So what kind of games do you play? Can you give me an example?

AL: Errm. *Temple Run*.

I: Ok, I think you have told me before. Can you describe what *Temple Run* is?

AL: It's like a motion depicter, you have to move your phone. And the guy in the game will jump over things, over obstacles and all.

I: Oh ok.

AL: Yeah. And another one… I recently downloaded this app about beverages …

I: Beverages?

AL: It's called *Bartender*.

I: Ah.

AL: There are bottles with an orange straw, and you have to pick one. And you have to quickly mix it. So if your drink is nice, the guy will be tasting, and he will be like, 'cool'! And you will be awarded points for that. If it's not good, he will be like, faint! Or something like that.

I: Oh.

AL: So in a way you know what kind of liquid to mix in a drink, that sort of thing.

I: Ok, very good. So do you think that by playing such games you are actually learning?

AL: Yeah.

I: You are learning a lot, right? It's simulation and… what else? What does it test you on?

AL: Ummm…The amount for every drink.

I: For the different alcohols?

AL: And the juice.

I: And does it encourage you, these games, to be creative?

AL: Yeah.

I: It does? Ok. And what will happen if you mix all the funny, funny drinks? What will happen?

AL: There will be fainting… and he may even die.

I: He may even die?! It tells you there's a penalty? Ah, ok, interesting.

AL: Yeap.

I: So you play this game to revise, on what you have studied?

AL: Mmm Hmm.

I: Is it competitive this kind of game? No?

AL: No.

I: It's more like, testing your knowledge??

AL: Testing knowledge.

I: Does it let you experiment?

AL: Ah. Yeah. You have to experiment, and if it's… let's say, good? If it's good, it will say it's good, but you have to add this… yeah.. so it's teaching you also.

I: Ok very good. So this kind of Apps, or games, actually teaches you, you know, and encourages you, and gives you time to practice? Is it true?

AL: Yeah.

I: OK, very good. So you are learning. Let's go back to *Temple Run*. You did *Temple Run* right?

AL: Yeah.

I: So if you play *Temple Run* er, what type of skills do you think you are improving in? Or what sort of skills are you utilizing?

AL: Err maybe… what I usually play it for it to beat my high score.

I: Ahhhh.

AL: You compare with your friends and stuff.

I: So you say it's sort of a sensor that moves, so it tests your reflexes?

AL: Mmmm.

I: How fast your reflexes are?

AL: Because you are going in a straight road, and suddenly there will be turnings. And you have to quickly turn.

I: So you have got to turn, left or right… so you only need to turn? That means you are only running?

AL: Yeah.

I: So it tests how fast your speed is?

AL: And also there will be like, some parts you need to go down, you know, duck down to avoid obstacles like a branch.

I: So that means you are using all kinds of reflexes?

AL: Yeah.

I: Right hand, you know, left thumb, or whatever… that kind. Do you think it helps you in any way?

AL: Errm…

I: After playing these kind of games?

AL: Maybe like it gives you… after long hours of studying it makes you relax.

I: Ah.

AL: Yeah.

I: It also helps you with reflexes right? Do you know surgeons are playing games Just to help them with their reflexes. Their hands, yes… Because it makes them more agile. It's required nowadays for some hospitals.

AL: Ah.

I: They concentrate and they go right, left. That's the good thing about games… Ok, any other games do you play? Besides this *Temple Run* and all that?

AL: Mmmmm. *Sims Ville*?

I: The Sims one? *Sims Ville*?

AL:Yeah.

I: Can you describe it in greater detail? Because I sometimes need to quote some of what the participants say.

AL: The Sims game I am playing now is Sims 3.

I: Ok.

AL: So you first need to create a character, and you have to create your whole universe, where you go to work what you do…

I: Ah haha.

AL: Now the new one even has fishing… It's like you are creating your own home, stuff like that.

I: So, what have you created?

AL: Now I have created a house

I: Ok.

AL: Swimming pool and stuff

I: Waaah… Ok. Like your dream-house, dream-home

AL: And in the place of work, gradually you can increase , like get promoted to a higher post.

I: Ahhh. Ok. So what are some of the steps you undertake to get this kind of home or to get a house?

AL: Errr…On the home, after you have worked for…maybe six months, but if the phone is like maybe a few days, then they will ask you if you want to upgrade yourself to a larger home, but your working place will be different. Then if you agree, click yes.

I: Ah. And are there any obstacles or any trials you have to accept to go to the next step?

AL: There will be usually… like they will ask you questions about the job, and you can pick the job, what kind of job you want to take… work in a bank or something. So if it's in a bank, there will ask you like some simple calculations.

I: Ah. So you have to pass this test before you are awarded the next post?

AL: Even in the house where… for like example your TV is not working? There will be a light blinking in the side of the room, and you have to go and click it and there will be like, a corner with a box with bulbs and all, and you have to click and transfer the stuff over.

I: Ah. Wonderful. So it's almost real to life, right?

AL: Yeah.

I: So then, what kind of knowledge and skills are they tapping on? That means you need to have knowledge to go to this side, or switch on the TV or whatever, so what kind of knowledge are you using to play these games?

AL: Mmmm…

I: It could be everyday knowledge right?

