

M-KINYARWANDA: PROMOTING AUTONOMOUS LANGUAGE LEARNING THROUGH A ROBUST MOBILE APPLICATION

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ABSTRACT

Kinyarwanda, the national official language used by the population of Rwanda, was greatly affected by the tragic history that faced the country. The 13th annual national dialogue held at Kigali from 21st to 22nd December 2015, recommended the government of Rwanda, to put in place all measures to enhance and maintain the above mentioned language. This language, Kinyarwanda, holds the national identity and culture heritage values for the country, since its existence. This study proposes M-Kinyarwanda, an autonomous Mobile language learning application that will integrate multimedia techniques to teach and learn Kinyarwanda, in order to improve the efficiency in the language. The design and development of this mobile learning application will apply the prototype software development lifecycle approach, which requires more user involvement to allow them to see and interact with the prototype for better and more complete feedback and specifications. To measure the success of the developed system, evaluation will be carried out in the lab and expert-walk-through. Also, system field-testing will be conducted. We hope that M-Kinyarwanda will increase the motivation and efficiency of Kinyarwanda language learners, no matter where they are and when.

KEYWORDS

M-learning; Kinyarwanda Learning system; Mobile Assisted Language Learning; Autonomous Language Learning; E-learning.

1. INTRODUCTION

The Influence of English in the globalization movement (Rurangirwa 2012), and the fact that African languages are said to be neglected (Jordan 2013), lead to the inefficiency in African languages (Herman M. Batibo 2005). Hence, Africa needs to promote African languages to enhance and safeguard the cultural and linguistic heritage of the continent, otherwise it will be threatened and perhaps it will be dissolved (Rurangirwa 2012).

From the above perspectives, Rwanda, a country located in central east Africa with a population around 11 million (National Institute of Statistics Rwanda 2016), where Kinyarwanda is the national and official language, faced a tragic history (Block 1994) that forced a considerable number of its citizens to leave the country and look for shelter in other countries. It was argued that language is always in the process of change, and when speakers of what was once the same language are separated by time and space, their pronunciation, vocabulary and syntax are likely to change in different ways (Wolfson 1989).

Actually, four million Rwandans who were repatriated after the 1994 liberation war, affected communication which was stable in Kinyarwanda before, and began to show features of a number of foreign languages brought into the country by the former Rwandan refugees (Habyarimana 2005).

Since then, there appeared varieties of sounds in Kinyarwanda because; only older people had kept their mother tongue as it was before they fled the country and their children either shifted from Kinyarwanda or learnt other languages, or spoke a little Kinyarwanda mixed with foreign languages they had already learnt abroad. In addition, from the 2015 reports, more than 300,000 citizens of Rwanda (International Organization for Migration 2016), lived outside their country of origin. This indicates that the Kinyarwanda language will remain affected, as long as those citizens living outside the country do not have any way through which they can learn or improve their national language.

Furthermore, the high number of Kinyarwanda speakers, around twenty five million (Drame & Paepcke 2010), including those beyond current borders in Democratic Republic of Congo, Uganda and Tanzania, raises the need to develop this language to improve its efficiency.

To assist those who do not have access to Rwandan education system, where Kinyarwanda is taught, we propose M-Kinyarwanda, an autonomous Mobile language learning system that is designed to incorporate multimedia technology. The goal is to provide tutorial services that support and motivate this language learning. We believe that the system will improve learners' motivation for Kinyarwanda learning, and by doing so, it will positively affect autonomous learning, and increase proficiency in Kinyarwanda.

2. OBJECTIVES

The main objectives of this study are:

1. To develop an autonomous & robust mobile language learning app that applies multimedia techniques;
2. To help learners to improve Kinyarwanda language proficiency from anywhere, anytime.

3. AUTONOMOUS LANGUAGE-LEARNING THEORIES

Learner's autonomy, as being the pre-requisite of productive learning (Paracha et al. 2009), has been an area of considerable research interest over the past decades (Dickinson 1995) (Esch 1994) (Godwin-jones 2011). It is a defining characteristic of all sustained learning that attains long-term success (Collentine et al. 2011) and principally an issue of students taking greater control over the content and methods of learning (Collentine et al. 2011). Autonomous Technology-Assisted Language Learning refers to (a) the development and use of technological tools to facilitate language learning, and (b) research on the development, use, and effects of such tools for language teaching and learning (Benson 2012). In recommending autonomy to learners, we assume that taking an active, independent attitude to learning and independently undertaking a learning task, is beneficial to learning; and that somehow, personal involvement in decision making leads to more effective learning (Dickinson 1995).

