



Language Learning in a Modern African Context: Enhancing the User's Experience within an ODL and Mobile Framework

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Abstract

The number of people with access to smartphone technologies in Africa is growing rapidly and an estimated 500 million African users were registered with a service provider in 2010 [1]. This makes for an ideal platform for language learning applications as smartphones provide easily accessible, fun and interactive devices. Most users are already familiar with the different ways of engaging with a smartphone and countless games and social applications make use of the immediate nature of the interaction. Users can pose a question or perform an action and get immediate feedback. This interaction can also be utilised in a language learning sphere and the notion is by no means a new one. For the African languages, however, no real development has taken place and even for Swahili, the major language of East Africa, spoken by over 100 million people, there are no state-of-the-art freely available mobile courses.

Currently, the University of South Africa (Unisa) offers free online language learning courses in 5 African languages, namely Setswana, Sesotho sa Leboa (Sepedi), Sesotho, isiXhosa and isiZulu (see http://www.unisa.ac.za/free_online_course/). The content is aimed at first time learners and offers translations of basic phrases and vocabulary that are contextualised with a short video. These courses are accessible via any web browser and with any basic computer, but have not yet been ported to mobile browsers or a downloadable application. In this study, the feasibility of porting existing content to the new platform will be discussed. Challenges faced, such as minimising costs and the size of the application, as well as enhancing the user experience and the learning environment will be given. Certain principles that are crucial to the success of an Open Distance e-Learning (ODEL) framework like that of Unisa will be highlighted, especially with regard to assessment of skills acquired via the mobile application. A report on the current state-of-the-art for this and related technologies will further serve as the background from where a realistic road map for further development is drawn.

1. Introduction

A recent announcement by the South African government [2], as well as a local university [3] that the learning of an African language will be compulsory as from 2014 does not only have considerable consequences for schools and universities in South Africa, but also for the country as a whole. People will be more aware of and more capable of communicating in more than one or two of the 11 official languages. If these languages are taught correctly, the learners will carry with them a lifelong love of the language and want to broaden their knowledge thereof.

Currently, very limited material exists to support language learners who wish to focus on improving their skills in their own time, without much cost involved and with actual real-world examples. Most of the material developed to engage learners of an African language, are either only taught in time-consuming (university) classes or after purchasing expensive software, that is more often than not created by large companies outside Africa with generic course content and a cookie cutter teaching style.

2. Status quo of free online courses with a focus on African languages

Languages like English, German, Chinese and French are well represented regarding free and online computer-assisted language learning (CALL) resources. On the website <http://www.learnalanguage.com/> an extended list of European and Asian languages can be studied but no African languages are available. A basic list of phrases, coupled with a multilingual dictionary to teach conversational usage and vocabulary is provided. Tutors keep blogs with more actual content and links to interesting cultural news and by registering, individual help is offered at a small cost. Links to Google Translate (no longer free) and Babelfish Translation, as well as a few basic games, serve as tools for revision and self-assessment.



Another website, <http://www.openculture.com/freelanguagelessons>, also covers most of the large international languages, plus Swahili, an East African language spoken by over 100 million people. The teaching method consists of downloadable audio lessons to practice in one's own time, plus a social forum where one can use the newly acquired skills or ask for help from other learners. The next popular website, <http://www.internetpolyglot.com/> encourages users to build their own lessons and if one is a registered user (free), one can rate and use the material provided by others. Most of the content on both these sites focuses on teaching vocabulary.

A highly interactive and actual site with soap operas, sport and weather news in various languages can be accessed at <http://www.bbc.co.uk/languages/>. The content draws on the main BBC News content represented in multilingual format. This site is not specifically geared towards teaching a foreign language, but rather serves as additional interactive resource for beginners. No South African languages are represented here.

