Chapter 8
University Student Conceptions of M-learning in Bangladesh

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Abstract This article presents emerging results from a phenomenographic study that examines Bangladeshi university students' experience of using mobile devices in their learning. Three students from one renowned university participated in the semi-structured interviews to explore their experiences of m-learning. The findings revealed that university students viewed mobile learning (m-learning) in four qualitatively different ways that were: (i) storing learning materials; (ii) accessing information and knowledge; (iii) effective learning tool; and (iv) effective tool for collaboration. This study is constructed on previous studies of university students' conceptions of learning. However, the focus taken in this research was on the experience of m-learning, as an emerging research area, which revealed new facets of university learning. The findings of this study play a significant role in the faculty development program and have an impact on the teaching and learning practices in university education.

8.1 Introduction

Over the last few decades, most of the developing countries have been trying to introduce Information Communication Technology (ICT) in their education sector (Kafyulilo 2014). As such, ICT, in recent years, has gone on to become one of the most crucial components that determine the basic competence of student learning (Noor-Ul-Amin 2013; Potyrala 2001). This has been possible because of a number of reasons. For example, Hammond (2014) claimed that some of the major reasons

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behind the introduction of ICT in education being promoted in England was because of "the belief that ICT can have an impact on the standards, and provide more vocational relevance in the curriculum and can be a catalyst for curriculum reform" (p. 192). On the other hand, Hammond, Reynolds and Ingram (2011) reported that it offers a number of benefits such as "supporting personalized pathways; monitoring progress; providing for 'anytime, anywhere' learning; enabling independent and collaborative learning and developing new modes of learning" (p. 191). All these reasons have led to the successful introduction of ICT at different levels of education in almost all the countries in the world.

The trend goes well beyond this with the rapid advancement of mobile devices. This new trend has led to the formulation of mobile learning or simply, m-learning (Serin 2012). Considering its importance, the current Government of Bangladesh has already introduced several initiatives to integrate different forms of ICT (*mobile devices for teaching and learning is one of the emerging areas of ICT*) in both higher education and secondary education (Karim 2010). Moreover, the present Government realized that ICT is the key element to eradicate poverty from the society, so is taking steps by integrating ICT in education. Due to this, the Government has introduced a charter for change in the form of a long-term development strategy called "Digital Bangladesh". In order to make this vision a success, universities have been deemed to be one of the pivotal areas in which different forms of ICT, for instance mobile learning, could be put to full effect. This emerging area is predicted to contribute enormously, particularly for producing technologically rich manpower that could meet industrial requirement. This mass of future graduates can also work in a technology-integrated environment for the development of their country. It is important to point out that these benefits will show themselves only when the university students will start using mobile devices effectively in their everyday learning process. To support this claim, research has discovered that technology alone cannot lead students to learn (Koehler and Mishra 2005). Therefore, research needs to be conducted on how the students could use mobile devices effectively in their learning. Considering this emerging demand, the present study is proposed to investigate the experiences of university students on applying mobile devices in their learning.

8.2 M-Learning and Related Literature to the Research Problem

As m-learning is a recent concept in student learning, at first we attempt to clarify the term along with its possible benefits from previous literature. According to Park, Nam, and Cha (2012) m-learning can be claimed to be "any educational provision where the sole or dominant technologies are handheld or palmtop devices" (p. 592). These devices can facilitate learning at anytime and anywhere (Ozdamli and Uzunboylu 2014; Serin 2012). In this study, m-learning is considered as a learning

platform by using portable (mobile) devices such as cell phones, smartphones, palmtops, tablets, and portable multimedia players. The use of these devices in learning has eased the geographical barriers that existed among students as well as provided a learning environment that is collaborative among different groups of students (Ozdamli and Cavus 2011).

The advantages in using mobile devices in student learning are quite enormous. The biggest advantages of using mobile devices are to provide student-oriented teaching and learning contexts where the learning of the students generally depends on their active involvement, and where teachers are generally seen as a facilitator. For instance, Sha, Looi, Chen, Seow and Wong (2012) claimed that the collaborative environment afforded to them by m-learning enables them to learn at their own pace. It is considered as playing a vital role in simulating critical and logical thinking from the students. Thus, the use of mobile devices provides myriad ways of offering student learning opportunities in university-level education.

Considering the huge emerging benefits, the popularity of using mobile devices among students in developed and developing countries has been growing quite exponentially. This has emerged because of the fact that most of the students have owned these mobile devices in recent times. At this point, Bangladesh, despite being a developing country, is following the same notion. It is found that majority of university students in Bangladesh are in possession of their own mobile phones or other forms of mobile devices simply due to technology being easily available. The other reason for taking in mobile devices is to reduce the cost of Internet and to compare it to that of the last few years. All these aspects bring a huge opportunity to use mobile devices in Bangladeshi universities.

