Application of M-Gov to Provision of Education for all in Developing Nations

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Abstract Due to advances in wireless and mobile technology, a lot of applications have been developed in the areas of health, entertainment, education, agriculture, education among other to harness the benefit of this technology and to provide services closer to the users. In addition, this technology enables the government and private sectors to deliver, manage, organize and disseminate services to public in an more efficient and economical manner. Providing quality and free for all education that is readily accessible is critical in developing countries where most citizens live on less than a 1 USD a day. In these countries, most learners trade off time for education for casual work to earn a living. In such a case, the learners are denied right of access to quality and free education. It is therefore important to illustrate how education managers could adapt mobile and wireless technology to facilitate, control and manage capacity development towards the achieving education for all In this paper, we explore the benefits of mobile governance (m-Gov) of educational resources as a tool to deliver free, quality and accessible education. The paper argues that such an ICT application needs to incorporate all the education stakeholders to attain accountability and transparency on provision of education services. The paper also illustrates the key concepts in implementation of the argued ICT application i.e., m-Gov.

Keywords Education Managers, Capacity Development, Developing Countries, Free, Accessible And Quality Education, Mobile Governance (M-Gov.), Education, ICT

1. Introduction

Much attention has been paid to the use of Information and Communication Technology (ICTs) to improve the delivery of government services to citizens in developing countries. Government and donor funds have adopted two strategies in parallel: (i) the re-engineering and automating of government services, and (ii) the installation of telecenters (community Internet access centers) for citizens to access reengineered government “e-Gov” services. Through e-government (e-Gov), governments are able to adapt ICT to transform inter and intra government (i.e., G2G) interactions, governments and businesses (G2B), governments and citizens (G2C) and governments and their employees (G2E).

The resulting benefits of the ICT adoption has been increase in transparency of government operations leading to reduced incidences of corruption, increased revenue collection, and reduction on operation costs. Similarly to e-government, m-government operates on four levels of interaction: (a) m-government to government (mG2G) referring to inter-agency relationships and the interaction between governmental agencies; (b) m-government to business (mG2B) describing the interaction of government with businesses; (c) m-government to employee (mG2E) concerning the government and its employees; and (d) m-government to citizen (mG2C), which refers to the interaction between government and citizens. The main advantages of m-government services are vast: providing non-location based information and services, personalization and ease of use of the information, and cost effective services in terms of time [1],

to [2], e-government systems differ from commercial information systems and go beyond efficiency, effectiveness and economy in that they include political and social objectives such as trust in government, social inclusion, community regeneration, community well-being and sustainability, though they might be forced with some problems in their efforts of becoming mature in terms of e-government [3] Mobile computers, automated data collection (ADC) devices, and wireless communications can be used for a variety of common public sector activities, including inspections and reporting, asset management, inventory control, security, personnel management and more. Supporting operations with proven technology solutions that can significantly reduce the time, expense and clerical support required to manage paperwork, improve asset availability, reduce losses and improve productivity. This paper aims at exploring the benefits of mobile governance as a tool to deliver quality services in the education manager sector, further looking into the possibility of having all the stakeholders in the education sectors meeting at a common platform, where they can be able to share, use and manage
educational activities in a more efficient, open, transparent manner. The rest of the paper is organized as follows: Sections II presents the potential benefits of m-Gov with specific attention to provision of education. Challenges to adoption of m-Gov are discussed in Section III while Section IV presents the proposed approach of m-Gov for education. Section V points out the various strategies that can be used in integrating m-Gov system into the school curriculum. Section VI presents how corruption can be tackled using this system of m-Gov. And lastly, section VII highlights how we can use this new technology in preventing corruption more especially in developing nations. The Conclusion and Recommendation is presented in Section VIII.

2. The Potential Benefits of M-Gov in Administration

The shift of governance from the classical system towards digital and more specifically the mobile one has been influenced by changes in technology [4]. However, regardless of the mobile device capabilities, no mobile device can deliver any service if it does not have an access to online database for the target data/information.

