

The Use of WhatsApp for Flexible Learning: Its Effectiveness in Supporting Teaching and Learning in Sierra Leone's Higher Education Institutions

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Abstract—Despite its inherent limitations, WhatsApp messenger has proved beneficial in bridging the gap in technology provision for enhancing students' learning experiences in Sierra Leone. The need to make sure students dedicate time in using WhatsApp for the benefit of improving their learning experiences was emphasised; this as suggested can be done through participation in group collaboration, which involves peer-to-peer and peer-to-instructor interaction. Equally, to advance effective use of flexible learning opportunities, institutions must consider alternatives like Moodle / Blackboard, which already comes with the added capabilities of MIS synchronisation features of integration with students' records. In all of the aforementioned points, there is a need for government support in ensuring the right investment is made in bringing the country's HEI's integrated ICT learning provision to international standard.

Keywords—WhatsApp, Alternative Platforms, Flexible Learning, Qualitative, Sierra Leone

1 Introduction

The advent of technology has transformed the direction of teaching to support learning in the information age. Equally, learning has been made much easier and flexible with the advent of structured technology platforms like Moodle, Fronter, Blackboard, etc., in which students are made to fully participate in a lesson irrespective of where they live on Earth. Such formalised means of technology to support flexible learning normally comes at a cost to institutions, and given the deprived state of investments in education technology in a country like Sierra Leone, it is almost impossible for higher education institutions to effectively harness technology to support the learning experience of students beyond the confines of the classroom environment.

With the advent of easy and cheap means of technology like WhatsApp, there is now a window of opportunity for both learning providers and learners in higher education institutions (HEIs) to explore cheaper means of available learning technology in a bid to ensure learning is made flexible across the learning spectrum. As addressed by

Rambe and Chipumza (2013), WhatsApp has brought in the advantage of bridging the divide between educators and students, more so in developing economies like Sierra Leone. The use of WhatsApp has become common in this direction, with its easy and flexible means of embedding both audio and video contents of teaching resources to capacitate students' understanding of concepts. Unlike the use of structured learning platforms like Blackboard / Moodle, there is hardly any cost to institutions for students to access resources via WhatsApp, but this also comes with limitations given the fact that the onus is mostly on students to be in possession of portable technology gadgets like android phones / iPhones capable of embedding video contents, while there is also the associated cost of subscription for continuous online access.

The use of WhatsApp (instant) messaging as a means for flexible learning is not efficiently utilised in developing economies and the situation is sure to be a disappointing outcome when one considers the state of former war-torn Sierra Leone, which was once seen as the Athens of West Africa (Jackson, 2016a). With the growing need to improve access to learning opportunities for students around the world and particularly in deprived economies, there seems to be a growing need to explore cheaper options to support flexible learning, both from the instructor and student point of view, particularly in developing around Sub-Saharan Africa [SSA] (UNICEF, 2018). One would subscribe to this notion given people's ease of access to WhatsApp messenger in sharing vital information, which can be easily disseminated far and wide in the global community.

On the basis of the above introduction to the research paper, the rest of the work is divided into the following identified sections: section two addresses the rationale, aim and objectives, while section three focuses attention on the state of digital learning technology in Sierra Leone's HEIs. Section four covers the literature review, in view of similar research endeavours that have been undertaken to pinpoint the relevance of social media access like WhatsApp in improving students' learning experiences, while section five focuses attention on the specifics of the research methodology, which in this case was restricted to a qualitative approach. Section six addresses the findings and discourses around the outcomes, which leads to section seven, which addresses the implications of WhatsApp for pedagogical practices. Finally, and not the least of all is the conclusion, which summarizes the outcomes, with some recommended points for future practice, particularly in terms of improving students' learning experiences of technology usage in Sierra Leone's HEIs and also featured alternatives like Moodle / Blackboard.