AL: Like sometimes you need to plan, like you need to save money before you can buy equipment for your house and all… For bills and when you need to pay out money…

I: So that's very good… isn't that like teaching you things on how to budget, plan, even on how to organize.

AL: Even your food in the refrigerator. Like any food, like 1 unit of food may cost 5, or another unit may cost 15, and if you save more you can buy more food.

I: Ok, very good, so it's teaching you all these skills, and using your knowledge of such skills that you have learned perhaps, and how to budget and how to build a house…
AL: Yeah, if you want to buy a car you have to save up before you can do that.
I: What if you can't drive? Do they make you go through a car test or anything?
AL: No.
I: No, but you have to save up for the car, the fridge and the food and all that. So let me just say that if you are building and you have a house now and you have a fridge full of food, do you keep checking? In case the food runs out or whatever?
AL: Yeah.
I: You do? So are you obsessed with it? Like all the time you are always checking? No?
AL: When I log out of the game, it will be like, saved.
I: So it can be saved? Like it does not run on in real time, and you don't have to worry that you have no food when you go to your house.
AL: There are even markets, where you can buy groceries and stuff. You can even cook. You need to go to another shop to buy the recipe, and then you must go to the market and buy the groceries, then you come home and cook the stuff.
I: Wonderful. So it's like keeping house, and having a shop… so what type of feeling passes through your mind when you play this kind of game?
AL: Mmmm….
I: What's in your mind when you play this sort of game?
AL: Like, I want to feel like, how far the thing can come… or some skills like, when you repair the TV. Your skill level will go up… Higher, higher and higher. That means it will be easier for you to repair things and stuff like that.
I: So do you think that you improve in real time? Your skills?
AL: Mmmmm… maybe mostly budgeting wise, and stuff like that.
I: Ahh.. More in Planning?
AL: Planning.
I: Planning and organization?
AL: Saving.
I: Does it help you in transferring knowledge and skills into other parts of your life?
AL: Yeah.
I: In what way?
AL: Mmmm... you know like, the cost of food and all, with how much you save, you can like buy better things…
I: In your real life? So you also find out that money runs out in real life?
AL: Mmm.
I: Yeah. You can transfer such knowledge.
AL: Even… you save money you can buy a normal computer and stuff like that. And you can surf the Internet and buy clothes…
I: And all that is good? So it's like a make believe, but once you learn it, you can actually transfer it to your real life? The budgeting, the planning, the organizing… You play different

games eh? Different types eh. One is like to grow or to plan, another one test your reflexes, another one is beverage… so wonderful, games actually helps you a lot. What kind of feelings do you get when you play the games?

AL: Errmm… Relaxed and happy… when you pass a certain level, or a certain point, and you beat your old high score.

I: So you feel happy? And Satisfied?

AL: Yeah.

I: What else do you feel?

AL: Mmmm maybe it like…release your stress for a while, and then it helps you to relax and then you can continue studying.

I: So it puts you into another world? Very good. Then what about… when you are playing the games or whatever you know, are you seated in a very comfortable chair, or can it be standing while waiting in line or something like that?

AL: Errr… anywhere will do… even when you are walking you can always play some games… something like that…

I: Isn't it dangerous to be walking while you are playing games?

AL: Errr.. I don't usually play games on the street… like maybe around college, or something like that.

I: Or when you are waiting for somebody… so you play the games… So it doesn't matter it has to be a comfortable chair or something… you can do it anywhere? So it's anytime learning?

AL: Anytime learning.

I: Anywhere learning?

AL: Anywhere.

I: Anywhere learning. Ok. So it's anywhere you are comfortable?

AL: Yeah.

I: Is it a reflex action where you must take out your smartphone or mobile phone when you are alone …

AL: Yeah

I: Is it?

AL: Yeah.

I: Why do you all do that?

AL: It's like… when you are alone… you want to hold something… like you want to draw your attention to something… you'll feel awkward Just sitting around… so if you have a phone you'll be occupied. Rather than just sitting and staring.

I: And you feel like you are doing something meaningful?

AL: Yeah.

I:Yeah you are right, when most people are alone they feel lonely and awkward right? So you used the word awkward… so you just want to have a companion, so a smartphone or a mobile phone becomes your companion

AL: Maybe.

I: Most people, like even me, when I am alone I take out my smartphone while waiting and start looking at messages, or start playing games… So the playing games are 40 – 50%?

AL: Mmm.

I: Then you are looking for information? Then what about like Emails or SMS? Do you all use it anymore?

AL: Emails I don't usually check using the phone. Usually I go home and check them on my laptop.

I: So the laptop for emails… Even SMS you all don't use so much now right?

AL: Yeah.

I: Facebook SMS, Facebook messaging or other apps right?

AL: Yeah.

I: What Apps do you use?

AL: Err What's app? When you have internet connection, you can message anyone for free.

I: For free. I think I must get this app. Everyone tells me that.

AL: There is another one, Viver.

I: Viver. How do you spell that?

AL: V-I-V-E-R

I: V-I? V-E-R. Ok. What does it do?

AL: It's an application where you can even call for free if you have an internet connection.

I: Mmm… wow. Ok. That means wireless? Wifi? So then you can call for free? Anywhere? Or only in Malaysia?