Within the current South African context, a range of free online language learning courses in five African languages all belonging to the Bantu language family, namely Setswana, isiXhosa, isiZulu, Sesotho and Sesotho sa Leboa, is of significance. These courses are aimed at first time learners and offer translations of basic phrases and vocabulary that are contextualised with a short video [4]. This initiative was launched in 2009 to actively promote African languages on the world-wide-web in anticipation of the Soccer World Cup that took place in South Africa in 2010. While this is a humble beginning focusing on very basic language skills, it is the first initiative of its kind in South Africa. "As the courses are offered online, students can attend to it at their own convenience; they do not have to adhere to any time limits; progress is measured through self-assessment; and courses can be accessed as often as desired." [5].

The Unisa courses are still the only freely available, online African language learning resources. When compared to similar products for international languages, a number of areas where further development is possible, become apparent, e.g. inclusion of real-time interaction between learners; links to other resources; and games and fun content that are included as assessment and are available as so called mobi sites (adapted to browsing on a mobile device or smartphone). In some cases, the audio clips are even offered as a mobile application via the Android App Store (cf. <http://www.openculture.com/freelanguagelessons>).

3. Challenges

It is well-known that learning should incorporate different levels of skills, namely reception, production and analytical skills. With these skills in mind, we focus on some of the complexities of various aspects of African languages in the context of language learning. One of the main challenges is that the African languages are so-called tone languages in which the mere variance in tone in a word results in a completely different meaning. Some of the languages such as isiZulu and isiXhosa, are characterised by click sounds which are suction-like sounds that are produced solely in the mouth and contain much acoustic energy. Due to their complexity, even mother-tongue speakers acquire clicks relatively late along the continuum of phonological development [6].

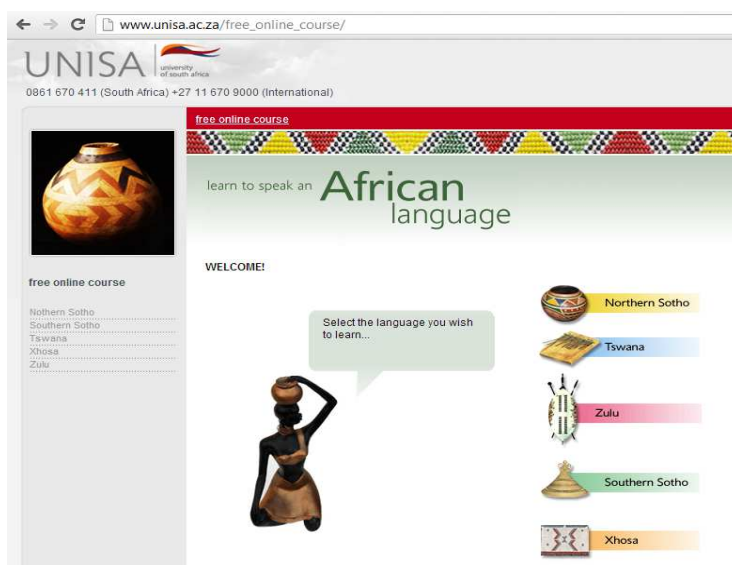


Figure 1. The main screen for the Unisa online language learning courses.

The African languages have a unique morphological structure which is mainly based on a noun class system linking the noun with other words e.g. the verb, adjective, pronoun etc. in the sentence. Some of the languages have a conjunctive orthography, i.e. a number of morphemes are written as part of the same word. A single word in a language such as isiZulu, is often a complete sentence, e.g. *Basazomfundisa* (They will still teach him). This word can be broken down into the following morphemes: *ba-sa-zo-m-fund-is-a* which makes dictionary look-up a challenging task for a language learner. He/she needs to identify the stem/root of the word which contains the basic meaning of the word, and can only then look it up in a dictionary, in this case *-fund-* 'learn'.

Free, online courses go a long way to address the expectations of ODeL considering the view of UNESCO Education [7] that, "Open learning and distance education refers to approaches to learning that focus on freeing learners from constraints of time and place while offering flexible learning opportunities". However, in order to address analytical (cognition) skills, a certain amount of on-line assessment is required, an aspect that has not been addressed in the current free online courses for African languages.