In addition to that, it is realized that there has been very little research in the world (including Bangladesh) that explores the students' experiences of using mobile devices in their learning. The majority of the previous research on m-learning mainly focused on identifying different factors of using mobile devices in education (Al-Fahad 2009; Park et al. 2012); how mobile devices can facilitate student learning (Rogers et al. 2010) or the students' perceptions on mobile learning (Hashim et al. 2014; Kafyulilo 2014) that were based on either a mixture of quantitative and qualitative paradigm or other methodologies including surveys. However, none was found to have been conducted with the use of phenomenography as their theoretical and methodological perspectives. Whereas, a significant number of prior research investigated students' conceptions of learning by using phenomenography and subsequent studies showed evidence for contributing improvement of student learning (Duarte 2007; Eklund-Myrskog 1998; Ellis et al. 2008; Vermunt and Vermetten 2004; Virtanen and Lindblom-Ylänne 2010). Considering this gap (theoretical and methodological), it is urgent to conduct research on students' experiences of learning through these devices. These experiences will be crucial for formulating instructional strategies (pedagogy) that will assist the teachers in properly facilitating the teaching and learning practices. In order to fill up this emerging gap, the main purpose of this study was to identify the qualitatively different ways of experiencing the role of mobile devices in the

Bangladesh University students' learning practices. In order to achieve this purpose, the following research question was used to guide the study:

- What are the qualitatively different ways in which university students understand the role of mobile devices in their learning practices?

8.3 Methodology

This study was qualitative based and was carried out using qualitative research methodology. It was conducted using phenomenography as its theoretical and methodological framework. Phenomenography is a research methodology that is used to qualitatively differentiate ways in which different people experience, understand, and conceive a phenomena (Marton 1981). The main purpose of phenomenography is the description of the various experiences and conceptions that people have for a specific phenomenon (Khan 2014; Marton and Booth 1997). Phenomenographically, a conception is considered to be the way in which one is seeing or understanding something, or in other words, comprehending the exact meaning of something to a specific individual (Sin 2010). In this context, it can therefore be said that conceptions are always expected to be different when various people are involved. Therefore, phenomenography was used in this study to identify the different ways of students' conceptions of m-learning in university education. The final outcomes of this research were revealed as the "categories of description."

8.3.1 Sample

Each student who was selected for this study, was considered to have experience of using any mobile or handheld devices like smartphones, tablets, iPads, and iPod in their learning for at least 6 months. It was required to have the minimum level of experience toward the phenomenon and creating variations (getting participants' in-depth awareness) while taking the interviews. However, the degree of experiences among different respondents and the type of handheld devices they use were not necessarily the same and were tolerated to vary from one respondent to another. In total, a sample of three students from the University of Bangladesh were recruited by using purposive sampling technique. The main characteristics of the students who participated were:

- *Disciplines*: students were selected from two disciplines, one from electrical and two from computer science.
- *Institutions*: students were invited from an engineering university.
- *Study level*: two from postgraduation and one from undergraduation.

- *Experience of m-learning*: 2–4 years.
- *Language*: fluent in English.
- *Gender*: three male students.

8.3.2 Data Collection

In this study, the major tool that was used for collecting data was the phenomenographic interviews (Åkerlind 2005; Barnard et al. 1999; Bruce et al. 2004; Harris 2011; Limbu and Markauskaite 2015). In the method of investigating the students' conceptions on m-learning in university education, interviewees were asked to share their reflections on the role of mobile devices in their learning as well as how these devices could be useful in their learning. A semi-structured in-depth interview protocol was used to gather data and each interview lasted for about 40–50 min. Initially, the participants were asked about "what aspect," for instance, *what does m-learning mean to you*? In order to get a much deeper understanding, the follow up questions were asked. For example, *could you explain this further*?

8.3.3 Data Analysis

The interviews were recorded by an audio recorder and each interview was listened several times (Åkerlind 2005; González 2009; Limbu and Markauskaite 2015). The audio-recorded data was transcribed verbatim. This process was then followed by reading the transcripts many times in order to get a deep insight of the various experiences received from the participants (Åkerlind 2005; Limbu and Markauskaite 2015). At this stage, similarities and differences from each transcript were recognized and later followed the preliminary categories, which was then checked with transcripts. The final outcome spaces were confirmed based on back and forth discussions with the research members. No category was identified without supporting the quotations from the transcripts.

