

# Ubiquitous Learning: The Lived Experience of Students Learning with Smartphones

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## ABSTRACT

The exponential growth of mobile technologies has created additional affordances and new channels of communicating and presenting information. The smartphone, with its multiple applications and features, is creating a new way of ubiquitous learning. Applying the principles and practices of hermeneutic phenomenology, this study aims to gain access to a phenomenon that is often subconscious in order to understand and interpret the participants' learning experiences. Twelve youths in Malaysia participated in three rounds of semi-structured interviews over a period of four months. Preliminary findings suggest that the experience of learning with smartphones was largely perceived as valuable as it was highly personalized and multifaceted. Identity presentation and management were also observed in the multiple constructions of identities through the smartphone usage. The participants' views on the introduction of smartphones in formal learning were nuanced and complex.

## 1. Introduction

Smartphones are the more expensive versions of mobile phones, with 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 as opposed to only mobile-optimized sites. With smartphones becoming progressively more affordable, learners have these highly technologically, capable computing devices at their finger tips, providing a plethora of services and functions and ubiquitously linked to online networks and databases. Pachler et al. [1] observe that mobile devices like smartphones are becoming increasingly more important in learners' everyday lifeworlds and their significance is seen in their use for meaning making, leisure activities, identity formation, social interaction and learning. There is thus, a compelling need to find out more about how these devices are used in everyday practices and their relationship to learning.

Phenomenology is a human science that differs from other sciences in that it seeks "to gain insightful descriptions of the way people experience the world pre-reflectively without taxonomizing, classifying or abstracting it" [2, pp. 9]. Applying the principles and practices of hermeneutic phenomenology, this study aims to gain access to a phenomenon that is often subconscious and to understand the nature and meaning of the participants' experiences. Research on the student participants in Malaysia learning with smartphones would be able to add to new knowledge as there appears to be no hermeneutic phenomenological research in this area to date. As learning with smartphones is a complex, multidimensional phenomena, the new understandings generated by this study would offer fresh insights on the feasibility and potential of introducing mobile learning to educational institutions.

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 [3]. The Malaysian Ministry of Education attempted to introduce mobile devices into the classroom in 2013, but due to opposition from

educators, parents and students, it had to defer this policy [4]-[5]. Awareness of the importance of mobile devices and technologies in society and their purported potential for learning is thus, high in Malaysia. A study of the lived experience of Malaysian student participants learning with smartphones would yield new understanding of this phenomenon which would prove useful especially in its implications for learning in formal contexts.

## **2. Research Phenomenon and 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 [6]. Learning is thus, multifaceted and context-dependent and at times, subconscious, automatic and unobservable [6]. 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 and concept of self?

## **3. Literature Review**

The growing body of m-learning research is evidence of its increasing importance with most studies concentrating on mobile system design, and effectiveness of m-learning [7], [8]. Progressively more research studies have focused on 'smart devices' such as smartphones and tablets for teaching and learning in formal and informal learning contexts [9]-[10]. Looi et al. investigated how primary school children in Singapore engaged in "seamless learning" with mobile devices in and outside classrooms [11]. As one of the pioneering projects on the use of smartphones in the classroom, Project K-Nect aimed to deliver mathematics concepts to ninth grade students in North Carolina, America. Since its inception in 2008, Project K-Nect has been reporting on the effectiveness of the integration of smartphones with teaching and learning in areas such as enhanced mathematics performance, better problem solving and collaborative skills among the students [12]. 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. This project has reported an improvement of a 14% improvement in Maths scores for its students [13]. Although most of these research projects on formal learning report encouraging learning outcomes and positive learner attitudes, these are small scale projects involving small groups or larger groups with one subject. There has been anticipation for such small projects to move into large scale mainstream education but that has yet to be achieved.

Sharples et al. [14, pp. 225] defines m-learning as "the processes of coming to know through conversations across multiple contexts amongst people and personal interactive technologies." Pachler et al. [15, pp. 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 study draws upon these above-mentioned conceptions of learning to discuss the learning experiences of the participants in Malaysia.

