

The use of mobile phones by secondary school teachers and students in Cameroon: m-learning as a possible educational strategy

Abstract

This research paper examines the extent to which m-learning (the use of mobile phones for pedagogical purposes) can be implemented in secondary education in Cameroon – not on its own, and not to replace face-to-face teaching, but as part of a repertoire of educational strategies. Secondary research (about m-learning and about Cameroon) and primary research (carried out in Yaoundé in June 2022 to collect data from 140 students and 42 teachers about their access to technological devices, especially mobile phones) show that m-learning can be put in place in Cameroon without too many difficulties. It needs, however, to be a version of m-learning that is conceptually different from the one common in countries where access to the internet is illimited, uninterrupted and stable: that “Western” form of m-learning is no suitable for Cameroon, neither technologically nor economically. This research paper concludes that m-learning is possible and even desirable in Cameroon, but it must be contextualized.

Keywords

M-learning; mobile learning; online learning; educational strategies; Cameroon; Yaoundé; secondary education.

Introduction

The COVID-19 crisis has accelerated the use of technology in primary and secondary education worldwide. The global pandemic forced schools either to close completely (affecting over 1.6 billion school children in 194 countries, according to UNESCO 2020a), or to drastically reduce the number of people present on the premises, in order to minimize human interactions and risks of coronavirus infection. Technology was heralded as the panacea (Dhawan 2020) and national governments started championing online learning: in April 2020, for example, the British government launched an online learning platform (CBI 2020). A key condition, however, is an uninterrupted, stable and robust access to the internet.

In the USA, in 2018, according to the official National Center for Education Statistics, 94% of 3-to-18-year-olds had home internet access (NCES 2020). This number is even higher in some European countries: 96% of households in Sweden have internet access at home, and 98% in Norway (Statista 2020). In contrast, at the end of 2020, UNICEF published a report entitled "*Estimating digital connectivity during the COVID-19 pandemic*" where they noted that "*only 5 per cent of children and young people in West and Central Africa have internet access at home*" (UNICEF 2020:2).

In such contexts, how is it possible to implement appropriate forms of online learning? To what extent can technology be used to support youngsters when they are not in class, yet do not have an uninterrupted, stable and robust access to the internet? How can educators innovate, using mobile phones to support students and possibly assess their progress? This article helps answer these questions with reference to Cameroon, bearing in mind that the findings, analysis and recommendations are relevant for other countries with similar socio-economic features, especially other sub-Saharan countries.

Purpose of the study

This article contributes to the increasing body of knowledge about education in Cameroon. That field tends to be dominated by publications addressing macro rather than micro issues, i.e. studying policies and principles rather than practices and people, as

illustrated by articles such as Loveline (2020) and Dupraz (2019), respectively about multilingualism as curriculum policy and about French and British colonial legacies in education. A notable exception is Haji's article (2017) examining teachers' use of ICT (Information and Communications Technology) in secondary schools; this present study extends Haji's analysis, taking into account students' perspectives. Its aim is to collect and analyse data about secondary school teachers' and students' access to technological devices, focusing on a particular type of device that can actually be used for educational purposes: mobile phones.

The Cameroon context

According to TheGlobalEconomy.com, in 2019, less than 1% of the population of Cameroon had a form of fixed broadband subscription (through cable-modem, DSL, fiber or satellite broadband). In other words, almost nobody has broadband at home (which is the exact opposite in Scandinavia where almost everybody does), however over 80% of the population has a mobile phone subscription. Twenty years ago, mobile phones were a rarity in Cameroon, but nowadays, almost everyone has one:

