

# Oral Approach to Computer-Assisted Language Learning (CALL) for Continuation of a Severely Endangered Australian Aboriginal Language

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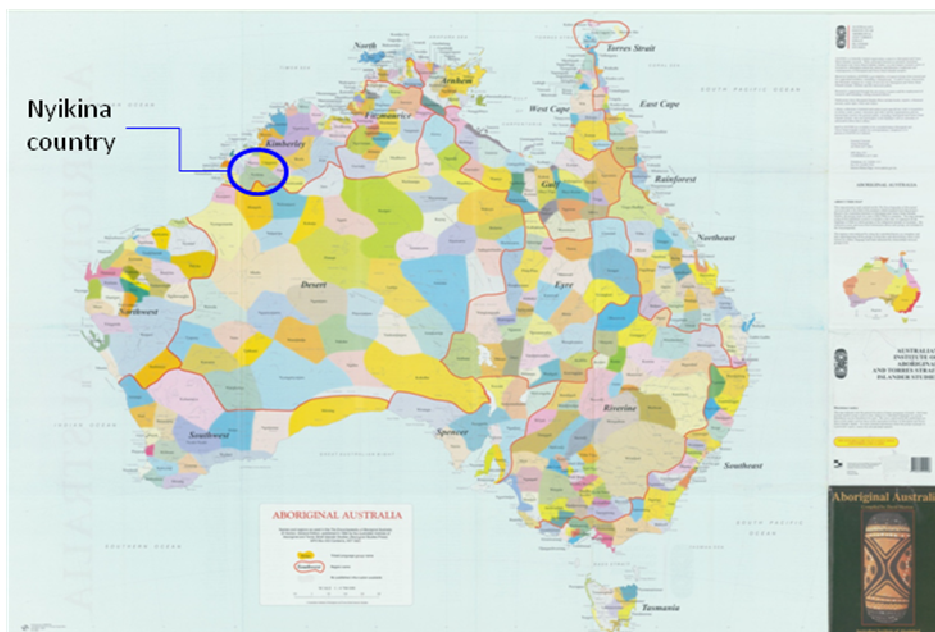
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**Abstract:** A broad issue of concern to many sectors including Indigenous identity is the rapid disappearance of their (usually oral) languages. This project focuses on the production of a computer-assisted language learning (CALL) tool for an Australian Aboriginal language which could be applied elsewhere. The research follows a design-based research (DBR) approach and the methodology based the researcher in the language community to work in partnership to design and develop a program. The first iteration used established CALL principles, accepted orthography, linguistic description and digital resources of a dictionary. The first evaluation and reflection led to deep questioning of the use of written language in language learning. Redesign led to a new process for participation and emphasis on spoken rather than written language. A critical understanding and the consequent design principles have significant implications for the revitalisation of Indigenous languages worldwide.

## Introduction

A broad issue of concern to Indigenous peoples, linguists and world knowledge is the rapid disappearance of Indigenous (usually oral) languages and the few successful models of continuation of severely endangered languages (Hobson, Lowe, Poetsch, & Walsh, 2010). The part of the issue in focus in this project is the production of a computer-assisted language learning (CALL) tool to support the continuation of an Australian Aboriginal language which could be then applied in other languages.

One of the direct and lingering effects of colonisation on the First Peoples of Australia is the loss of language with consequent loss of culture and identity. The Nyikina language community took a strong step in self-determination in the approach to myself in 2009 with a request to write an interactive multimedia CALL (computer-assisted language learning) program for their language based on commercial programs my partner, Heather Kaufmann, and I had previously developed for learning English (see for example (Kaufmann & Westwood, 2005)). As a result of invasion, colonisation and fragmentation of their communities, there are few remaining speakers of the many Aboriginal languages of the Kimberley region in Western Australia. For example, the speakers of the Nyikina language group are now dispersed in several communities of the Lower Fitzroy River of the West Kimberley region of Western Australia, including Balginjirr, Bidan, Derby, Fitzroy Crossing, Jarlmadangah, Looma, and Pandanus Park, as well as Broome (see Figure 1). The Nyikina language - Yajarra Nganka Nyikina – is seriously endangered. It is reported that there were about 50 speakers in 1981 (Stokes, 1982) and it is currently spoken by only a small number of mostly older people (around fifteen) who are called upon to work with learners in the communities to maintain the language. There is a need for accessible, widespread, interactive and current resources to learn and teach the language. However, while there is a computer-based dictionary under development for Nyikina, for complex social, economic, cultural and educational reasons a project to create learning/teaching resources has not been attempted. It is the complexity of the situation that this research project tackled to find a solution, or at least guidelines, for designing and developing such a program for the many minority and endangered languages in Australia and elsewhere in the world (Westwood, 2011).