Drawing on Schatzki’s [16] social practice theory, Merchant [17, pp. 772] defines “everyday mobile practices” as the “doings, sayings and relating that constitute informal social practice”. Such practices are like learners’ routines which are open to innovation and change and exhibit “the characteristics of both synchronic and diachronic variation” [17, pp. 772]. Research is emerging on mobile practices [18]-[20] although there needs a more detailed analysis of everyday mobile practices and their relationship to learning [17]. There is also paucity in the literature of how people use these mobile devices to construct their identities in environments that are dynamic and constantly in flux and how these identities are related to their learning and devices. This study addresses this gap by exploring the everyday practices and lived experiences of student participants in Malaysia to reveal the meaning and structure of this learning.

#### **4. Methodology and Method**

A hermeneutic phenomenological approach was used as it represented the optimal way to investigate a complex phenomenon that is highly significant and of which there is inadequate information on everyday lived experiences and its relation to learning. Hermeneutic phenomenology uncovers the uniqueness of individuals’ experiences with an emphasis on the individuals’ historicity or background [21]-[22]. 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 [2], [23].

As consistent with the interpretive research paradigm, participants were selected using purposive sampling strategies like snowball and deviant case sampling to provide information rich studies for detailed analysis [24]. The 12 students chosen were 16-19 years and currently in secondary schools and private tertiary colleges. There is 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 generally allow their use in classrooms. There would be thus, a diversity of learning experiences in formal and informal settings. The other criteria for the sampling were based on race, gender and at least one year of experience with using smartphones.

Permission for the interviews and recordings was sought from the participants and their parents, and transcripts and interpretations were made available to them to comment. This ensures accuracy of data analysis and interpretation to achieve better methodological rigour. The researcher was careful to maintain “hermeneutic alertness” [2], which is 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.

The most broadly accepted method derived from hermeneutic phenomenological methodology is the qualitative interview [2]. 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 [25]. The choice of semi-structured interviews was to offer better scope or richness in data compared with structured interviews, and enable participants choice to reply to questions, and to narrate their experiences without being constrained to specific answers [25]. Another benefit over unstructured interviews is the comparison of some standard questions across interviews. In this study, it was determined that structured in-depth interviews with 12 individuals would meet the aim of an in-depth investigation. There were 3 rounds of interviews over a period of 4 months conducted until the point of saturation where no new ideas were surfacing. Each interview lasted from 1 to 1 hour 30 minutes and was recorded and transcribed verbatim.

## **5. Analysis and Interpretation**

As this is an interpretive hermeneutic phenomenological study, the analysis and interpretation of the interviews were guided by van Manen's [2] methodical procedures. First, interview transcripts were read carefully and repeatedly for emerging themes: detailed reading at sentence or cluster level, then using the selective or highlighting approach and finally reading holistically. Second, as the researcher dialogued with the texts, themes and sub-themes emerged, and a coding frame was developed from the key words and concepts [2]. Third, interpretation of the themes and sub-themes was achieved through Gadamer's [22] hermeneutic circle 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 repeated to enhance the depth of understanding and engagement with texts. The researcher's prejudice and presuppositions are acknowledged and considered as valuable in hermeneutic phenomenological research. In Gadamer's [22] 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 inquiry.

## **6. Themes**

7 themes emerged in this study and they explicate the meanings of how the participants learn with smartphones in their lifeworlds. The themes are: 'Learning is Different', 'This is My Learning, Not Yours', 'New Ways of Learning', 'Learning, Self and Identity', 'The Paradox of Increasing and Diminishing Value', and 'The Sum is more than Its Parts'. As the themes are overlapping and interdependent, no theme by itself, is representative or is able to solely illuminate the phenomenon. Since this research study is still in progress, 3 themes are discussed in this paper. Pseudonyms are used in the quotations to maintain participant confidentiality.

### **6.1 The Paradox of Increasing and Diminishing Value**

Most research literature reveals positive outcomes and positive attitudes to m-learning [7]. In this study, some of the student participants display a more nuanced view to their learning: it is highly valuable but it can be a "double edged" sword.

*"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, 17 yrs old, Form 5 student

*"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...The smartphone helps you to learn."*

Al, 19 years old, private college student

Learning with smartphones has increasing value because it enriches their lives and is highly prized as seen in Ben's and Al's quotes. In comparison with their peers who do not have smartphones, being able to multi-task, search for information and learn new skills and knowledge gives them a head start in their lives. Playing games on their smartphones has value, as in Al's case, it helps him improve his knowledge and skills in his subject, *Beverage Studies*.