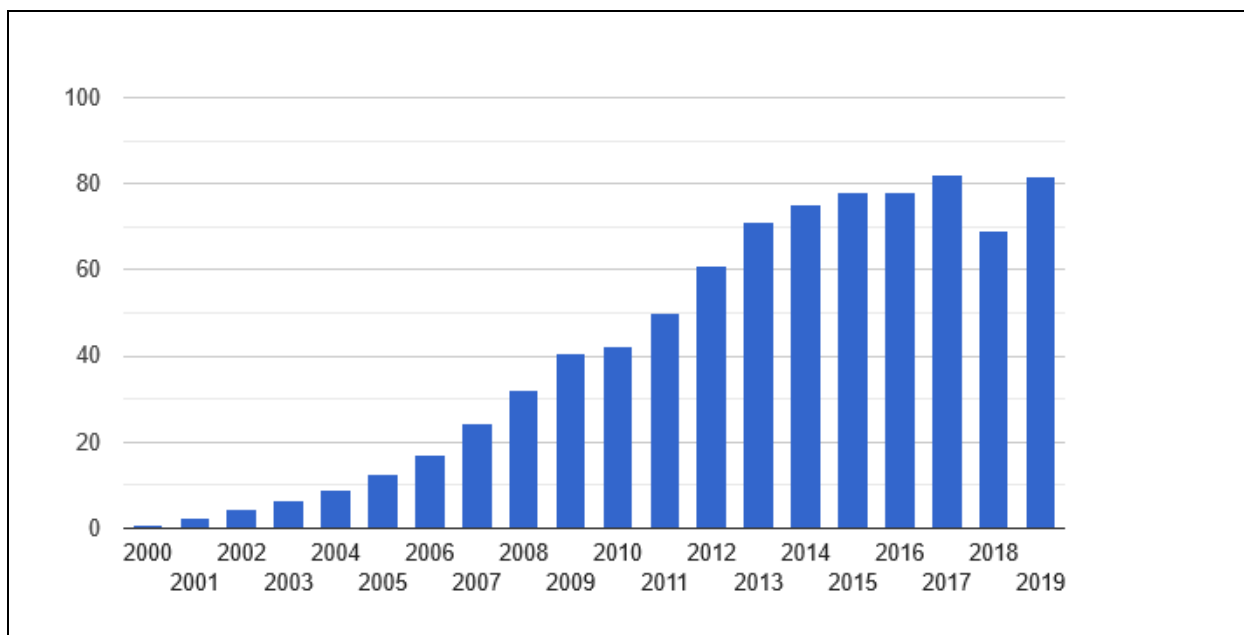


Figure 1: Mobile phone subscribers in Cameroon, per 100 people. Source of data: TheGlobalEconomy.com (2020) Business and Economic Data about Cameroon

Most teenage Cameroonians own a mobile phone - and not just a simple device to call and send short messages (SMS), but a more elaborate one with a larger screen, functions such as audio recording and a camera, and most importantly the possibility to connect to the internet. That access to the internet, in the context of Cameroon, is an important challenge. Very few places offer wifi connection, not even schools or public spaces, so the only way to go on the internet is through data – concretely, buying airtime (from one of the telecommunication providers such as MTN, Orange, NEXTTEL and CAMTEL) and converting it to internet data. This challenge, common to many other African countries, is not a major obstacle that could prevent the implementation of strategies of mobile learning, as Brown noted as early as 2005 in an academic article entitled “*Towards a model for m-learning in Africa*” (Brown 2005).

Theoretical framework

M-learning (mobile learning) can be simply defined as the use of mobile phones for pedagogical purposes. M-learning developed massively in the first years of the 21st century, once smartphone technology made it possible to have devices that could support learning, especially with larger screens, multimedia functions and faster connectivity (Cochrane 2013). M-learning allows students to learn and engage anytime and in any location (Oliver 2017), which is why the term ‘u-learning’ (ubiquitous learning) is also used (Kearney 2020, Parlakkılıç 2020), though less commonly so. M-learning as a practice is now widespread, even for activities in class (Sullivan 2019); it has also developed into an area of scholarship in its own right, with its specialists, models, books in several languages (for example in German: Mitschian 2010, in Spanish: Santiago 2015, in English: Hooker 2016a, in French: Beedeez, n.d.), critical literature (Traxler & Crompton 2020), conferences, international research projects and since 2007 an ‘International Journal of Mobile Learning’ publishing articles four times a year.