In facilitating free flows of information among private institutions, government and citizens, as well as between citizens, m-Gov offer remarkable opportunities for promoting transparency, accountability and civic participation [5]. It allows rapid data collection and access to information in addition to facilitate information sharing. Such an application has the potential to enable social mobilization at the grassroots level since it facilitates innovative target oriented methods for campaigning. Moreover, m-Gov can also be used as social accountability tools to empower local communities to monitor development interventions and public service delivery to hold leaders accountable. Other benefits are:

Appliance innovation: innovative travel brands are realizing the importance of mobile to inspire, engage and convert customer. The introduction of multimedia phones has made people carry their phones all the time because of the many features and functions that the phone can be able to offer. This makes it also possible to have the device available for other functions that might involve governance in both the government and organizations [6]. The growing multi-functionality of mobile phones makes them adaptable to a wide range of citizens’ needs and services. Mobile phone with multimedia capabilities can be instrumental to access other media, such as Internet

Affordability: The relatively lower costs of mobile phone technology versus internet technology have lowered entry barriers for poorer people. Mobile phones are no longer considered as luxury goods but as an integral part of people’s lives and citizens in the developing world are prepared to allot a significant amount of their income to mobile communication. Africa has the highest taxation as a proportion of the total cost of mobile ownership among developing regions worldwide. In particular, taxes on handset and mobile devices are much higher than in any other region, constraining citizens’ access to mobile services. Of particular concern are a number of sector-specific taxes on mobile terminals and usage, and special taxes on mobile usage have increased notably in recent years. Recently, Kenya, the world leader in mobile banking services, announced a new 10% tax on money transaction services, threatening an initiative that is in the vanguard of the country’s economic and social development [7]

Interaction: Mobile phones enable real-time interactive dialogue as opposed to other traditional media and offer opportunities to provide instant feedback on events or interventions.[8]

Efficiency: Due to high access, affordability, coverage and real time interaction possibilities, mobile phones can be considered efficient solutions to government communication challenges in developing countries [9]

Social mobilization: Mobile phones can help make individual activists aware of other people who have similar concerns, enabling more effective community mobilization against corruption. In particular, new media – including mobile phones – provide opportunities to reach specific segments of the population who are often more difficult to reach through more traditional media. For example, mobile phones are extremely popular with the young generation and can be used to engage the youth [10]

Security: mobile phones offer one advantage when it comes to security and tracking of users. Everybody is located where he or she is and that can help ensure that the users of the system are more responsible and cautious. Like in Kenya during the post-election violence, surveys where carried out using phones and thus one could see violence hotspots and peaceful areas [10].

Among the benefits that can be realized from the model am proposing of a Mobile Application for education managers are: Easy access to education managers inventory and that will bring about transparency. Linear processing of jobs and thus managers will have their work done quickly and responded in time. The model will enable the managers and stakeholders to network will the various other relevant institutions that will enhance the relevant sector. With the increase in exposure through the mobile internet applications, many problems in the education sector will be solved, and loyalty will be reinforced, increased accessibility like members and managers having a one touch to contact and thus getting the relevant persons. Directions to offices and locations that might need education managers and stakeholders to visit or track can be well visualized through the use of features like maps. Automatic recording of any transactions can be very helpful to managers for tracking whatever happens in an organization. An application with automatic reminders of special events and notifications of special events, luncheons can prove to be very helpful to the education manager, students and other stakeholders in the education sector.
3. Challenges to M-Gov in Education Administration

A thorough measurement of the m-Gov administration readiness needs to measure some of the key categories that can be used as assessment tools, and they include: IT infrastructure, human resources, policies and regulations, environment (economic, political and cultural) and the current e-Gov status [11]. In spite of the potential benefits of using mobile phone in governance, it can also come along with negative impacts which cannot be beneficial to the overall goal of phone centric administration. Lack of digital information resources is a hindrance to the m-Gov administration and there is a slackness with the relevant authorities in acquiring these technologies [12]. Among some of the things that prove to be a challenge are the current political environments that may be in a country. If a country promotes and protects free speech, then there is possibility of having a good administration. Though there is a potential misuse of Mobile technology which can cause more harm than good, a good example being the Kenya elections that were carried on in 2007, text messages were used to catalyze ethnic based violence. Secondly, the infrastructural layout has not been fully exploited thus leaving some parts of the country not enjoying the mobile phone services. Its only now that they are laying down the Fiber Optic cables in most parts of the country, though it’s always on and off because of vandalism and other technical problems, thus leading to poor network.[13]