2 Research Question, Rationale, Aim(s) and Objectives

In order to progress on with the research, it is hereby necessary that the following research question is proposed: In the given state of constrained conditions faced by HEIs in Sierra Leone, is WhatsApp a suitable means for supporting flexible learning in the current information age?

In a growing global community where career development is now seen to be driven heavily by the use of technology (Jackson et al, forthcoming), and which in this case

incorporates WhatsApp, it is vital that effort is placed in exploring the effectiveness of the cheap means of technology-mediated learning and its effectiveness when compared to a more suitable learning platform like Moodle / Blackboard. It is on this background that the researcher has set as the thrust / rationale for this research to address as the main aim to explore the effectiveness of WhatsApp as a flexible means of supporting effective learning for students in Sierra Leone's higher education.

On the basis of the above question, it is worthwhile that the following objectives are spelled out as follows:

- Assess WhatsApp effectiveness in supporting flexible teaching and learning in Sierra Leone's higher education system.
- Explore the scope of alternative platforms as a supplement for effective teaching and learning.

3 The State of Digital Learning Technology in Sierra Leone's Higher Education System

The education system, particularly that of HEIs, is still behind what is expected of regional comparability, but it is believed that efforts are being made with the introduction of the '*Directorate of Technology and Innovation*' at the State House, headed by a Director; one would expect such vision to improve the outcome of quality learning through improved access to technology learning and will help make a difference to the country's prospects of improving access to technology at all levels in the education provision.

The use of internet access introduced in the year 2002 in schools and higher education institutions in Sierra Leone was a great stride in championing flexible learning as explained by Kargbo (2002). For a country that had just come back from the trauma of civil crisis, this was seen as a step in the right direction for introducing the internet, with increased scope for harnessing vital research materials for improvement in students' learning experiences. It is believed that such adventure to introduce Information and Communications Technology (ICT) as part of the curriculum has now given rise to increased opportunities for students in the country's education provision to utilise flexible means of technology like WhatsApp, not only as a means for social network communication, but most importantly, an improvement in their learning opportunities.

The need for a national policy on ICT, which started in 2006, was also a good move given the fact that the country needed to catch up with similar economies in the West African region and this specifically calls for an upgrade on teacher education to cover distance education (Alluri and Zachmann, 2008). This was a very good focus as it was also seen as a way of expanding technology provision through flexible learning in the country's education system.

The education curriculum provision across all stages has made good progress in terms of ensuring that ICT is taught as part of the core curriculum to secondary schools across the country. In so far as this is done, there needs to be dedicated effort to ensure structured means is provided to support a directed and flexible style of learning across

the education curriculum provision. Jackson (2016b) made an attempt in addressing the scope for integrating technology-mediated learning into the higher education learning curriculum in Sierra Leone. Some progress has been made in this direction with efforts devoted by many HEIs to embed curriculum contents into technology elements (Jackson, 2016a and Jackson, 2015).

As part of the objective of strengthening systems for effective delivery of education services, a comprehensive ICT system was incorporated into the Ministry of Education, Science and Technology (MEST, 2018) Sector Plan for the period 2018 - 2020. This is a commitment on the part of the government in ensuring that ICT strategy is not only taught as a subject, but embedded as part of all curriculum delivery contents. It must be noted here that such a plan must be able to make accessible to students, particularly those at HEIs, the opportunities of gaining regular access to ICT connectivity (in this case, continuous internet connection) while in the premises of their respective institutions to make flexible use of the ICT provision as part of their learning venture. In this case, it should involve the use of WhatsApp to download or send essential teaching and learning materials to capacitate students' knowledge of subject-specific concepts.

The relevance of embedding ICT strategy into HEIs curriculum delivery was already addressed by Jackson (2016b), which cannot be over-emphasised in the current digital age given the need for students to broaden their research skills through access to flexible means of technology facilities. In Sierra Leone, there is high craving for WhatsApp by people and not to say the least, students who need the available connectivity to enable them to improve their learning experiences of subject-specific contents. As noted in research by Jackson (2018c), efforts toward expanding research can be made more of a priority by ensuring collaboration is established with international counterparts like the United Nations International Children's Emergency Fund (UNICEF, 2018), which is already championing similar ventures across Sub-Saharan Africa (SSA) to address limited scope for access to technology in supporting effective learning.