M-learning has now developed into sophisticated forms that involve complex activities, collaboration and possibly gamification, thanks to multimedia platforms that support a

wide range of tools, applications and functions, for example with live interactions and live streaming. Such forms of m-learning however necessitate illimited and uninterrupted access to the internet; this may be possible in MEDCs (More Economically Developed Countries), but not in LEDCs (Less Economically Developed Countries) such as Cameroon where having illimited and uninterrupted access to the internet just is not possible, neither technologically nor economically. This does not mean that m-learning is not possible in LECD: it just needs to be contextualized. In Cameroon, the following forms seem more appropriate:

1. M-learning emphasizing contact, communication and support:
 - one-to-one: student-teacher or student-student (peer support)
 - one-to-many, for example group chats, with or without teacher;
2. M-learning as 'micro-teaching' (for example through an audio-file where the teacher gives instructions, explanations or clarifications);
3. M-learning as access to adapted contents and study materials, downloadable and thus accessible offline; texts should be shortened and presented in a suitable layout and format, instead of long e-books designed to be read on larger tablets or laptop screens;
4. M-learning through assessment activities that do not require long written answers (so for example quizzes with MCQ (Multiple Choice Questions) or audio recordings by students).

Research methodology

Complementing the secondary research carried out about Cameroon and m-learning, primary research was done in June 2020 in Yaoundé:

- a questionnaire to survey 110 secondary school students, with the same number of boys and girls; they were all between the ages of 16 to 18 years old; they were from 4 schools;
- a questionnaire to survey 30 secondary school teachers, from 6 schools;
- two focus groups with 6 secondary school teachers each, from 5 schools in total.

The objective of the surveys was to find out whether respondents had a phone with internet access, and for what purpose(s) they mainly use their phone. The objective of the focus groups was to elicit teachers' initial views about m-learning; the two meetings started with an outline of the concept of m-learning, followed by an open discussion of the perceived benefits and obstacles. The sampling methods for the surveys and focus-groups were convenience sampling and snowball sampling. Compared to similar case studies, the size of the sample is quite large for such a research project; in contrast, Hebebcı (2020) was based on 20 students and 16 teachers. It is rather on a par with Lie (2020) with 18 teachers and 90 students. This gives the present study credibility, validity and reliability. The sample is not meant to be representative of the entire young population of Cameroon, as for example the schools were all in urban and not rural areas; correlated with secondary data, it is however possible to draw conclusions valid for Cameroon as a whole.

Analysis and discussion

The potential for m-learning in Cameroon

Students were asked whether they have a phone with internet access.