Security and anonymity is an issue while using mobile phones especially when reporting issues that deal with corruption, because the whistle blower risks being identified or the message can be intercepted. This is the reason why we are having many governments ensuring that all the sim cards that are not registered are disconnected, though the government strategy is to increase the level of security, if it cannot be misused by government authorities. The design and adaptation of the content, this is provided to users through M-government informational and operational functions, in order to fit the different capabilities and limitations of devices and wireless technologies and to support the mobility of the users. [14]. Lastly, Operational challenges and issues like limitation of mobile phones (small screens, short messages, and complicated commands), regulations and legal aspects of mobile applications, costs, payments, revenue sharing etc. all create challenges of interoperability between operators and roaming between countries.

4. M-Gov for Education Managers

Since education for all is the goal of most developed and developing nations, mobile phones can therefore be used to ensure that all have access to important information that will educate the large populations who don’t have access to schools and therefore Mobile phones and ICT in general can be used to by education managers to detect and facilitate education and manage the education systems in developing countries. Some of the activities that can be performed by the managers include: reporting of corruption, because it’s possible to monitor how education related projects are being undertaken. Budgets can also be monitored by the manager and this will control how funds are being used in the education sector, and hence this will promote transparency in operations by providing information to service users. Managers can also have a good system of monitoring how students attend their lecture, more especially those who may want to complement classroom teaching to distant learning. Technology will easily support this [15]. Education managers using relevant mobile applications can also monitoring the attendance and absenteeism in schools and offices, which when corrected can also lead to efficiency in all the areas. Evaluation of teacher/ lecturers and other education officials can be done well using the mobile phones. Election monitoring and accountability can also be done with mobile phones this can be equated to progress reporting of various departments through mobile phones. We can have educators also using mobile phones for social mobilization like attending meetings of functions, and information campaigns.

This can only be done with the introduction of an education manager mobile app and or a dedicated network infrastructure that is going to perform all the desired activities by the education managers. Mobile applications and technology has changed the way our education system is running, both in classroom and outside classroom and the range of uses of such applications varies widely. One advantage of mobile applications is that they are can be accessed for free and thus all the people who have mobile phones that support internet will enjoy the use of this services. This can later lead to more application for education managers that can be used for training purposes and thus this can greatly reduce the cost of training that is usually incurred by the various sectors that are running education in developing countries. One application having all the stakeholder interest incorporate into it will be of great help to the education sector in the overall goal

5. Integrating M-Gov to the Syllabus

There are various ways to integrate this m-Gov technology into the syllabus. First, we can have technology as curriculum, and from this perspective we can maximize the acquisition of information about using a specific technology application, and from this approach of a “technology course” that deals only with technology applications, an efficient, clear, orderly and concise knowledge is gained that takes a relatively short time and all learners are able to acquire a discrete set of technology skills and which when rightly encouraged, they can use this skills in meeting their day to day needs. Secondly, technology can be used as a delivery mechanism in various sub skills that form the entire
curriculum. In this scenario, each learner and stake-holder has the freedom to travel in a unique branched path through the curriculum content. Thirdly, the m-Gov technology can be used as a complement to traditional ways of instructing students. And using good quality software’s, learners can be provided with great variety of experiences that are not limited by the classroom walls or blackboards or by the knowledge or experiences of the teachers. It’s true that good software may provide opportunities for both the teachers and students to learn. Lastly, if we use this technology as an instruction tool and seamlessly integrate it into the instructional activities of the class and other administrative activities, it will give learners opportunities to develop technology skills and experiences in contexts that are similar to those in which technology is used outside the classroom. The skills gained, particularly around the meaningful use of everyday technology applications can be transferred to other settings such as the work place, and this can be used to measure the effectiveness of integrating technology into the curriculum [16].

Technology integration does not happen in a particular location but in a specific type of learning environment. To construct an environment ripe for integration, we must think differently about teaching and learning. The learning environment should be active, constructive, collaborative, intentional, conversational, contextualized and reflective. The attitude of the people who instruct using technology is also very important in determining the effectiveness of applying this technology. It is critical that teachers/instructors possess positive attitudes, adequate computer and technological literacy skills to successfully incorporate this technology into the classroom. Teachers are the main gatekeepers in allowing educational innovations to diffuse into the classrooms. Therefore one of the key factors for effecting an integration of technology in the school curriculum is adequate training of teachers in handling and managing these new tools in their daily practices [17].