AL: Err I think anywhere is possible.

I: Ah that's good er? So mobile phones are good. So in that sense I can see that you are searching for information for work? Work like French? Or other work like beverages and learning and all that. So do you use it to search for other things?

AL: Mmm… Yeah sometimes I will get applications for ringtones…

I: Ringtones, is it?

AL: Yeah.

I: You like ringtones right? I remember you mentioning it the last time. So what do you look for ringtones for?

AL: Depends. Certain apps, the normal songs on your phone. You can cut and make it into certain parts…of the music and make it into a ringtone. And we have an application called *Zedge*.

I: *Zedge*? How do you spell that?

AL: *Z-E-D-G-E*

I: Oh, Zedge. What does that do?

AL: You can play all kinds of ringtones… funny funny kinds… like a baby laughing or something… a dog barking…

I:So you like that?

AL: Mmm.

I: So you like to mix and match?

AL: Yeah.

I: So it's actually creativity right? Ok. So, you do that all using your smartphone?

AL: Yeah.

I: So when you download it, can you give me an example of you created your own ringtone?

AL: Errmmm… So for the ringtone one, you download the application and when you click it, you scroll down the list of songs.

I: Ok.

AL: So you pick your song, and the thing will be playing and you will have like, a graph.

I: Ah.

AL: So… when it's coming near your graph, the part you want to cut, you press the top button? Then you drag this line to the end… and indicate the duration of the song you desire to be lifted and copied… and then you press play.

I: Oh.

AL: So the song will be cut into the part where you want it.

I: Ok. So after you cut it, what do you do?

AL: I usually put it as my ringtone.

I: Put it as your ringtone… Ok… Do you sort of like add it with some other music or something like that?

AL: Yeah

I: How do you do that?

AL: After you saved that ringtone you need to do another ringtone.

I: Ok

AL: And then... you open the app again and both songs will be there. And then you need to press combine, and you need to do the same thing. So you take this song and you put… maybe firts this song will be playing? And then you add it to the end to the other line.

I: So what happens if you mix it and the song doesn't turn out so nice? So what do you do?

AL: Errr…

I: Or usually it's always very good, so there's no problem there?

AL: Sometimes it doesn't turn out good so I just delete it.

I: Delete it. And you try again?

AL: Yeah.

I: Ok. It sounds as if it's quite a creative err…tool right?

AL: Mmm Hmm.

I: You create something and you put it together and this new ringtone err… it says it's specially created by you, right? So how do you feel when you do that? How do you feel when you created this new ringtone? Or bits of other ringtones put together as a new ringtone?

AL: Mmmm… like if the ringtone turns out good, you can keep it as your ringtone.. and people will get to know it's nice ringtone and stuff like that. They will keep asking you how I made it and all.

I: So when you do that how do you feel?

AL: Yeah, I feel happy and proud.

I: Yes! You are happy and proud right? You feel like a sense of achievement, so…

AL: Yeah.

I: Ok, very good. It's like a creator you know. You feel happy… So what goes on in your mind when you are creating these ringtones?

AL: Mmmm. Like getting a good song… remixing both songs so I can get a different kind… a new kind of song, rather than the ordinary kind…

I: So in your mind when you are doing it, are you thinking of the objective in mind? Or are you thinking that I am going to please somebody..or…

AL: Yeah to please… for my own satisfaction… like that… The whole ringtone is mine…

I: So it identifies you when somebody creates it, and somebody praises you for the ringtone… good, because I am finding out your experiences… so all this is part of your experience that's why I am asking these kind of questions.

AL: Ah right.

I: So ringtones… you do those once a month, or once a while, or once half a year or… you don't change ringtones that easily right?

AL: Maybe four or five or half a year?

I: Once every four or five months, or once every half a year? Before you change it? You get bored with the old one?

AL: Yeah.

I: Ok, all right, I know you young people get bored quite easily. And it's to do with identity also, that ringtone identifies you.

AL: Mmm-hmmm

I: Very good, that is also very creative, you are learning something. Do you also use like, when you are searching for information… do you use your smartphone to search for information on new hobbies you like to try out?

AL: Mmmm…information…

I: Like, what's your newest hobby now? Or some new thing you really love right now? Besides mixing drinks?

AL: Errmm… Usually tech or… movies?

I: Movies? So you like movies a lot.

AL: I read about the ratings, or reviews, like who directed it…

I:Ah. Very good. So what you mean is you go to the website that writes movie reviews?

AL: Yeah.

I: Why do you read the movie reviews?

AL: Like for some… before I watch the movie or buy tickets usually what I do is read about the director, to find out if it's a good movie…

I: So do you trust the people who writes the reviews?

AL: Errm yeah.

I: You do?

AL: Yeah.