4 Literature Review

The growing use of technology to support flexible learning has never been of high priority in Sierra Leone's education agenda until the calamity of Ebola manifested itself around mid-2014. During this period, schools and higher education institutions were brought to a standstill, with no effective learning and teaching taking place. This then resulted in a total collapse of the learning process, while students at all stages in the learning cadre were seen to be taking a year out of their educational pursuit. As noted by Jackson (2016a), there were calls around for flexible learning to be introduced in a bid to making it possible for learning to continue, introspective of the pressure that the then-government was faced with in addressing the issue of pertinent concern to the well-being of an entire nation.

In view of the discussion of flexible learning mediums for students at HEIs, Rambe and Bere (2012) made a very salient case for WhatsApp as a useful form of M-Learning medium at South Africa's University of Technology. Equally, Webb (2011) and Scott

(2007) also provided their case on different forms of technology means to improve students' learning at HEIs' level, of which WhatsApp seems to have featured strongly.

Mutala (2008) laid emphasis on the need for narrowing the digital divide gap in the Sub-Saharan African (SSA) region through introduction of cheap and accessible technology facilities like WhatsApp or even Facebook, which is thought to be very good for users who cannot afford the cost of having to pay high subscription costs to internet providers all the time. Equally, Makoe (2010) explored the use of MXit, which shows how best cell phones can be utilised as opposed to just the stationary usage of desktops in promoting distance learning education. The use of WhatsApp seems quite an excellent medium for flexible learning. In the current age of digital technology, its use for flexible learning would be considered more efficient than other established forms of learning platforms if more of its features can be tailored to address the educational learning experience, which is based on effective collaboration between instructors and students.

In his Ph.D. thesis, Rambe (2009) emphasized the impact of social networking sites on academic relationships and students' learning. Despite the unsolicited usage that is mostly made by some people when accessing social networking platforms like WhatsApp, its use is very much applauded given the ease of access and flexibility of use by people across the world. In this regard, if used appropriately, students' learning experiences can be improved given the fact that group structure can be created to encourage active participation, which can be done either through embedding of texting, voice or video content.

In view of alternative approaches to complementing WhatsApp usage as an easy means for supporting students' flexible learning experiences in the country's HEIs, Jackson (2017 and 2016c) provided some good outcomes on the use of Moodle (an easy-to-use flexible learning platform that allows easy means of collaboration between instructors and students) and MOOCs, which also allow easy means of visual demonstration of teaching and learning outcomes. In view of the limitations and also lack of confidentiality ascribed to the use of WhatsApp as a flexible learning medium, Moodle and other forms of learning platforms like Fronter and Blackboard (used by a majority of universities in the SSA region and developed economies like the UK) provide an alternative for effective and collaborative learning, with the added benefit of embedded confidentiality and constructive feedback add-ons. In the given situation of the associated costs of maintaining sustainable usages of some of the aforementioned learning platforms, it may be a good idea for the creator of WhatsApp to think beyond how best the flexible technology can be used more appropriately in support of improving learning experiences of career aspirants.

5 Research Methodology: Data and Sample Size

The research methodology was strictly qualitative in nature given the researcher's interests in providing deeper and constructive critical discourses on how technology usage of WhatsApp is influencing teaching and learning, while also exploring the scope for alternatives to complement students' usage of flexible learning opportunities. As

obviously known, both the qualitative and quantitative approach to empirical investigations are equally important, even though it may appear by the heavy weighted quantitative researchers that statistical outcomes are considered the best in proving the authenticity of research outcomes (Jackson, 2019; Jackson, 2018d; Jackson, 2018a).

