Chapter 1

The Use of Mobile Technology Tools and Apps to Support Students' Learning Goals:
A Study of Two Federal Universities in Nigeria

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ABSTRACT

A broad range of information and communication technology (ICT) tools and services, including mobile applications (apps), are being deployed for on-demand learning in developed societies like the United States of America (USA). Some of the apps found to be in use for learning in one university in the USA were Quizlett, Mathway, SAT Prep, and Blackboard. The old concept of teacher-led learning classrooms has changed. The teacher is no longer the "know it all" provider of information to "blank slates" (students) but rather, the literature informs us of the teacher as coach and facilitator of instruction in technologically equipped classrooms. The literature points to the fact that mobile technologies are being used in classrooms in developed world regions such as the USA, but we know very little about developing world regions, including Nigeria. The study reported in this chapter helps to address the need and it investigated students' use of smart phones and applications (apps) to support their learning goals.

INTRODUCTION

According to International Telecommunication Union (ITU), smartphone adoption and ICT penetration rates globally increased from 4 people per 100 inhabitants in 2007 to 69 in 2018 (ITU, 2018). In the same year, mobile broadband or wireless access to the Internet subscription also reached 5.3 billion (ITU, 2018). The Global System for Mobile Communications (GSMA, 2019) reported that in 2018, the highest penetration rate of GSM adopted technologies was in Europe where 85% of the people use smart mobile devices. Closely following Europe is North America with 83% penetration rate and 80% of the population adopting smartphones. In developing countries, there are lower rates of smartphone adoption; however, these countries, with large populations being economically disadvantaged, have leapfrogged from the used of landlines and computers to adopting mobile phones including smartphones (Jamalova & Constantinovits, 2020). This chapter examines smartphones adoption for on-demand learning using a study that was done in two large federal universities in Nigeria.

Information and Communication Technology (ICT) tools such as smartphones, related technologies and services have been found to be beneficial for learning. As early as 1998, the Milken Exchange on Education Technology outlined that technology in schools can help us achieve the following:

a.   Accelerates, enriches, and deepens basic skills
b.   Motivates and engages students in learning
c.   Helps relate academics to the practices of today's workforce
d.   Strengthens teaching
e.   Contributes to change in schools (pp.14-15).

Technologies for learning including smartphones can encourage active and on-demand learning as they are portable and always tethered to the individual. For more than a decade ago to the present times and in developed societies like those in Europe and the Americas, students have been learning from anywhere and on-demand using their computers and smartphone technologies (Marzano, Pickering and Pollock, 2001; Litchfield et al, 2007; Gupta and Fisher, 2012; Fuad, Deb and Etim 2014; Fuad, Deb, Etim and Gloster, 2016; Kurt, 2023). However, during the same period, computer adoption and use were low in developing world regions (Etim, 2010). There are limited resources to speak to the adoption of smartphones for learning among economically disadvantaged societies. The work of Kumar and Chand (2019) is a systematic review of literature for 39 sources and there is no

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