I: Who are the people who usually … that means that you read what the director says, you read what other people say, so from there you form an opinion?
AL: Yeah.
I: Have you written a movie review yourself?
AL: Errrm no.
I: You never bothered ? But you do trust other people?
AL: Yeah.
I: So which websites do you usually go to?
AL:Errmm… I just search it in Google. Reviews.
I: Reviews.
AL: Movie Reviews. Director.
I: And the name of the movies?
AL: Yeah.
I: So from there you get a look at … yeah… So what are some of the movie reviews in America and not in Asia?
AL: Mmmm… Doesn't matter.
I: Doesn't matter? Because it's like a general opinion?
AL: Yeah
I: So you trust the movie reviews? So good, you search for information even for your own entertainment. Ok, do you ever for-see yourself writing a movie review in future?
AL: No actually.
I: You don't? You don't want to go into that? Do you blog?
AL: Errmm blog? I don't usually blog but I love to read the blogs of others.
I: Ahhh. You like to read! So what kind of blogs do you read?
AL: Usually my older sister's one… on Twitter. Two of my older sisters are… one of them is in New Zealand. She usually blogs stuff. And the other one…Singapore.
I: Intending to work in Singapore. Ah. So do you read through your smartphone or your laptop?
AL: Er smartphone.
I: Smartphone. Why are you choosing smartphone a lot? I keep asking that because I need to come out with the experience you know. Why do you choose the smartphone over the laptop?
AL: Mostly… The phone is with me. And sometimes in college after class, we have like breaks in between. So rather than taking a laptop we prefer the smartphone.
I: And you sort of like keep up to date with your sister or your cousin's activities. So in between you are reading these kind of blogs.
AL: Yeah.
I: So you don't even need to download, you just need to access Google and … Ok wonderful. So you are reading and keeping in touch. Ok. So is it true that girls like to blog more than boys?
AL: Yeah.
I: Ok. Why do you think so?

AL: Because boys they don't usually blog and write about their activities and stuff like that, whereas girls they usually just take photos whenever they go out. And they write about what they have done in the day and other small, small stuff.

I: Small, small stuff? But you go and read their small, small stuff? So you don't mind if other people write, it's just that you guys don't do that? Ok. All right. So you do keep in touch and blogging is still important.

AL: Yeah.

I: Not you blogging but reading the blogs.

AL: Yeah.

I: Ok. All right.

AL: Because sometimes it's interesting. Maybe she talks about something…

I: So what goes on in your mind as you are reading this? See I come back to the same question. What goes on in your mind when you are reading such blogs?

AL: Well.. when you reading the blogs, it's like you want to know what's happening…usually they post photos… something like that…

I: So they like to post photos? What about you yourself? Do you take a lot of photos?

AL: No.

I: You don't? Ok.

AL: My Facebook photos are outdated.

I: Your Facebook has some photos but they are outdated?

AL: Yeah.

I: But a lot of your friends use Facebook for photos right? Why do you think they like to take photos?

AL: Mmmm… Some of them usually they take the photos because they want people to 'Like' the photos. But usually girls do that a lot, they have like 4 or 5 albums.

I: So they like to go that and you all will go and read…So you don't mind other people taking photgraphs? What about guys? Do you think they take as many photographs?

AL: No.

I: You don't er? It's more a girl thing.

AL: They usually take a lot of random pictures.

I: Ah. But for yourself? Do you use your smartphone to take pictures?

AL: Yeah…on the street and stuff…

I: Even in class? With friends and all that?

AL: Yeah.

I: So why do you all like to do that? Like in class somebody is playing around you like to take photos?

AL: Yeah.

I: Ok. So after you take a picture of a person fooling around, what do you all do?

AL: Facebook.

I: Oh you all upload on Facebook.

AL: And we usually tag everyone.

I: So let everybody know? Then the conversation continues?
AL: Yeah.
I: Then everyone comments and you continue commenting on the comments. So it's a very communication thing right?
AL: Yeah.
I: And a networking thing right? So you do that also? Ah ok. So why do you think you young people like to do that?
AL:It's like er…Fun and memories. Something like that.
I: So fun and memories and… something important? It's important in life?
AL: Yeah.
I: How is it important in your life?
AL: It's like… whenever you get bored or something, oh and then you see these pictures, and then you remembering the fun stuff that happened.
I: Ok, it gives you a memory. It's almost like a photo album? So it's like for old people who have their physical photo albums, you young people have your photo albums on Facebook?
AL: Yeah.
I: Ok do you all mind if too many people gets to see it?
AL: Errm…
I: Because it's quite public right?
AL: Actually we don't really…
I: You don't mind?
AL: We usually post it in a group? We have like… different pairs of groups? So we post in the groups so no one can see.
I: Ok. So it's the tags for example.
AL:Y eah.
I: I haven't done it before so I don't really bother, but I know they have a group just for KDU… a group for your Hometown? So when you want to post you just tag those people?
AL: Yeah.
I: And only those people get to see.
AL: Mmm hmmm.
I: So there is some sort of privacy? So at least you don't really…
AL: You don't really share with everyone
I: Yes you don't share it with the whole world? It's like for friends? Or friends of friends of friends? But not for the public? Or something like that.

I: So if I were to ask you to describe your smartphone…how important it is to you?
AL: Err… smartphone is like, something necessary?
I: Ok.
AL: Because… it enables us to have something to do. So without it, it's like something is not there. You get bored.
I: So your smartphone is like a companion? Can I describe it as a companion?