6. Fighting Corruption Using M-Gov Administrative System

Two major factors that contribute to the growth of corruption in developing nations include: Low probability of discovery, and perceived immunity against prosecution. Secrecy in government, restrictions on access to information by citizens and the media, ill defined/complex and excessive rules, procedures and regulations lead to a low chance of discovery thus high chances of corruption to prevail. But the m-Gov can lead to centralization of data which can be used for improving audit and analysis. The integration of data across applications can provide improved intelligence, making decisions traceable. As the possibility of exposure of wrong doing gets enhanced, the fear of consequent embarrassment can be a deterrent to corrupt practices. By providing an alternate channel for service delivery, e-Government introduces competition which improves service levels and lowers corruption [18] and by extension, the use of communications technology like the Internet and mobile phones to open up government processes and enable greater public access to information [19].

The benefits from the on-line delivery of services include convenience (location and time) and shorter waiting periods. M-Gov systems may also lead to greater transparency and reduced administrative corruption. The very process of building an on-line delivery system requires that rules and procedures be standardized across regions and made explicit and, therefore, capable of computer and mobile coding. This reduces the discretion and opportunity for arbitrary action available to civil servants when dealing with applicants on a case-by-case basis. Moreover, as the possibility of exposure of wrongdoing is enhanced, the fear of consequent embarrassment can be a deterrent to corrupt practices.

To reduce corruption effectively, some features that lead to greater transparency and accountability need to be consciously built into the design of such systems. M-Gov applications must first increase access to information, then ensure that rules are transparent and applied in specific decisions and, finally, build the ability to track decisions and actions of individual civil servants and users. If all these objectives are pursued, corruption can be reduced significantly.

7. Preventing Corruption in Developing Nations Using the M-Gov System

With the introduction of the m-Gov technology in developing nations, government transparency may generally occur through one the following channels: Proactive dissemination of information by the government, release of requested materials by the government, public meetings and leaks from whistleblowers. In addition to that, the government may provide information to the citizen on various government rules and procedures and also enlightening the citizens of their rights. The citizens need also to be informed through the m-Gov technology about various government actions and decisions, the government’s performance in various ministries, including the educational sectors. Lastly, m-Gov system will enable citizen identify elected corrupt officials and civil servants under investigation for corruption and fraudulent activities and disclosing assets and investments of elected officials and civil servants. This will greatly empower the citizens thus enabling them to make informed decisions thus greatly reduce the levels of corruptions in the various government ministries [20].

8. Conclusion and Recommendations

Nowadays, wireless technologies are becoming more and more popular in all ranges of network access, i.e. personal, local, metropolitan and wide. Such technologies have been
widely acknowledged as complementary channels for two-way transactions between governments, citizens and businesses. As the mobile devices, networks and application evolve m-government services will have to be provided through flexible and adjustable systems which can support different kinds of connections and terminals.

We have looked into the main issues that drive the shift into mobile governance from the traditional way of managing. We have seen the potential benefits of going mobile and the challenges that will come along embracing the new mobile technology in governance. And we have also looked into how the schools can integrate these ideas into their curriculums and syllabus. We have also shown the role of this technology in fighting corruption in developing nations and it can also prevent corruption. Lastly we have looked into the use of mobile applications that will incorporate the stakeholders in education in a common platform and thus ensuring that education for all is met and managed well.

The outcome of this research revealed that lack public awareness, access cost, infrastructural constraints, and the lack of an enabling legal framework remain the main challenges facing the implementation of m-government in the education sector. It’s possible to measure the positive effects of integrating technology into the curriculum through an evaluation of the students who graduate from this particular system, and this study can be conducted in the near future after the system has been in operation for some time. A study conducted by [17] found that students whose teachers had been trained to teach with computers scored higher [in mathematics achievement] than students whose teachers lacked such training and it’s true that the instructors who have learned to integrate technology into existing curricula may teach differently than the instructor who has never received such training. This is proof enough that in one way or another, if well integrated it will have a lot of good outcomes.

REFERENCES