As mentioned, the research is focused strictly on qualitative methodology [unstructured interview] and with three core themes and their sub-outcomes as identified in the consent letter provided in Appendix 1, for which *consent* was sought from each of the participants. In terms of data analysis, the study made use of NVIVO to categorise themes into sub-themes to enable easy analysis. Outcomes of this are presented in Appendix 2 and supported by critical discourse of findings in section 5.

Qualitative interview samples were collected through unstructured interview means using the three themes (See Appendix 2). A specific sample size of 60 learners was drawn from six selected higher education institutions in the country, namely University of Sierra Leone which incorporates Fourah Bay College [FBC], Institute of Public Administration and Management [IPAM] and College of Medicine and Allied Health Sciences [COHMAS]), Njala University, University of Makeni (UNIMAK) and Milton Margai College of Education and Technology (MMCET). In this vein, ten samples were drawn from each of the nominated institutions, covering responses from non-degree, undergraduate and postgraduate degree students' experiences of WhatsApp and any other education learning platforms. This selection was justifiably done in recognition of the regional spread of the HEIs in the country and their curriculum provision.

In recognition of the Delpont and De Vos (2011) approach to qualitative research process, respondents' anonymity was protected throughout in a bid to ensuring the research outcome was fairly managed and most importantly, in recognition of ethical principles when dealing with human participants. The intensity of the qualitative investigation was created to establish the extent of WhatsApp usage as a means of students' learning experiences and this is categorised on the classification of "*non-degree entry courses, undergraduate and postgraduate usage*". The reason for this is to unearth the motivational side of students' learning experiences, and equally, the intensity of their engagement with WhatsApp as a means of supporting career progression, while exploring alternatives.

6 Findings and Discussion

In view of the responses as documented in Appendix 2 and with reference to the first theme (General use of WhatsApp), students at all level of studies (non-degree, undergraduate and postgraduate) have expressed motivation to explore WhatsApp as a means of learning platform while registered as students. This is quite realistic given the limitation of student experiences and the fact that the ICT provision is quite limited in HEIs throughout Sierra Leone. WhatsApp usage for students across the learning spectrum shows that it is something worthy of exploring in supporting their learning experiences given the fact that it is cheap and easy to access anywhere that students may find themselves. While its use for a majority of non-degree enrolled students is highly utilised for social networking, both undergraduate and postgraduate respondents expressed that

they are still exploring its use to improve their learning experiences in building subject-specific knowledge as opposed to its being used for general ICT exploration.

With reference to the second theme (Engagement in flexible learning), the non-degree respondents seemed not to have explored its use to improve individual learning experiences very well. On the contrary, there is a growing interest on the part of undergraduate and postgraduate students to explore some of its features in enabling them to use WhatsApp efficiently to develop subject-specific knowledge. Practically, responses from many of the undergraduate and postgraduate learners show a high level of maturity, particularly with regard to career development options they are focusing their minds on, and also the importance of ensuring they make the most out of their learning experiences given the fact that the majority are funding themselves in enrolled courses.

While all categories of students have expressed the need to explore opportunities for WhatsApp use in group collaboration, it was quite positive for postgraduate respondents given the fact that a majority of them are full-time workers, this was seen as a way of creating WhatsApp groups that would take an account of modules studied in pursuit of improving their learning opportunities. It was also expressed that an instructor's / lecturer's presence in group collaboration will be critical to address areas of concerns relating to subject- / module-specific contents. In general, it is one of the highly focused responses, which makes it relevant for lecturers / instructors in respective HEIs to step up efforts in becoming engaged in group chats as a way of making flexible learning experiences worthwhile for students.

With regard to theme three (Knowledge of alternative learning platforms), students across the spectrum of the learnings cohort groups made it clear that they do not have knowledge of alternative learning platforms. Given the limited use of ICT as a means of embedding curriculum provision in supporting students' learning experiences, use of the word '*platform*' seems quite strange or confusing to a majority of the students. Indeed, students seem quite enthusiastic in exploring alternative means of exploring opportunities to improve flexible learning experiences through the use of dedicated means of ICT platforms like Moodle / Blackboard. In reality, this would also require huge investments, particularly at HEIs in the country. This will not only increase their flexible learning opportunities at a national level, but also improve their scope for collaborative opportunities when it comes to sharing resources with students across national boundaries or at international levels.