AL: Companion.
I: A companion very necessary?
AL: Uh huh.
I: Keeps you company?
AL: Yeah.
I: And does it help you in your learning?
AL: Errmm yeah. It helps me a lot
I:It helps you a lot right?
AL:Yeah.
I: In what way has it helped you to learn? Can you summarize how has it helped you to learn?
AL: It helped me to learn like… things you learn in the classroom. The theory. It gives you a fun way of learning.
I: Ok. The beverage one is an example. Is there any other example?
AL: Mmm…
I: No? Any business module?
AL: Oh yeah. Last time we used to play *Dinner Dash*.
I: *Dinner Dash*? What is that?
AL: You have to control your equipment to do things like clear the tables, stuff like that. Take the orders.
I: Wow! Exactly like serving in a restaurant?
AL: Yeah.
I: So did you deliberately you play that? Why did you deliberately play that?
AL: When I was having *servic*e (module).
I: Ah, your service module? So you did that in order to practice?
AL: Yeah.
I: Did it help you a lot?
AL: Yeah.
I: Good, good. Who told you about this game? Or did you find it by yourself?
AL: Find it by myself.
I: Very good. And everything through the smartphone? So did you find your skills improved? It did? In what way?
AL: Like… clearing faster… helps me to take orders more efficiently… stuff like that.
I: So it helped you to serve the customer better. Any other ways it helps you in other learning?
AL: Through games.
I: Through games. Yeah. Finding out information?
AL: Yeah. We used to have a 'Cultural Studies' subject, so I downloaded an application to update all the emails and notifications through Facebook.
I: Ok very good! So you download it so you can keep yourself updated on your Cultural Studies subject.
AL: Yeah.
I: So like… you have background information…or when you do projects?

AL: Yeah.

I: Ok. Why do young people download as opposed to just reading it on the website?

AL: Download is easier for you to check. Like sometimes you don't have to go through the Internet but you are still able to check stuff. Because it's always there. As opposed to the Internet having to be kept being refreshed constantly.

I: So if your Wifi or your Internet is not working then you have a problem. So the downloading is for you to keep, so whenever you switch it on the content is available for your viewing pleasure?

AL: Yeah.

I: So very good. So it's really like helping you in your studies and all that. So do you feel that this learning through your smartphone, 'Informal Learning', which takes place outside of your classroom is more valuable to you nowadays or just as valuable as your classroom learning?

AL: Maybe both are almost the same.

I: Almost the same.

AL: But learning outside is more fun… You are doing other stuff, but in a way you are learning… almost the same.

I: And it helps you and it builds up your knowledge and your skills?

AL: Yeah.

I: So it really like… brings you to a higher level?

AL: Yeah.

I: In that sense err.. Do you think that academic learning, the way it is being done now is it not as fun as the way you learn on your own?

AL: Ermm yeah. It's… well… the way they are teaching is more fun…

I: Ok.

AL: They have more practical stuff, and less focus on theory than teaching…

I: So if you have some practical and theory mixed then you can remember better.

AL: More knowledge.

I: More knowledge. So when you are learning with the smartphone, do you usually learn by yourself or with a group of friends? Or with other people?

AL: Through the phone.

I: Through the phone.

AL: Usually one person finds the app, he tries it out and lets other people know what he thinks. Then if it's good, we spread around about the application then everyone gets to know about it and we all use it.

I: So all of you use the app together?

AL: Mmm hmm.

I: Ah. Wonderful. So in that sense you are actually like doing like group work.

AL: Yeah.

I: Do you do homework this way?

AL: Errr homework…Nah.

I: No? Not really? But you all are using the same app like *What's app* or something like that? Ok. Let's say just learning alone, are you a person who likes to learn alone or with people?

AL: Mmm… maybe.. alone?

I: Alone. Why do you need to be alone when you learn?

AL: When I am alone I can concentrate, where else if I am with people I usually talk with them and I look around and all. So actually I am not very serious in learning when I am with people.

I: Ok so you like to learn alone? So err, I have this little exercise, can you bring it home and think about it. Is there somebody that you have asked through the smartphone for help? On the Internet community? It could be that you chatted with somebody on the website on a movie? Or it could be that you tried to build something and you went to this forum or something/ So you think through and could you write just maybe a hundred words for me. So this kind of thing, later on thinking over it when I talk about it later, it gives me quotes so I can quote you all later. Do you have let's say .. when you get back your mobile phone, your smartphone, can you get a picture of your mobile phone or of a site? So it might be somebody else taking a photograph or you can come here and I'll take a photograph of your smartphone with the website, so that becomes like an artefact. Like evidence. Like a photo. So when I do my dissertation, part of my dissertation I may put in photos or pictures, it's a bit more interesting than words all the time you know. So we call it artefacts. It can be a website, a picture of a website, or you can send me a picture of something that you have taken. It could be beverages or something, but through the smartphone just to show me that you have used the phone in that way. And that if you bring the photographs the next time, we will talk around the photographs. Like when you took this picture what did you do… in great detail.

AL: Ok.

I: So that later when I am writing and discussing it, I can build a whole conversation around it and that it's like several paragraphs of description about it.

AL: Yeah I know.

I: So like finding out and learning. So seriously like say, this is how the learning takes place. Yeah?

AL: So like when I am back home, I open the application.

I: Ok?

AL: Then I take a photo through another phone?

I: Yes. If you can't then it can be a photograph or a game or whatever that you have, or from that website find a photograph or whatever, just send that photograph to me.