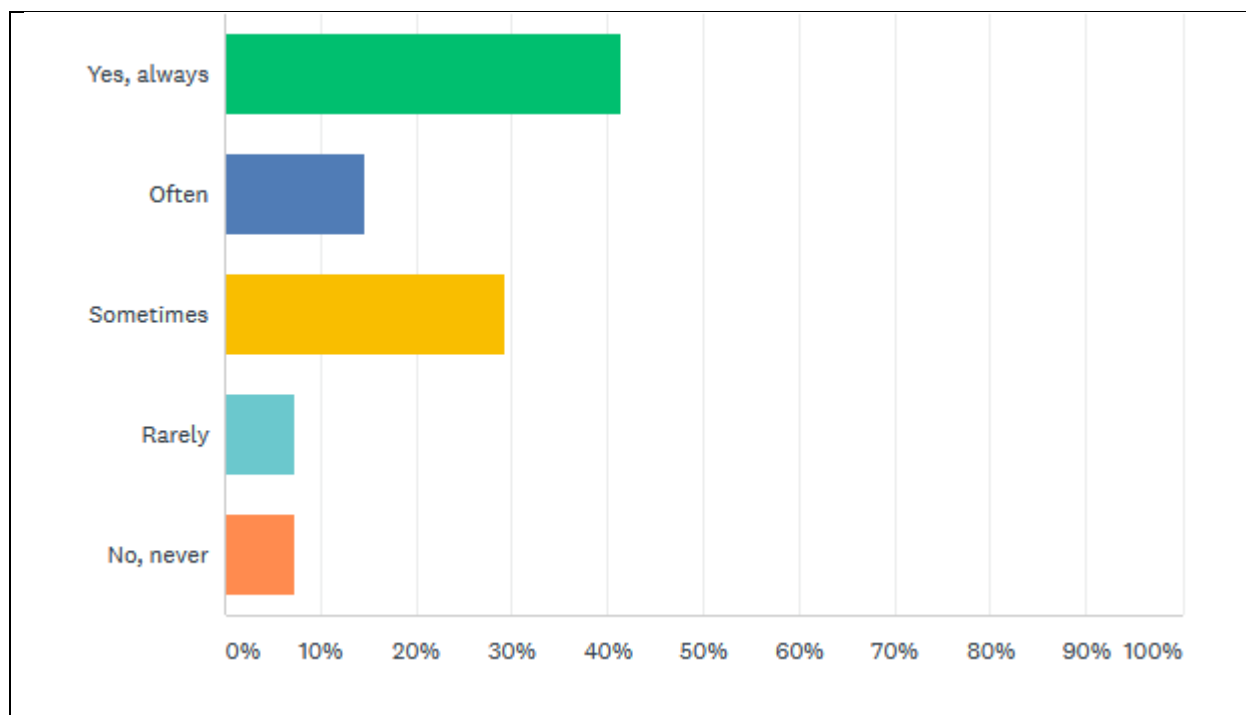


Figure 2: Answer to the question: Do you have a phone with internet access?

Two main lessons can be drawn from these results:

- Firstly, 85% of the students stated that they have a phone with internet access ('always', 'often' or 'sometimes'). This matches the rate of the Cameroon population overall: it was 82% in 2019 (TheGlobalEconomy 2020), which confirms that, methodologically speaking, the sample is representative of the overall population; the slight difference of 3% seems due to the fact that the survey was done in Yaoundé amongst a young population, whereas older people in rural areas are less likely to have a phone. This higher number of 85% shows that the vast majority of students could engage in m-learning, as long as it does not imply constant access to the internet from the phone (unlike the forms of m-learning in MEDC, where youngsters have internet access 24/7).
- Secondly, almost one in ten never has access to the internet on their phone. This stresses the fact that m-learning can only be an educational strategy amongst others, complementing other ways to support students, otherwise some students will be even more excluded. This is an important aspect of m-learning in Cameroon (and other LEDC): it is appropriate for some students, but not all.

M-learning already takes place implicitly in Cameroon

Students were asked for what purpose(s) they use their phones.