4. Available resources

Research was done into the availability of resources that could bring African languages CALL on a par with international products and trends, while keeping the planned development local, realistic and attainable.

4.1 Corpora and wordlists

The recently launched Resource Management Agency (RMA) [8] offers open source multilingual text and speech corpora, as well as multilingual wordlists that are very useful in CALL to extract examples, additional reading material and to introduce learners to real-world language usage.

4.2 Text technologies

To move from a relatively simple CALL system to a more intricate and interactive ICALL system, advanced core technologies are needed. These tools vary from proofing tools like spell checkers, to language generation as in speech synthesis and are used to provide additional linguistic information to a CALL system and to the learner, but also to assess input received from a learner, give feedback and suggest improvements. Jurafsky and Martin [9] suggest adding spell checking as one of the easiest, but most valuable additions to any CALL system. Spell checkers for all official South African languages and some African languages are freely available as extensions to Apache Open Office from <http://extensions.openoffice.org/en>.

Linking up with a wordnet provides additional suggestions such as synonyms or related concepts in order to provide more learning opportunities. The African Wordnets project is currently under development for five African languages [10].



4.3 Speech technologies

Other future endeavors for enhanced voice interaction are not too far off. Commercial software includes speech recognition and synthesis so that learners can input spoken examples and receive feedback in terms of pronunciation or see a transcribed version of their example (cf. for English the *Pronunciation Power* series of software products [11] and *EyeSpeak* [12]). This not only gives guidance in terms of pronunciation, but also gives a learner the confidence to practice conversations or phrases before experimenting with them in the real world. Teaching the clicks and tonal aspects of the African languages mentioned above, can be greatly enhanced by utilising this technology. Speech applications are extremely costly to develop and for this reason these are not yet readily available for African languages, however speech corpora for speech recognition and pronunciation modelling systems in all 11 South African languages were created by the CSIR Meraka Institute [13] and are available via the RMA [8].

4.4 Mobile applications

The mobile cellular community in Africa is growing at a fast rate. According to Statistics South Africa the proportion of households owning mobile phones significantly increased from 31,9% in 2001 to 88,9% in 2011 [14]. To create and disseminate a mobile application is made easier with development suites for Android, MacOS, Windows Mobile, etc. guiding even novices. So-called app stores such as Android Market or the Blackberry App Store offer e.g. internet access, interactive games and a level of personalisation. Creating a mobile version of the envisioned language learning courses will mean that the project can be even more accessible to users with limited access to desktop computers, while still maintaining the free, online nature of the product.

4.5 Games and interactive content

One of the challenges that the team needs to address, is the need for online assessment of the newly acquired skills. Games and other interactive content can serve as a possible solution to this. Pharos Dictionaries released an electronic version of their popular multilingual illustrated children's dictionary in 2008 [15]. This new version, aimed at children between the ages of 6 and 12, included 5 colourful games, such as a word puzzle game, naming objects and picking the correct translation for a phrase. The games are available in 7 African languages. These games are a suitable example of possibilities to enhance the learning experience, but are only available as part of the software on CD-Rom. Currently, the Unisa courses do not include any gaming components, but this is regarded as an ideal opportunity to stimulate multidisciplinary research.

5. Future work and conclusion

The current free, online African language learning courses [4], are a perfect platform for further development. They are not only user-friendly and easy to follow, but also include content that will enable any new learner to master the basics for an African language. There are, however, still many areas to improve and the following are priority areas for the project:

- Expansion of the current content to include all South African languages;
- Inclusion of games and interactive components to serve as assessment, especially to test the unique orthography and grammar of the languages involved;
- Expansion of skills offered to include pronunciation exercises and assessment so that the tonal aspects and clicks in some of the African languages can be taught;
- Linking other freely available resources, e.g. electronic dictionaries and corpora to provide more learning material to users; and
- Utilising the emerging mobile market to make the courses available to even more users.

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