**Figure 1: Nyikina Country (AIATSIS (Australian Institute of Aboriginal & Torres Strait Islander Studies), 2008))**

Linguistic diversity is crucial to the research of documentary linguists (Dobrin, Austin, & Nathan, 2007; Hinton, 2001) and linguistic theorists (Hinton, 2001). The importance of language is also recognised in the UN Declaration on the Rights of Indigenous Peoples (United Nations, 2007), endorsed by Australia, including acknowledgement of the consequent loss of knowledge diversity to the world. However, Lowe (2008) describes the significance of language to Indigenous peoples:

The language of each Indigenous community carried within them, the codes and secrets of their culture, sense of place and spiritual being and its replacement with a foreign language signaled [sic] the reality of the power dynamics between coloniser and the colonised (Lowe, 2008).

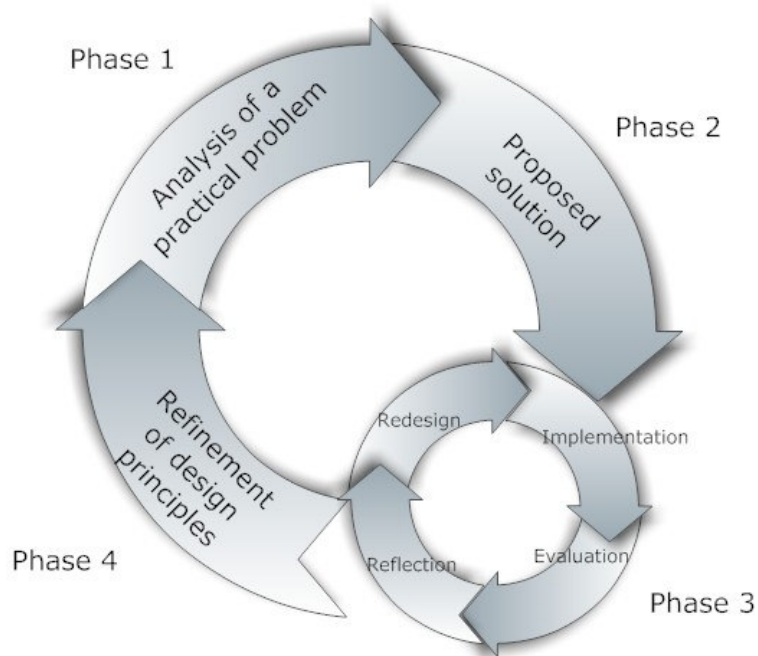
The Nyikina language was first documented and described by Nora Kerr (1969) and later formally documented and described by linguist Bronwyn Stokes (1982). This work has since been extended over a period of 12 years by linguist Colleen Hattersley who has collected new samples of language and collated many existing records into a forthcoming dictionary of Nyikina using the software program Lexique Pro provided by the Summer Institute of Linguistics (SIL). Documentation and description of a language is an essential part of language recording and conservation. However, the creation of grammar, syntax and orthography rules for an oral language can be inaccurate, confusing and hegemonic. Languages such as English have been written for centuries. This has forced the shaping of the language to follow more regular rules with fewer exceptions in both grammar and orthography. The same does not apply to a living oral language which changes with time but which is not necessarily fashioned into a narrowing structure which tends towards simplification of the rules. Hence the imposition of a grammar, a syntax and an orthography on an oral language may result in a more rule-based language than that which is actually spoken. Protea has had experience with creating a language program for Maltese (Schiria, Westwood, & Kaufmann, 1997), which has been written for only a few hundred years. In that case, we encountered numerous differences of opinion regarding grammar and orthography amongst Maltese linguists with whom we were working. Linguists working with languages not previously written have the task of setting down rules for grammar, syntax and spelling, and may take the opportunity to simplify matters to avoid some of the difficulties such as those we still experience in the grammar and spelling of English today. For example, in the Kimberley, the ‘g’ sound (as in ‘rag’) is variously depicted as ‘k’ and ‘g’.