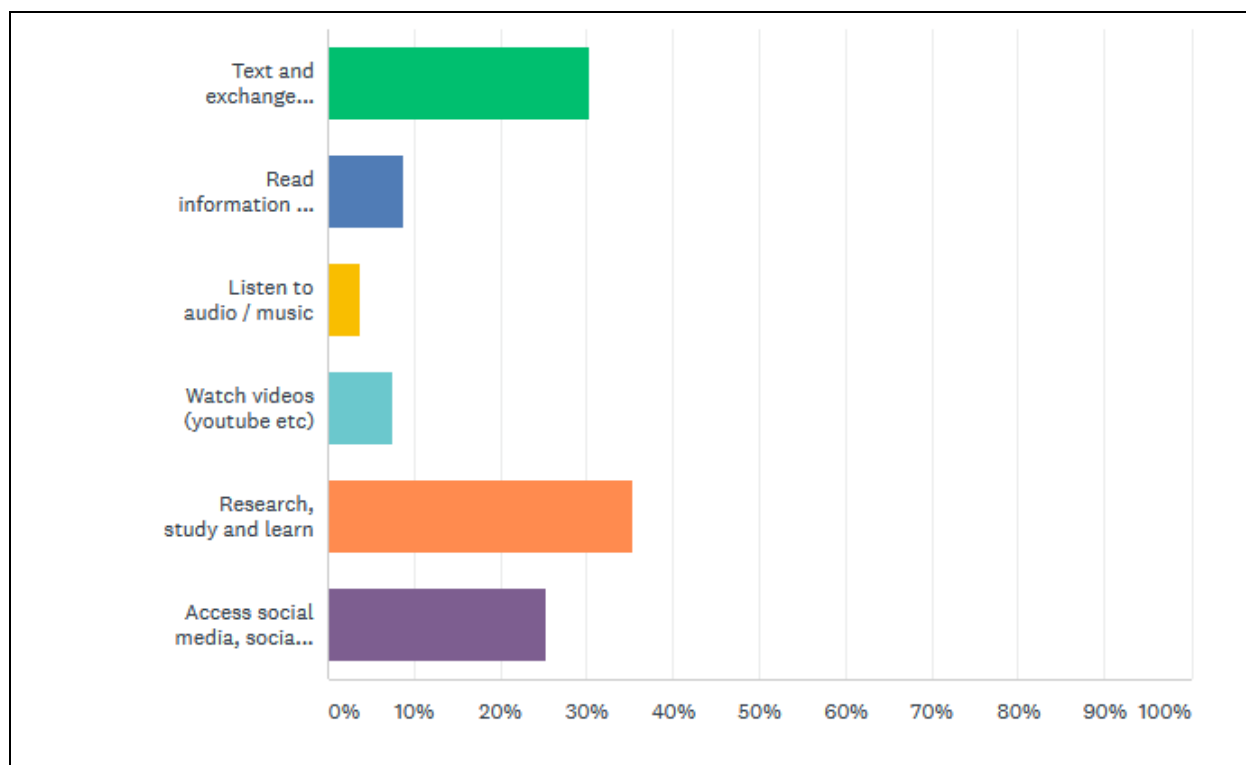


Figure 3: Answer to the question: For what purpose(s) do you use your phone?

One third of students stated that they already use their phones to 'research, study and learn', which corresponds to m-learning, even though the term itself was never used. The other answers provided (e.g. 'listen to audio', 'read information', 'watch videos', 'text and exchange') can all be incorporated in m-learning: m-learning can indeed involve listen to audio, watch a video, read information or exchange messages. This shows that purposefully formulating and implementing m-learning would not require students to learn new skills or to discover and navigate a new learning environment, or a different way to use their phones; this too augurs well for m-learning in Cameroon.

The possible values and benefits of m-learning in Cameroon

In the focus groups discussions, teachers identified and discussed the following three advantages of m-learning:

(1) The basic principle of m-learning is easy to understand. Outside class, students love to use their phones, so they do not need to master a new technological tool. This is usually mentioned as one of the main advantages of m-learning and a key argument to get students interested (Hooker 2016a). Besides, there is no extra cost, unlike the purchase a book, that may also be expensive, heavy to carry and out-of-date.

(2) Maintaining contact is important, not just in case of school closure, but also to show students that they are not alone. This goes beyond school itself, teaching contents and assessment: it is about pastoral care, it is psychological and emotional. In some case, it could actually be “a ‘hook’ to (re)engage disaffected youth” (Mehipour & Zerehkafi 2013).

(3) M-learning can help improve literacy, especially amongst youngsters who may be struggling to read fluently. There is indeed published evidence that m-learning can support children’s literacy learning (Kaleebu 2017, Oakley and Imtinan 2018). Even unconsciously, youngsters do not want to feel excluded and will spend time reading messages on their phone, and responding to them, thereby improving their literacy, even if they do not realize it. All sources such as UNESCO (2020b), the World Bank (2020) and the HALI Network (2020) concur that in Cameroon, youth literacy is around 85%; m-learning could be one tool, amongst others, to help further raise this rate (which, in comparison, is 90% in Gabon and 98% in Equatorial Guinea, according to the World Bank 2020).

Challenges of m-learning in Cameroon

Besides economics (accessibility and cost barriers, especially to buy the airtime and data necessary to go on the internet), teachers mentioned and discussed several challenges

falling into four categories: cultural resistance, students engagement, technology and pedagogy.

(i) Students' engagement

M-learning is a form of active learning that requires students to be independent self-starters, with the intrinsic motivation to start studying – and most Cameroonian students are not used at enquiry-based pedagogical approaches. This is different in a classroom with a timetable and the presence of a teacher; m-learners, on the other hand, must be self-directed, opening their phone to study and resisting the distractions that may occur, such as messaging friends or other sources of entertainment when they are on their phones.

