

A Decade Later – Revisiting the Untapped Potential of Mobile Learning with Smartphones in Ghana’s Higher Secondary Education

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Abstract

This research paper revisits the potential of mobile learning with smartphones in Ghana’s higher secondary education, focusing on the changes and challenges over the past decade. Conducted in the Volta region, the study builds on previous research from 2013 to evaluate the adoption of mobile learning and the preparedness of the education system for new technologies. Through a Concurrent Transformative Mixed Methods approach involving observations, interviews, and a questionnaire, the study finds that while smartphone penetration (+173.33%) and internet access (+23.53%) among students have significantly increased, institutional support and infrastructure remain insufficient. The continued ban on mobile phones in high schools, lack of teacher training, and inadequate policy implementation hinder the effective use of mobile learning. The paper advocates for a shift in focus from procuring new hardware to enhancing existing infrastructure and developing tailored learning materials and teacher training programs. The findings underscore the need for sustainable and inclusive policies to harness the full potential of mobile learning in Ghana’s education system.

Background & Context

From 2011-2014, research by Grimus about mobile learning with mobile devices at a high school in the region of Volta, Ghana was conducted. Key results from a decade ago:

- Mobile devices were not allowed and not used
- Lack of infrastructure
- Limited teacher capacities
- Access to devices
- Challenges with institutional policies

In 2024 – One Decade Later

Another team revisited Volta and Grimus’s research field to compares her results from 2013 with 2024. Two high schools were visited, one of them was Grimus’s school. Interviews, observations and the same questionnaire from 2023 were carried out.

„Mobile Learning enables individuals to acquire experiences through individual or collaborative learning with the activities of accessing, producing and managing information through digital interaction using portable devices“

Research Questions

RQ1 – How did the adoption of mobile learning change in Ghana between 2013 and 2024, exemplified by high schools in the region of Volta?

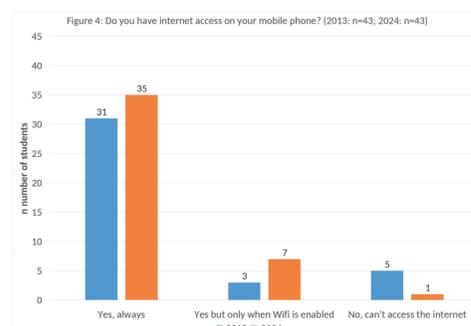
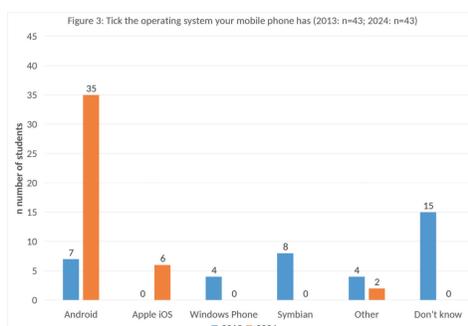
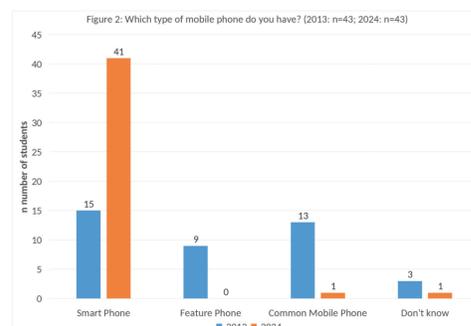
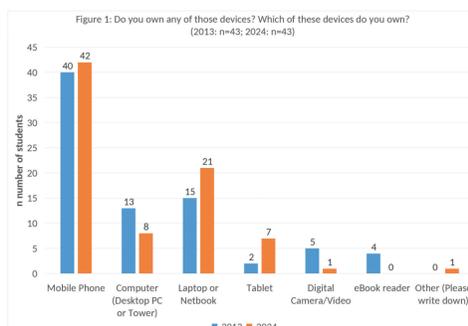
RQ2 – Is Ghana’s high school education system prepared for further adoption of mobile learning and new hardware, exemplified by high schools in the region of Volta?

Methodology

A Concurrent Transformative Mixed Methods Design was chosen. A combination of qualitative and quantitative methods implemented simultaneously and both have equal priority (mixed & concurrent). It carries an advocacy component, thus making it possible to use this research to improve the lives of people who have been marginalized.

Questionnaire	2013	2024
Number of participants n	43	43
Age of participants	age 15 - 20 years Median: 17; Mean: 16.44	

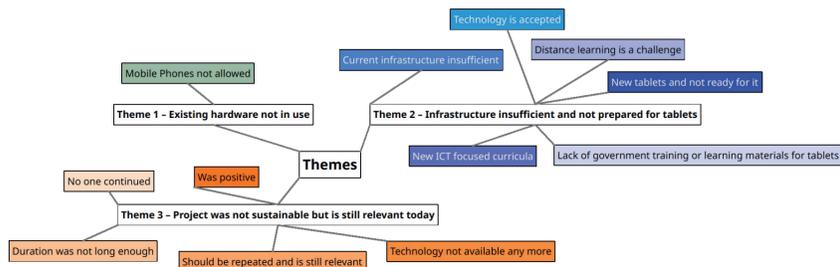
Questionnaire



Interviews & Theme Graph of Thematic Analysis

Semi-structured interviews were used to interview two headmasters, one Head of Department, two teachers, one former student. Teachers and students were part in Grimus's research in 2013. The interviews took

place in a face-to-face setting and notes were taken during the process. The semi-structured interviews notes were digitized, structured and analyzed using Thematic Analysis, see below.



Results & Conclusions

- In 2024, mobile phones are the most used device by students
- Between 2013 and 2024, smartphone ownership increased 173.33% and in 2024, 95.35% of students own a smartphone
- In 2024, 88.37% of students somewhat regularly carry a mobile phone
- Android OS is the most dominant OS as 81.40% own a smartphone with Android
- In 2024, 97.67% can access the internet via their mobile phones: +23.53%
- In 2024, top 3 every day usages are music/video, learning & social networking. Learning jumped from 5 to 2 (2013 vs 2024)
- Existing mobile devices are not in use as they are not allowed at campus. The local government wants to buy new devices in form of tablets for every student
- In 2024, ICT infrastructure, connectivity, electricity, adapted learning materials and

local know-how are insufficient

- Research from 2013 was not sustained on an institutional level. The topic of mobile learning is still relevant, maybe even more than 10 years ago as the needs in 2024 are not different

RQ1 – The adoption of mobile learning is still low and did not change between 2013 and 2024 in Volta, Ghana. While this applies to the education system and its institutions in the form of high schools, students did further adopt mobile learning in their daily routines.

RQ2 – No, neither the education institutions themselves nor the infrastructure nor the policies support mobile learning or new hardware. While hardware is available, there is a the lack of infrastructure, unprepared teachers, learning material not adapted for mobile learning and policy actually working against the usage of mobile hardware.

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