Linguistic documentation, description and even dictionaries do not provide easily accessible resource materials for learning or teaching a language. Such materials are often heavily based on the records of pioneer colonists and

linguists and may not reflect current ways of speaking and vocabulary. Literacy tools such as orthographies and dictionaries give a language status and are seen as vital elements in a strategy to document a severely endangered language (Corris, Manning, Poetsch, & Simpson, 1999). However, they are not used as primary learning resources. While it is necessary to use linguistic documentation artefacts as resources for making learning materials which are specifically designed with pedagogical features and functional aspects that are motivating, attractive and effective for the target audience, it is also necessary to capture current language use and current vocabulary to maintain relevance. To stay 'alive', a language must continue to change as technology, ideas and philosophies change to incorporate these new concepts. As a corollary, language resources must also change and be able to be updated as new words and usage enter the language.

## Methodology

The research follows a design-based research (DBR) approach (as described by Collins et al (Collins, Joseph, & Bielaczyc, 2004) as design research) and the methodology is based on embedding the researcher in the language community to work in partnership with community participants to design and develop a software program from an Indigenous standpoint. Reeves (2006) illustrated DBR as a four phase approach to iterative cycles of exploration and reflection (see Figure 2).



**Figure 2: Four phases of Design Based Research (after Reeves, 2006, p.59)**

DBR is not a methodology, but a research approach which directs the whole of the study. DBR starts with a problem (Phase 1) and then a theoretical solution is proposed and the principles for design of the solution are formulated (Phase 2); the design is iteratively implemented and evaluated (in a process similar to Critical Participatory Action Research (Kemmis, 2008)) (Phase 3). This cycle is repeated until a satisfactory solution is obtained, and final Design Principles can be drawn for use by researchers and practitioners in similar circumstances (Phase 4). In this study, there have been two iterations of the DBR cycle. As the process is cyclical, the Phases tend to overlap, and the boundaries between phases become blurred. In particular, at the end of the first iteration, reflection on the implementation data merged with a new analysis of the problem and the subsequent modifications to the Draft Design Principles and redesign of the solution.

The first iteration (Westwood, 2011) followed established CALL principles, based on accepted orthography, linguistic description of the language and the digital resources of the dictionary in preparation. While community

workshops resulted in decisions on design elements such as content organisation, interface, content selection and permissions, participation in gathering content was not adequate for gathering the breadth and depth of content (audio, video, images) required. It is assumed that this was the result of trying to work with participants before sufficient relationships had been established between the researcher and the participants. More concerning was the difficulty in developing a sketch grammar (by the consultant linguist) which could be used as the basis of whole language activities in the program, and the consequent problems encountered when trying to transcribe spoken texts using the linguistic descriptions of the language.

## The Turnaround

The first evaluation and reflection led to deep questioning of the operationalisation of decolonising methodologies (Smith, 1999), the relationship between spoken and written language (Harris, 1990), the framework on which the language description was based (Errington, 2008) and the nature of second language acquisition (SLA).

well, to do a dictionary is not easy ... linguists do whatever they want to do with it but we want to see it how we speak (Topsy Chestnut, 2000 (Hattersley, 2011)).

In the first place, decolonising methodologies require equal participation of Indigenous partners in whatever process is undertaken. After living in the remote area for twelve months, I have built stronger and more resilient relationships with those who wish to be involved in 'the language project'. I have reflected upon my own and Protea's methodologies in the first iteration and seen many more occasions for participants to demonstrate self-determination and be critical of the imperialism and colonisation embedded in both the language descriptions and Protea's English programs (Umulliko, 2006) than I was aware of in the first iteration. These include the purpose, audience and content of the program.