AL: For example I take a photo of it, and then I send it to you straight.

I: You can send it to my email? Then we can talk about that photo the next time. I can open up the photo on my laptop, and then we start talking about it.

AL: Yeah.

I: Why did you choose it, what feelings… What goes on in your mind, where did you…. How did you do it. That's because I am trying to find out where learning takes place, how it takes place, how do you feel when it takes place. That's my research. Then I will compile all my findings from a pool of students and try to identify and similarities or interesting findings. Ok? All right. Thank you.

APPENDIX 9: INITIAL ANALYSIS OF INTERVIEW 1 EXTRACT, AL, 12 JULY 2012, L11-77.

Original Transcript of Interview 1 with Al, 19 year old student	Meaning	Concept
Interviewer (I): Al, thank you for coming and thank you for taking part in this interview. So I am going to ask you first, when you look at the word 'learning', what do you think learning means to you? Can you describe it?	What does learning mean to you?	Learning (L)*= new knowledge
Animal Lover (AL): Learning for me is like… Getting to know something new. Gradually… growing on something based on the knowledge that I have learned.	To know something new, add to my knowledge	L= building on knowledge & skills L= practical learning
I: Learning something new and … improving upon your knowledge?		
AL: Yeah.		
I: And skills?	To improve my knowledge and skills.	L= inside and outside classrooms
AL: Yeah		
I: Skills also, ok. Yeah. When you think about learning, do you think about learning only in let's say in KDU, inside your classroom? Or do you think learning as in anywhere?	Learning in classroom or elsewhere?	L= from talks and demonstrations
AL: In that way, in college… but in other ways, outside also. For example, maybe…through talks or maybe even some practical things that someone teaches you or something.		
I: Ok. Good. So when someone teaches you about something practical, can you give an example?	Inside and outside classroom. Through talks and practical learning	
AL: Practical… maybe, for example… my friend… errm he is working as a bartender?		
I: Ok.		
AL: So for now he is a beverage guy. He will teach me about the cocktails and all, like the presentations… In that way it is something practical.	Demonstration as one form of learning – friend demonstrating how to make a cocktail	
I: Ok so he demonstrates and then you practice? So very good, so you are learning that. So now let's come to your smartphone…ok? If it's your smartphone, what kind of learning do you use your smartphone for? Do you think that you have actually learned using the smartphone?		Smartphone learning (SL) = learning French
AL: Yeah I actually learned a lot using the smartphone. Maybe from my French language.	What kind of learning do you use your smartphone for?	
I: Ok.		
AL: I usually download dictionary stuff, because it's easier that way than to carry a book		

around. I download the French dictionary from the Internet, and if I want to find out what a French word means, the answer is already there in the smartphone. I: Ok, very good! So you downloaded the French Dictionary into your smartphone, which website do you go to usually? AL: Errmm… My android has the android market. I: Ok. AL: So if I go through that app, you get most of the things there. I: So let's say you can get a French to English Dictionary from there? AL: Yeah. I: And you download it, into your…?? AL: Smartphone, yeah. I: Does it take up too much memory? AL: Errm…. not really, maybe around 5MB? I: Ok, so it's very good? And it helps you a lot? AL: Yeah it helps me a lot. I: How does it help you? AL: Errr for example during class I: Ok. AL: The lecturer gives a word and I don't know its meaning, or maybe we have to write an essay or something and you can use your book. I: Mm-hmm. AL: So instead of using the book we use our smartphone. I: So that you can get the translation straight away? AL: Yeah. I: Ok, very good, so it's great because it helps? AL: Yeah. I: And I think most importantly, is it free? AL: Yeah. I: Ok. Rather than buying a book right? So that's one of the ways you learn. Do you find your proficiency in French improving faster this way? AL: Yeah. When you have a book, a thick book, you have to take the book and open it and search. With a phone you can type your word and find out more about it. I: Ah. Ok. That means when you are doing this French eh, do you only use that French	I learned a lot using my smartphone. For learning French. Downloaded French dictionary. Easier than to carry a book around. Answer in smartphone. Downloaded app from Android Market in smartphone App does not take too much memory, 5MB Helps learning French in class. The lecturer uses a French word, I don't understand. Instead of using the French dictionary (book), I use my smartphone to get translation It helps *straight away* and it is free French proficiency improving? Yes, with a phone, I can find more (More convenient	SL = downloading dictionary app from Google Market SL = easier to learn new words (than having to carry a book) SL = convenience of app to find answers on French words SL = (Implicit) translations given immediately as compared to time taken with book SL = faster to search for French translations than using a book SL = not only in classroom SL = using it on long bus journey to hometown to learn

dictionary in your smartphone only in the classroom or outside? AL: Outside too. Anyway also. I: Where do you usually type it? AL: Mmmm…Maybe when I am taking a bus back to my hometown, maybe during the ride sometimes instead of using the book, I will be using the phone. I: Ah. Ok. That means on a long bus journey and you are going back to Sungei Petani… So you actually use the smartphone? To check French words or you are doing … AL: Even Mathematics too. I: So it's anytime learning? AL: Yeah.	easier than using a thick book) Using this app for learning French in and outside classroom. On the bus ride home to my hometown to learn French and Mathematics (Sungei Petani is about an hour away from Penang)	