8.4 Results

The results revealed four different categories of description:

- Category A: storing learning materials
- Category B: accessing information and knowledge
- Category C: effective learning tool
- Category D: effective tool for collaboration

The detailed elaboration of each of those categories is followed by the most appropriate quotations obtained from the interview transcripts. Some identification numbers were used at the end of every quotation to help the researchers keep track of the ones that have been used and to keep the interviewees anonymous in the study.

8.4.1 Categories of Description

8.4.1.1 Category A: Storing Learning Materials

In Category A, mobile learning is viewed as a way of getting various learning materials from different sources and storing them in these handheld devices for further use as required. In this way, students will be able to get their learning materials from different sources and store them in their mobile and later they can access them. For instance, if a teacher gives a lecture using PowerPoint presentations, students can easily download those presentations from the sharing device (teacher usually uploads that presentation for the students) by using their mobile devices and save them. In that way, they have wider scope for keeping learning materials safe. With reference to this argument, some participants stated that:

> May be I came in a little bit late, but my friends took notes and I don't have that much time to copy and write everything, so I just get my phone, take a snap of the notes and then when I go back to my room … Then I just read them direct. [B3]
>
> … You will get everything like PDF that you can put in your phone, you can even download many books in your phone and pictures also. [B2]

Besides in this category, a mobile device is also seen as a recoding tool for future learning. For example, the participating students mentioned that with their mobile devices, they can record the lecture live during classes so that the teachers' explanations will be used later during their free time:

> You can even make records. You can record the lectures … [B2]

8.4.1.2 Category B: Accessing Information and Knowledge

Category B represents the view that mobile devices facilitate the access to information and knowledge that are important in their learning. First, this perceived ease of access to information was expressed in various ways. For example, the use of free online and offline dictionaries that may have been installed in the phone, as expressed:

> I installed a dictionary application. In case I get a word that I don't understand, I use the dictionary on my mobile phone then I can know the meaning of that word. [B1]

Alternatively, participants also discussed that they can get the meaning directly from the Internet in case they get a terminology that is new or ambiguous for them:

> I can access the internet like google search in case I get a terminology that I don't understand. I can search the internet and use it… [B1]

Second, in this category, the mobile device is perceived as a way to access knowledge. It is seen that students use different search tools such as Google, Google scholar, and the likes by using their mobile devices to gain related knowledge that provide them more explanations and clarifications about a specific topic on the Internet.

> Then maybe another thing mobile devices, there are a variety and a vast number of apps, educational apps. So I can just go to google play, search and then I can get a very long list… [B3]

8.4.1.3 Category C: Effective Learning Tool

In this category, learning with the help of mobile devices is perceived as an effective learning tool. This effectiveness is perceived mainly through criteria such as time-saving, cost as well as mobility. M-learning allows students to access a vast variety of information and knowledge within the shortest time possible. It is viewed that learning is much quicker in m-learning than it could be in the traditional or other learning methods:

> There, I will be wasting time writing everything down. But I just go direct, read, understand then memorize. So it saves some time while revising. [B3]
>
> If I just take a snap, it will take like a second but if my colleague decides to draw it in his book, it will take him like 20 min. So in such a way, it saves time to me. [B3]

In this category, m-learning is also perceived to be cost effective. Although it involves an initial cost to buy a mobile device but in the long run it saves students' money:

> Then another thing [is that], it saves money. In which way? For example if a teachers gives us a slide which has like 56 pages, it means if I print it will be costly. But if I just copy the slide to my phone, I think in that way, it saves me some TAKA [Bangladeshi Currency]. [B3]

Additionally, this category viewed mobile device as a means of mobility in student learning. University students in this category perceived m-learning as the learning that occurs anytime and anywhere that students want. For example, the participants stated that in most cases, they can move with these devices anywhere they go. It enables them to access to whatever they want to learn at their convenient time.

> It always depends but the major point is that it's mobile. The mobility aspect. It's like wherever I go I have my mobile phone… [B3]
>
> Mobile learning, I understand it by using some devices which you hold in your hands and can have access to it anywhere and anytime for your use in learning. [B1]

In brief, in this category the use of mobile devices is seen as a time-saving cost effective and portable devices for enhancing student learning in university.

8.4.1.4 Category D: Effective Tool for Collaboration

In this category, m-learning is viewed as an essential means for collaboration. For example, phone calls from mobile phone or Skype could be used for direct communication, text message from mobile or email could be used for sending information to enhance their learning. Some of the participants mentioned that their mobile devices enable them to communicate with their teachers, supervisors, colleagues as well as senior students in case they are in need of some assistance.