Dedicated learning platforms like Moodle / Blackboard come with the added benefits of their capability to integrate students' personal and learning records with institutional Management Information Systems (MIS). This means in comparison with the cheaper option of WhatsApp, flexibility in the learning provision would increase opportunities for collaboration and also assessment, with scope for constructive feedback sent to students anywhere in the world. At the same time, there is confidentiality in constructive comments provided by instructors, which is unlike the case of WhatsApp usage. It also reduces the possibility of assessment marks being fiddled with given the synchronized features embedded in structured platforms like Moodle / Blackboard, which synchronize students' personal details with institutional MIS.

7 Implications for Pedagogy

It has been proved through empirical research (Rambe and Chipunza, 2013 and Jackson, 2017) that the use of technology-mediated provisions like WhatsApp is critical to students' learning experiences, both in terms of individual, peer-to-peer and peer-to-instructor interaction. Flexibility features embedded within dedicated systems meant that whether students are in the confines of face-to-face or a distance learning environment, there is always the opportunity for learning to take place. Given the confidentiality and high security features imposed on more structured platforms like Moodle and Blackboard, it is possible that participation from instructors in a flexible learning environment can be made more onerous where HEIs are to consider it as part of their ICT use policy for increasing students' learning experiences.

As in the case with many developed economies where institutions across the learning provision (schools and HEIs) have incorporated it as part of performance management, it is possible that the implementation of such a situation in a country like Sierra Leone will also help to improve quality in teaching and learning outcomes. In this vein, teachers' / lecturers' assessment of students' learning can be verified by someone else, with records kept as part of a MIS audit trail.

8 Conclusion

The research has unearthed quite important elements of students' experiences of the flexible learning provision through WhatsApp, but also exploring additional scope for the use of alternative learning platforms that HEIs can use in Sierra Leone to improve opportunities for effective teaching and learning. In so far as students (particularly undergraduate and postgraduates) have expressed their desire to engage in flexible learning via WhatsApp, it is also considered good that alternative provisions are made an integral plan of increasing greater opportunities for constructive feedback and students-to-instructors interaction with alternative provisions like Moodle / Blackboard.

Overall, one cannot discount the value that WhatsApp brings to students' experiences given the limited opportunities that HEIs provide in the entire country's educational provision. It is currently serving its purpose of bridging the digital gap in Sierra Leone's HEIs provision, with the additional benefits of students being able to engage in peer-to-peer interaction through WhatsApp groups and also sharing contents. As time progresses, it will be quite interesting to see how best HEIs will negotiate with the government to assist with grant provision that makes it possible for flexible internet capability to be made more accessible by all students, which brings the added benefit of flexibility of dedicated platform (Moodle / Blackboard) use to access contents on flexible gadgets like smartphones. While it is good to invest in learning platforms in support of flexible learning, dedicated efforts will need to be made in ensuring that instructors / lecturers are adequately *au fait* (through targeted in-service CPDs) with the use of technology platforms or even WhatsApp as the commonly used medium to create interactive teaching and learning resources to improve students' learning experiences.

In view of the research question set out, outcomes from the qualitative interviews made it possible for the author to be more conclusive in addressing the two objectives. Critical discourses advanced from the research show that WhatsApp has made some good progress in bridging the technology gap in HEIs' learning provision and the consideration for alternative platforms as specified in the second objective is well addressed here, given the fact that it will need collaborative support from the government and also targeted investment in CPD for instructors to gain relevant skills. Despite constraints of access to suitable or modern learning platforms like Moodle / Blackboard, students have made the best of WhatsApp in progressing with their learning through flexible means by relying on group collaboration to share contents of lecture notes and even video content.