(ii) Cultural resistance

Students see their phones as belonging to their personal, intimate sphere, for their family and friends: they may not readily want to use their phones for school work. M-learning implies a different way to consider one's phone: it must become a tool for studying, not one for leisure. Students may need time and coaching to change that cultural perception.

(iii) Technology

Devices specifications could be sources of frustration for students and teachers alike; the main causes could be the small size of the screen and of the keyboard as well as the slowness, due to the age of the model (obsolescence) or the low bandwidth (when connecting to the internet to download or upload). This could also be a source of inequality between students.

(iv) Pedagogy

Teachers stressed that understanding the principle of m-learning may be easy, but designing effective and meaningful m-learning activities seems abstract, difficult, time-consuming and not necessarily worthwhile. They also asked several questions:

- Is it equally suitable for all subjects and disciplines?
- Is it equally suitable for all students?

- How to use m-learning to assess students?
- How to ensure that it does not become too time-consuming?

Interestingly, these challenges (about students engagement, cultural resistance, technology and pedagogy) are not specific to Cameroon: they will be encountered by any schools starting to put in place m-learning to support students. They are addressed in books about m-learning, especially the ones that propose solutions and practical tips for educators (Hooker 2016a) and school leaders (2016b).

Further issues pertaining to m-learning in Cameroon

Three other issues from the literature about m-learning were not mentioned in the focus groups, but should be outlined here:

(i) Security of personal data: m-learning can expose private information, with threats of data theft and confidentiality breach (Oyelere 2015). Kambourakis (2013) gives a comprehensive review of the risks associated with m-learning as well as solutions (such as encryption and the use of biometrics); although these concerns cannot be ignored, the type of m-learning activities suitable for a country such as Cameroon, with limited online interactions, represent a rather low risk.

(ii) Differentiation: on the one hand, some students with special learning differences (such as dyslexia) may struggle with m-learning (Fernández 2013), but on the other hand, m-learning also present some advantages for dyslexic students (Alghabban 2016). For example, contents can be customized and feedback can be further personalized. A dyslexic student can spend extra time on a task, without the peer pressure of a classroom situation, and can, for example, pause to read and re-read (important for students who may struggle with short-term memory), or change font size or screen contrast schemes to enhance readability.

(iii) Copyright infringement issues: Al-Sammarraie & Abdulsalam (2018) list copyright infringement issues as one of the challenges of m-learning; with the form of m-learning activities recommended for Cameroon, especially shortened versions of textbooks, educators should be careful not to breach copyrights, especially when adapting existing contents. A key difficulty is the fact that suitable materials may not be easy to find, and teachers may find it easier and faster to just download and modify documents, without considering IP (intellectual property) aspects.

Conclusion

Is m-learning in Cameroon different from m-learning in England, Canada or Australia? From one perspective, it is not. There are always some students or teachers who may be initially reluctant to use their smartphones for school work; there are always concerns that not all students will engage and benefit in the same way; there are always questions about what is realistically achievable through a smartphone. From another perspective though, Cameroon and similar countries need contextualized forms of m-learning that do not require constant, unlimited access to the internet – and this is a key pedagogical, epistemological and conceptual problem. According to the IMF (International Monetary Fund), in 2020, Cameroon is at the 149th rank in GDP (PPP) per capita, on a par with Sudan and Nepal – in other words, one the poorest countries in the world. Both as theory and practice, m-learning has developed in richer countries where internet access is taken for granted, so there is a need to design and build forms of m-learning that rely more on offline than on online activities.

In a recent paper entitled “*How technology is changing education in Africa*”, Kubickova wrote that “*Mobile technology (also called m-learning) has become one of the top educational resources*” in Africa (Kubickova 2019). M-learning goes beyond education though: it is also a tool of sustainable development. It directly contributes to the UN Sustainable Development Goal #4 (“*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*”), and it is also indirectly linked to Global Goal #8 (“*Promote sustained, inclusive and sustainable economic growth, full and*

productive employment and decent work for all") and to Global Goal #10 ("*Reduce inequality within and among countries*"). Put another way, in the Sub-Saharan context, m-learning is not just only about enhancing education and students' learning, but it has the potential to lead to wider socio-economic changes.

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