> During that time, our teacher was not in the campus. Even he was not in Bangladesh. He gave us his Skype and I used one time to ask him one question…. I practice most of the problems, I got some difficulties. So I sent a message to the teacher through Skype, he answered me and I got the answered, I practiced and it worked. [B2]
>
> Also having communication with the teacher because I can easily consult the teacher through the email for more clarification. [B1]

In addition to that, Category D presents another understanding of using mobile devices in students' learning which is direct (synchronous) and indirect (asynchronous) collaboration among student and teacher and/or student and student. In this point, students are seen to use different social media such as Facebook, LinkedIn, and WhatsApp for stated collaboration. For instance, university students in many cases used Facebook for collaborating with their supervisors when they face any difficulties with regards to their projects, theses and so on.

> For example in this semester, I have a supervisor for my thesis. So in case I have a query and he is not around, I just log into Facebook then I ask him via Facebook then he replies. [B3]
>
> Collaboration is also seen while students work in a group. Students generally use their mobile devices to get in touch with their colleagues (peer groups) to complete their group works such as assignments, solving problems, group discussion. One of the participant stated this in his response:
>
> … But remember you have to work on the assignment in time. So I may do something, maybe my part, first of all maybe we can divide the assignment. So I do my part, maybe go to Facebook, send him what I have done, when he is at home. When he reads through he also maybe sends me *his. So by the time he comes back to school…* [B3]

8.5 Discussion and Conclusions

Before discussing the results, we would like to state the limitations of this study. The participants were recruited from one university in Bangladesh and were small in number. However, a sample of three is not an unusual practice in phenomenographic research approach. For example, Forster (2013) interviewed three professionals from nursing practice about their conceptions of information literacy. Moreover, the

results depend on the setting or the context of each study; therefore, these results may not be generalizable for other contexts. However, the aim of phenomenographic research approach is not to provide generalizable results rather its focus is on a particular phenomenon that needs to be investigated deeply.

Turning to discussion, the findings are limited in scope in relation to previous phenomenographic studies, because students' experiences of m-learning are a new area of investigation. However, the results of this study could be interpreted in a wider context. The results revealed four qualitatively different ways of seeing mobile devices in student learning: storing learning materials; accessing information and knowledge; effective learning tool; and effective tool for collaboration. The four categories are placed from lower level to higher level understanding. Therefore, the four categories are broadly divided into two orientations: *fragmented orientation* (Category A and B) in which the mobile devices are considered as a way to store and access information in student learning. Students do not consider mobile devices for constructing their knowledge or solving their problem or engaging collaborative learning. It mainly focuses on students' surface level of learning. In contrast, *cohesive orientation* (Category C and D), in which the mobile devices are viewed as a means to develop students' understanding, to construct their own knowledge, and to engage them in collaborative learning. It is mainly involved with deep level of learning. These findings are broadly consistent in previous phenomenographic studies (Biggs and Tang 2011; Eklund-Myrskog 1998; Ellis et al. 2008; Ellis et al. 2006; Lucas 2001). Generally, these studies reported students' conceptions of learning in different context and were broadly placed into deep and surface level of learning. Nevertheless, the results provide emerging conceptions of m-learning.

As m-learning becomes a growing concern in the teaching and learning practice of a developing country, the role of using mobile in student learning is becoming a major focus of research initiatives (Kafyulilo 2014; Rogers et al. 2010). It is suggested then that the findings of this study could be used to inform these initiatives, as this study provides a second order experience (the findings derived from participants who had experiences of m-learning) of the investigated phenomenon. In recognition of the significance of these findings, this research provides different ways of using mobile devices in student learning, which is a potential input for improving teaching practice. For example, it may help teachers to create different teaching approaches that will match students' learning approaches, which will guide university students to make maximum use of mobile devices in their learning. The emerging results also contribute the improvement of professional development program. In addition to that, policy makers and curriculum developers could get empirical evidence about students' experiences so that they can develop a curriculum that will encourage and promote the use of mobile devices in the university education. Previous research reported that students' conceptions of learning are linked with teachers' conceptions of teaching (Prosser and Trigwell 1999). Therefore, future research is proposed to investigate Bangladesh University teachers' conceptions of m-learning. The main aim of conducting such future study is to find out the relationships between students' conceptions of m-learning and teachers' conceptions of m-learning. It is important to

acknowledge that our study reports a preliminary exploration of using mobile devices in student learning, thereby suggesting a future investigation with a broader sample from more than one university. It is also suggested to explore its analysis in different dimensions to understand the investigated phenomenon in a more conclusive manner.

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