4. MOBILE APPLICATION FOR LANGUAGE LEARNING

Mobile applications (mobile apps) are software programs designed to run on mobile platforms such as Android (Google), iOS (Apple) and or Windows. According to (Son 2016), language learning applications are defined as applications dedicated to the learning (and teaching) of languages which can be used in and out of the language classroom. These applications can be developed as native apps, web apps and hybrid apps. He (Son 2016) further mentioned that these are Instructional apps, which are explicitly designed with language learning and teaching in mind.

5. THE ADOPTED DESIGN AND DEVELOPMENT APPROACHES

M-Kinyarwanda is expected to be a tool that will focus on closing the gap of proficiency between formal Kinyarwanda learners and those who do not have access to any formal education of Kinyarwanda. In this context, research revealed that motivation plays an important role within the learning process and its existence is essential in order to succeed in learning (Andersen & Brink 2013). This is the reason why we opted for mixing multimedia techniques to keep learners motivated (Andersen & Brink 2013) whenever they are interacting with the application.

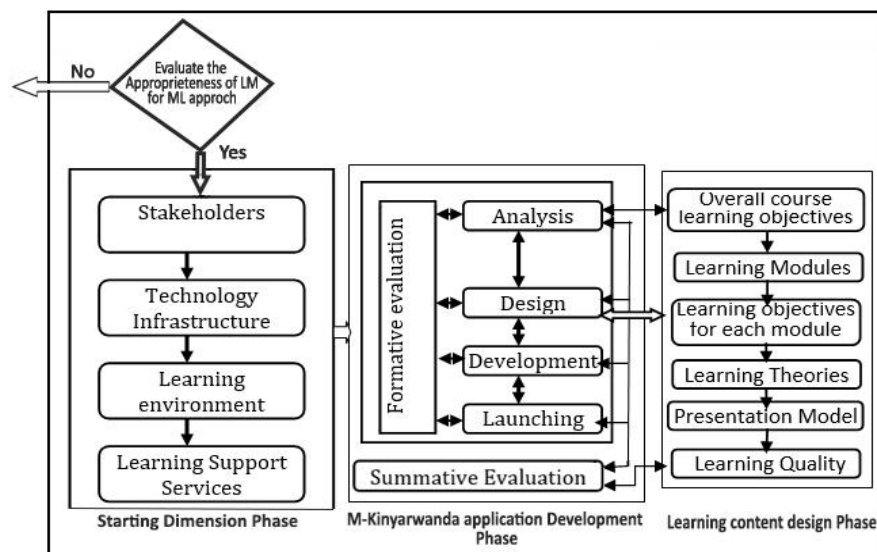


Figure 1. The adopted conception, design and development approaches (Al-Harrasi et al. 2015) for M-Kinyarwanda application.

About the starting dimension phase, as shown on figure 1 above, Kinyarwanda is being taught in the Rwandan education system from nursery schools to the university (Rwanda Education Board 2016). The fact that it has the curricula and other educational materials, gave us the “Yes” answer to the appropriateness of proposing a mobile learning approach, given other factors as mentioned in the introduction. Stakeholders include the Rwandan Ministry of education, Rwanda Academy of Language and Culture, and all Kinyarwanda learners and users.

For M-Kinyarwanda application development phase, the problem statement has been clearly defined. We will make sure to develop M-learning activities that focus on the aspects of technology, learning content, learner and the learning context (Al-Harrasi et al. 2015). Our main target is the community of Rwandans living abroad, primarily those who did not get any chance to study Kinyarwanda at any schools, and later those who know the language but who wish to improve. For development, we are using Android Studio, as an integrated development environment (IDE) released by Google in May 2013 (SAMSUNG 2016). This is a popular framework for mobile application development, which uses Java programming language in order to get a dynamic, interactive, intelligent, adaptive, flexible and learner centered application. We have chosen the Google android mobile phone platform as one of the most anticipated smartphone operating systems (Holla & Katti 2012).