APPENDIX 10. DEVELOPMENT OF SUB-THEMES AND THEME OF 'INFLUENCES'

Significant Phrases and Sentences	Linking Key Words	Concept	Sub Theme	Theme
• Uh..like when you give the *Economist, Newsweek* and stuff, that's more like me for debating as I started reading a lot, so I started bringing it into the house, so everyone else started reading it. But really, my parents, generally don't **express** any expectations, but I put the normal general sort of child pressure like 'do well' 'do well here', 'make them proud', ya. Ben, Interview 2, L:340-343 • Emmmm...no. My reading..was always very important. When I **was young at** least and when I **picked it up,** they just **stopped harping** on it. Ben, Interview 2, L:312-313 • Partially it could be my background. Reading was something I picked up and I enjoyed, so the ability to read wherever, and that **advantage came with the smartphone**, that came by habit**.** Ben, Interview 2, L:399-341 • They just **give me books** and **ask me to read** and obviously as a kid, you have nothing to do and it does get boring after a while so ..I **kind of picked it up.** Ben, Interview 2, L:317-318 • Ya! Like **initial influence was my parents** but then as I **started reading on my own**, they didn't care anymore. Now it's the "you read too much kind of thing". Ben, Interview 2, L:411-412	Influencing each other Do well Love of reading influenced by parents Love of reading picked up, flowed into reading with smartphone	Self and Influence on Others Implicit expectations from parents Influence of parents Explicit expectations and influence from parents	Self-Identity Parental Influence	Influence on Others Influences
• My *influences* were very clear cut. **My parents** started me teaching how to read when I was 2. They focused a lot more on me than my sister, I was the eldest and I was the only one kid. They would read to me **all** the time. So it started with how to read. At first it was ***memorising***, then it went on to other things. I think it was helped that my **entire family bought me books**. It was easier to buy me books then as they would know what books I already have but now it's harder. Then **my mother** starts bringing me to **book sales** until now, bringing me to	Parents teaching reading & how to memorise Direct	Parents' expectations and influence Explicit Influence of Parents and Families	Parental Influence, Family Influence	Influences

book sales, **book shops**. Bloggergirl, Interview 2, L: 430-435	influence on reading			
• Because .. I guess when your friends' influence take place, **friends' influences** take a part in your decision making is when you **think the app** has potential or is popular in that sense, like when I didn't have the Twitter app before and my friends had it and I enjoyed Twitter as well, then I **would get that app. Like the Angry Bird** craze. At the point, everyone has that app. Bloggergirl, Interview 2, L: 525-529 • With the exception of a few. **It's more a friends' influence. Not many people are as figured out as us.** A lot of people have smartphones, because they feel the need to. Because a smartphone is much more, more attractive **or it shows your status** of you having your smartphone as opposed to your Nokia phone. Bloggergirl, Interview 2, L: 644-647	Influence on choice of app More friends' influence	Friends' influence on choice of apps and types of communication & learning	Friends' Influences	Influences
It's **my own drive**. **Parents don't really influence us**, not on this generation...Um..I realise that kids nowadays, we don't really take advice from our parents.. like for us, unlike you're brought up wrongly lah. We know what is right for ourselves. Andy, Interview 2, L:232-234 I don't know. They do study Moral and Civics, I suppose.. **towards my own thinking**. I feel like I know how to judge what is right and wrong. So when they tell me , when I know all these for a long, long time, so don't have to tell me over, over again. At most, I take their words for granted lah. Andy, Interview 2, L:236-239	Own drive, parents don't influence us	No parental influence, self will, self efficacy	Own self-will	No influence from parents
Usually, yes! **Parents is the key to influencing your child**, in about the way of their lives. If parents take more...what ah... a lot more attention to them, they will gradually like what the parents like. If the parents tend to let them alone, so that will probably let the children astray. Zerros, Interview 2, L: 277-280 Um..... (pause).. usually I listen first. Umm**....listen first** to **what other people say** about the topic, then I heard it, then I **say I want to try it out more**, just like computer. I heard **that they're playing games** and if best, I'll download it. If not best, then I'll leave it. About the listen about **the lecturer in KDU**, they usually talk a lot more than to practical. From the talk, you can tell other people know about what we're doing. If you only do what you're going to do like in cooking, you do but don't	Parents key to influencing the child Listen first, then decide. From friends and lecturers about games or apps	Explicit Influence of Parents Friends and Lecturers talking about apps or games	Parental Influence Friends' Influence, Teachers' Influence	Influence