9 Acknowledgement

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12 Appendices

Appendix 1: sample letter of consent

<p>Dear Participant,</p> <p>Re: <u>Consent on your participation for a qualitative enquiry</u></p> <p>I would like to invite your participation and consent to get involved in this qualitative research in a bid to protecting your personal identity, while the resulting outcome is to provide a means of knowledge exploration that will eventually impact positively on pedagogy in the country.</p> <p>Thanking you in advance for your cooperation.</p> <p>Yours faithfully,</p> <p>Primary Researcher.</p>
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Appendix 2

Themes	Non-degree course participants	Undergraduate participants	Postgraduate participants
<p>General use of WhatsApp</p> <p>Motivation</p> <p>For general chat.</p> <p>Used for learning.</p> <p>Cheaper option.</p>	<p>In view of motivation, students' experiences revealed strong motivation for using WhatsApp in improvised learning.</p> <p>Over 60% confessed that its use has not been made effective for learning other than for social networking / chats.</p> <p>Students prefer WhatsApp usage given the fact that it is cheap to use, particularly in sending and receiving text messages, but not video or graphic content.</p>	<p>All undergraduate students expressed motivation for using WhatsApp as part of their experience in learning subject-specific concepts.</p> <p>A majority of students (over 50%) expressed that they are still exploring WhatsApp use as an effective means for learning.</p> <p>In addition, over 90% expressed that it is cheap and hence would like to dedicate more time in using it effectively for learning as opposed to chatting.</p>	<p>In view of the fact that over 80% of postgraduates are mature learners; their motivation level of using WhatsApp seems high given the value placed on their respective education course as a means for career development, and in many of the respondents' views, promotion and job hunting.</p> <p>Many thought that WhatsApp use as a learning platform is still exploratory, but would love to gain more from it given the fact that it is cheap and more affordable to use than even Facebook.</p>
<p>Engagement in flexible learning</p> <p>Ease of use for individual learning.</p> <p>Group involvement.</p>	<p>A majority of the non-degree registered students find it not so useful for individualized learning. On the other</p>	<p>A majority of the students (60% and more) expressed that they would like to explore the option for its use to</p>	<p>Given the age of learners sampled who are mostly in their mid-40s and above, it is thought that they would be very</p>

<p>Engagement with instructors.</p>	<p>hand, a majority found it useful when it comes to group learning, given the added content for embedding videos and also engagement in group collaboration.</p> <p>Engagement with instructors is limited.</p>	<p>support individual learning. On the whole, the entire cohort expressed that they are actually engaging themselves in group collaboration all the time with WhatsApp for learning, particularly during tests and exam periods. Students have expressed their desire for instructors to start making more use of it in groups to disseminate learning resources.</p>	<p>much pleased to explore its use for individual learning and group collaboration. In this case, a majority expressed the need for support in enabling them to explore the educational group feature that would enable them to set up group(s). Its use currently by instructors is limited, but postgraduate students in particular who are mostly full time would like to see instructors use WhatsApp to distribute teaching materials.</p>
<p>Knowledge of alternative learning platforms - Knowledge of alternative option. - Need for alternative.</p>	<p>Given the limited access of students to alternative forms of learning platforms other than the usual WhatsApp and Facebook, students seem not to have any knowledge whatsoever on alternatives. On a positive note, all respondents expressed the need to explore alternative means of learning platforms which they feel should be provided by their respective institutions.</p>	<p>Equally, students seem not to have knowledge of alternative learning platforms and not even MOOCs, which seem common on the internet. There seem to be unified interests in their thirst for exploring other forms of learning platforms.</p>	<p>Postgraduate learners were also not exposed to alternative means of flexible technology platforms. Given their interests in exploring their opportunities for career development goals (as many are already full-time workers), postgraduate learners were very much pleased to see alternative learning platforms like Moodle introduced into the core of their learning experience of subject-specific contents.</p>
<p>Source: Anonymous views by respondents as summarised from NVIVO.</p>			