In the last phase, we will focus on the design and quality assurance of learning contents. At the beginning of each module, clear objectives and learning outcomes will be mentioned followed by rich content in the format of text, audio, image and video materials in order to ensure a motivating environment to the learners. We hope to make special contents based on the new competence based and learner centered curricula of Kinyarwanda, published by the Rwandan Ministry of Education through Rwanda Education Board in 2015 (Rwanda Education Board 2016). For the system pedagogy design process, the following factors (Xhafa et al. 2010) will be taken into consideration: (i) content of the course, (ii) learner’s activities, (iii) mode and level of interaction, (iv) impact of new approach, (v) performance indicator, and (vi) learning outcomes.

6. METHODOLOGY

The following are the research questions from which the study will be trying to answer:

1. Whether or not M-Kinyarwanda increases the motivation of language learners;
2. Whether or not M-Kinyarwanda improves Kinyarwanda language-learning outcomes.

We will follow mixed method, both quantitative and qualitative approach, for requirements generation and system evaluation to get quantification of data and for gaining a deep understanding of underlying

reasons and motivations. To conduct this research, the research sample will be made of 10 young Rwandans who grew up out of the Rwandan education system. They will be selected randomly to use the developed prototype of M-Kinyarwanda application. After a specific period, an assessment will be carried out to assess the impact of the developed application on improving efficiency in Kinyarwanda language and their level of motivation while they were interacting with the application.

6.1 The system development model

In order to develop a system, which will more likely to satisfy the user's desire for look, feel and performance, we opted for Prototyping software development model. This is an initial version of a software system that is used to demonstrate concepts, try out design options, and find out more about the problem and its possible solutions (Sommerville 2011). The prototype model places more effort in creating the actual application instead of concentrating on documentation (Sabale & Dani 2012). This way, the actual application could be released in advance. It requires more user involvement and allows them to see and interact with the prototype for further feedback that lead to the software requirements specification (SRS) document, for extra improvement until the desired product (Sabale & Dani 2012).

6.2 Evaluation strategy

With this research, the evaluation framework of the proposed M-Kinyarwanda success will be based on pedagogical, to determine learning outcomes, and technical aspects to address important issues (Son 2016) such as curriculum integration, learner engagement, collaboration, interactivity, feedback and personalized learning. Motivated strategies for learning questionnaires will be used to measure learners' motivation. We will opt for a modified version of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al. 1991) for our research. The reason behind MSLQ is simply the way it assists in investigating learners' eagerness and learning strategies in various subscales. Each subscale will consist of several questions to measure one particular factor. Each of those questions will state a specific learning exercise, and the participants will have to respond in relation to their appositeness.

On the technical side, the usability evaluation will be based on effectiveness, efficiency and satisfaction with which learners can perform tasks with the system. It will be evaluated on [1] user-based where a sample of the learners will interact with the system, and [2] expert-based for the usability dimensions. Experts will examine the presentation, hypermediality and application proactivity (Ardito et al. 2006).

7. CONCLUSION

This paper is about ongoing research on development of M-Kinyarwanda, a mobile application for Kinyarwanda language learning. The issues that most African languages, especially Kinyarwanda, are facing have been clearly mentioned and the proposed solution, design framework, development model and the methodology to follow have been indicated. At the current stage, we wanted to show that there is yet room and need to encourage research and development of language learning applications relating to African languages or for those countries that are facing a similar tragedy as the Rwandan case. The proposed application will provide immediate, customized instructions and feedback to learners, without any assistance from a physical teacher. This will be possible through the integration of various multimedia products and techniques within the current application under development.

M-Kinyarwanda should be considered as a contribution to the lifelong learning innovation that will consider all places where learning takes place. Requirements generation, the design and development of application prototype have been started, and hopefully, M-Kinyarwanda application will be widely available, accessible and benefited from many Kinyarwanda learners and users around the world. At the moment, the plan is to develop a prototype that will be about 70% complete. In the near future, we will implement the full system and allow more users to benefit from it.

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