explain, other people will never know what you're doing. I think listening is the first one but to understand, you got to do it yourself. Zerros, Interview 2, L: 165-171				
Mostly **friends**. Then there's **advertisements**.. Like now, the friends you know, everyone must have a smartphone. And they will say it's very useful....and ....the ...we can hear songs very useful..Internet..social network...in better quality. Jack, Interview 2, L: 254-258 Learning? …The **lecturer likes… to post all this notes** so… So… We will actually read from the **Facebook**… So then they will post post post whatever…So we'll just read… just read and go through all of it lar…. But… KCN… they post there also… but now mostly it's Facebook because it's more easier… Jack, Interview 1, L: 311-320	Friends and advertise-ments Lecturer posting notes on FB	Friends and media on choice of smartphone and use Lecturer influencing use of FB and smartphone	Friends' Influence, Media Influence Teacher Influence	Influences
Friends… Introduce to me latest apps… Interesting stuff..errr..games.. effects for pictures. Mei Ling, Interview 2, L: 258-265 Urrrr..**they don't really care that I'm using the smartphone**, just that I know how to control myself, that's all…..They **ask me to study hard**..so that I can actually enter university. Mei Ling, Interview 2, L: 271-274	Friends Parents and university	Friends introduce apps Implicit influence of parents	Friends' Influence Parental Influence	Influences
Um..our house , we don't buy newspapers, my mum would be like 'Go to the Internet and read the news'. **She'll be like 'See, I'm reading the news on the Internet'**. I'll say, newspapers are the easiest to go, easier to read. And she'll say, no, don't waste paper. (All laugh). Eunice, Interview 2, L: 311-314	Mum uses smartphone to read newspapers	Mum's modelling behaviour	Parental Influence	Influences
Yes, example **my sister, she does everything online**. So smartphones, hah, even the smartphone when she goes online, she learns cooking, she learns how to..how to use stuff online. Eng, Interview 2, L:193-195 My sister **taught me to play Sudoku (on the smartphone**). I saw her playing and I wanted to try it. It trains up the mind.	Sister does everything online	Sister's influence	Family influence	Influences

Eng, Interview 2, L:142-143 ....em..don't know. Hunger, I guess. **My parents..this ties in with prosperity**. If you're smart, you earn more, I think. So, my parents taught me this. That's why you need to learn, that's why I..er..try hard to learn more so that I can support them in the future. Eng, Interview 2, L:142-143 It's **influenced by my parents**. My parents, they are..they told me a lot of things about saving money. I got a smartphone, then this smartphone is very outdated. It doesn't perform fast on the Internet, so then the iPhone came out, after some years after the smartphone. I wanted an iPhone but then I already have a smartphone, so I got an iPod touch instead, so I can go online and do the Internet stuff. The only thing the iPod touch doesn't have is the calling function. Eng, Interview 2, L:113-119 No. I don't have What's App. We share but we don't share through smartphones, **like I meet my friends in college everyday, then maybe we talk about it when we hang out, we talk about what's new, what apps are nice.** Then of course, I'll see my friends playing with the apps, that's how I learn. Eng, Interview 2, L:182-185	Parents and expectations Parents on saving money Talk about apps	Implicit expectations of parents Parents influencing choice of smartphone Friends and apps	Parental influence Parental Influence Friends' Influence	
Maybe **friends**. Because sometimes they come across some applications, and they say, 'Oh you have to download this **application and all that**. Deeptzer, Interview 2, L: 323-324 They all have different backgrounds and very different interests… Errr...sometimes **we start to talk about smartphones** and maybe just say a friend may have got this application and **she tells a friend and this friend tells** another **friend, so then the whole group is actually talking about** it. Deeptzer, Interview 2, L: 333-337 And our lecturer is asking us a question on errmm… what kind of flavour does this wine have?...And maybe he actually has taught us the answer in the last class, but we forgot and all that. The fastest way to know the answer is through the smartphone. On the Internet...Yeah...Yeah he actually does allow us to use the smartphone. Deeptzer, Interview 1, L: 44-51	Friends talking about apps Lecturer encouraging smartphone use in the classroom	Friends' influence on apps Lecturer's influence on use	Friends' influence Teachers' influence	Influences

Like maybe, yeah, like when I don't some stuff, they'll be like okay, you'd better search on the Net, even using the newspaper, nowadays, they say why asking us when **you already have a smartphone, you can actually search using your phone**. AI, Interview 2, L: 276-278 They **actually want me to learn more things and use the benefits of using smartphone and the Internet.** AI, Interview 2, L: 287-288 Umm..like learning. One of my uncles, he has a shop at Tanjong Bungah, Indian restaurant Arati Villas, right opposite Tanjong Bungah Hotel. He usually uses a smartphone. For him, he likes to go on vacations, he checks on pricing on tours, holidays…. He'll say like "Use phone to check out things. It's more better." Because he says it's easier and to make full use of today's technology. AI, Interview 2, L: 301-306	Parents encouraging use of smartphone Uncle encouraging use of smartphone	Explicit Expectation Explicit Encouragement	Parental Influence Family Influence	Influences
My **parents** are quite fine.. in fact they **encourage me to read**. And they're trying to **get my sister to read as well.. on her smartphone**, as well. Because I read a lot **on the smartphone, my sister started reading as well.** She used to not like reading. It's not her thing. Chuck, Interview 2, L:258-261 Well, I guess **I kind of influenced her in a way**. **My mum and dad always tell her "look at your brother reading and something about getting good results**. My sister is also a very smart student and she just didn't like reading, so my mum and dad would pester her about it and now she started reading all of a sudden and she started asking me which book to read. But she doesn't read that long, she doesn't read actual published authors. Chuck, Interview 2, L:263-267	Parents encouraging reading on smartphones Parents and Chuck influencing sister to read	Parental expectation Influence on sister	Parental Influence Self influencing others	Influences