Yet this easy convenience and accessibility to learning anytime, anywhere can have diminishing value to learners. As Deeptzer suggests in the quote below, 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 finger tips, 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.

*"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...."*

*"...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, 19 years old, private college student

Bloggergirl was of the opinion that learning with technology and the contents she generated online were more transient in nature and less valuable. This was paradoxically due to the ease of this learning and its outcomes.

*"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."*

Bloggergirl, 16 yrs old, Form 4 student

Chuck, another participant is an avid reader of e-books (4687) 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 media and smartphones, calling it "double-edged", and like many middle class Malaysians who value education, he is concerned his

smartphone overuse may affect his studies. The smartphone thus, brings increasing and diminishing returns to participants and their lives.

*“Ya, because everything has its good and bad, double-edged, that’s exactly what I’m trying to point out. If you use it for..yes, it’s really useful for information, communicating back but if you harp on it too much, it can take over your entire life. You’ll just do this and stop socializing and stop connecting with people, I mean you’re just doing it virtually and it’s not helping you... And you just waste all your time on it and it will affect your studies.”*

Chuck, 17 years old, Form 5 student

## 6.2 Learning and My Selves

The second 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 [26].

*“..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, erm 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, 16 years old, Form 4 student

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) [27] 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 and it functions for support and bonding purposes. Buckingham [28, pp. 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, 19 years old, private college student

*“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, 18 years old, private college student

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 find out what their friends were doing and participate in the maintenance of their communities through posting their comments, stories, photographs and articles they wanted to share with friends.

*“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, 17 years old, Form 5 student

As participants were reliant on these mobile devices for their everyday needs, they developed highly personal relationships with their smartphones, describing them as “buddy”, “companion”, “friend” and in Chuck’s case, as a “wife”. 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 part with their smartphones or to lose them. Smartphones, hence do not only represent their learning and life-styles, they are inextricably linked to their sense of selves and identities.

### 6.3 This is My Learning, Not Yours

Pachler et al. [15] 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, 19 years old, private college student

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:

*“I go to school because I have to, but I don’t really learn that much. As much as they want children to learn...It’s very much forcing information into your brain. Especially in Malaysia where they try... exam orientation... their learning is sort of put on to you and you are obliged to do it. 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, 16 yrs old, Form 4 student

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 [14], [15]. However, significant challenges abound as there are tensions between the traditional model of schooling and mobile learning [1], [14]. 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 [29].

Malaysia provides a good case study to illustrate 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 [4]. 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 [5]. Newspapers and online forums reported mixed responses to MOE’s proposed policy [30]-[31]. 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 [30]-[31]. 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 countries like South Africa) of successful implementations in schools to the public. Although there have been small scale mobile learning projects in Malaysia, notably in Mathematics [32], the lessons learnt could not be used for the implementation of this magnitude.

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 wanted to bring their mobile phones to school as the devices helped them 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, 18 years old, private college student

*“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, 16 years old, Form 4 student

Their recommendations for smartphone use in the tertiary classrooms were to use them only to record lectures and to view 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 behavior in others.

This inability to visualize using smartphones successfully in class could be the



result of what Tyack and Tobin [33] 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 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.

## 7 Conclusion

This study through its use of hermeneutic phenomenology methodology and methods, presents the experience of learning with smartphones directly and evocatively to encourage readers to enter imaginatively into the experiences described. This provides the means for deepening our understanding of the lived experience of learning with smartphones. As this is a study in progress, the findings are preliminary. The insights provided thus far, are that learning was highly personalized and reflective of learners’ needs and purposes. Participants generally perceived this learning as highly valuable although they understood that it also had negative implications. Their identities and relationship with their use of technologies were fluid and contingent upon context. Since they did not have any positive models of smartphone use in the classroom, they could not imagine how these mobile devices could be used without disruption to the “grammar of schooling”. Significantly, they regard their learning and media use with their mobile devices as predominantly their personal learning and appear not to want intrusions into this personal space and boundary. Hence, adoption or integration of mobile learning and its present practices into academic learning may not be feasible or desirable given the existing tensions.

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