Secondly, it is accepted that in languages that have been written for hundreds of years, the speech product varies considerably from the written form of the language. The written form has evolved over time to conform to more refined rules and boundaries, while spoken language tends to increasingly vary ahead of the more grammatically 'correct' form. However, in the linguistic descriptions of languages which have an oral tradition, such as the Aboriginal languages of Australia, there is an implicit expectation of a one-to-one relationship between the written and the spoken forms. In commenting on Roy Harris' criticism of modern structural (Saussurian) and generative (Chomskyan) linguistics of the 1980s, Love notes that

[s]peech, then, is thought of in terms of the pronunciation of written forms. Writing is thought of as a way of setting down speech. These complementary oversimplifications have profoundly influenced Western linguistic theory (1989, p. 799).

The importance of the oral tradition in the continuation of oral languages is stressed by Stephen Harris:

Literacy may broaden the domain of usage of language, and will certainly increase its status, but the vital everyday life of a language is in its oral functions. This means for language maintenance, oral use is more important in school than reading and writing (Harris, 1990, p. 81).

Thirdly, Errington (2008) describes the work of early colonial linguists as following the pattern of those languages more familiar to them. This is direct colonisation of the language under study, in a tradition which has not changed markedly to this day. Nevertheless, and surprisingly, linguistics has largely avoided the postcolonial critique and the unsettling of Eurocentric domination of the past few decades. Bolton (2001) stresses the need for linguistics to be debated in the post-colonial domain. The 'crisis of documentation', a term used widely in anthropology, archaeology and folklore which represents the discourse surrounding the power imbalance and imposition of Western values in interpretation of Indigenous contexts has been noted (Dobrin & Berson, 2011). Those disciplines have struggled for decades with colonisation and coloniality to work from a more moral and socially just position, but linguistics has only just come to this, and mostly from the direction of the inherent power imbalance between linguists and language consultants and rights to self-determination in the preservation and continuation of languages (Pennycook, 2001). Yet there has been no discourse on the colonisation of the documentation of endangered languages. There are calls for more capacity building amongst indigenous linguists, but still no questioning of the nature of linguistic documentation.

Finally, the aural-oral approach to language teaching was generally discarded in the 1970s (Celce-Murcia, 2001), superseded by the communicative approach which incorporated many of the aural-oral aspects, but re-introduced the reading and writing skills in a whole language approach. This is the approach of the Protea programs, highly suited to the teaching and learning of English, but not so the oral languages. In fact most of SLA theory has been developed on the basis of teaching written European languages, and to learners with a high standard of literacy in their first or other languages. We need therefore a revitalisation of the aural-oral method, maximising the affordances of technology, to navigate around the misleading buttresses of colonisation and coloniality in SLA.

The redesign phase thus led to new design principles describing a new process for community participation and a new emphasis for the CALL program based on spoken rather than written language. The program design process was restarted, incorporating found song recordings which connect language, people and country as well as contemporary stories and functional examples of language use. The program includes many interactive activities based on the presented oral resources and requires no literacy for language learning. Instead of short workshops of community respected Elders and speakers alone, we held intensive camp-out workshops on country to get real participation from younger potential learners as well as older speakers to set the parameters of the program and record audio, video and images of the language. Importantly, the new program is not a whole language program in the Eurocentric sense. But it is a whole language within its own context. It uses stories, songs and small chunks of language which are presented orally in language with a spoken English gloss. It is a fully-featured multimedia, interactive CALL program, designed from an Indigenous standpoint, and based on an oral communicative approach.

## Conclusion

While theories of colonisation of Aboriginal languages have been published (Errington, 2008; Kovach, 2009; Pennycook, 2004), it would seem that no-one has investigated the implications of this for educational purposes in language maintenance, continuation, revitalisation or learning (Le Nevez, 2011). The critical approach described here adds significantly and originally to knowledge in the field of critical applied linguistics (Pennycook, 1990) by extending the theory to a practical educational application. This critical understanding and the consequent design principles for learning endangered languages have significant implications for the revitalisation and continuation of Indigenous languages worldwide.

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