**Developing a multilingual mindset: Promoting the development and use of students'
strongest languages and empowering them in English as the academic lingua franca**

Abstract

Although multilingualism is the norm in most countries of the world, monolingualism has
become the hegemonic mindset. In higher education in South African it has become
imperative to give preference to a mindset that recognises our multilingual reality by drawing
on students' strongest languages while supporting them to study through medium of a second
language. An overview is given of a number of theories and models of bilingualism and
bilingual education that have attempted to underpin linguistically flexible approaches to the
acquisition of academic literacy in a 'weaker' language (L2), while drawing on cognitive
abilities acquired in the 'stronger' language (L1). I then zoom in on the process by which bi-
and multilingual students draw on all their linguistic resources to create meaning during
learning opportunities – a process that has become known as 'translanguaging'. Although a
number of empirical studies on translanguaging were conducted in South Africa during the
past 15 years, none of them focused on determining students' opinions about translanguaging
as a pedagogical strategy and a vehicle for the development of terminology, particularly in
African languages. Consequently, a study of restricted scope was conducted in the first
semester of 2015; it included speakers of African languages and Afrikaans. The opinions of
the speakers of African languages were elicited on both translanguaging and
terminologisation, while Afrikaans L1 speakers' opinions were only elicited on the strategy
of translanguaging. The majority of respondents reported experiencing cognitive and
affective benefits. Despite reservations among some African language speakers about
complexity and dialectical variation as barriers, the majority was positive about using
translanguaging as a platform for creating technical terms in African languages. A logical
next step is to investigate translanguaging strategies – both from a lecturer and a student
perspective – in a systematic way. My vision for the Unit for Academic Literacy (UAL) is to
collaborate with other departments in devising strategies that may enhance both acquisition
planning and corpus planning by drawing on students' full linguistic repertoires, and
simultaneously contribute towards the intellectualisation of African languages.

Introduction

Although multilingualism is the norm in most countries of the world, monolingualism has become the hegemonic mindset. In higher education in South African it has become imperative to give preference to a mindset that recognises our multilingual reality by drawing on students' strongest languages while supporting them to study through medium of English and Afrikaans. This inaugural address builds on the assumption that multilingualism is a resource that should be built on, rather than a problem that should be fixed. I discuss a number of theories and models of bilingualism and bilingual education that support 'additive' educational models (L1 as a resource), and give an overview of empirical studies on translanguaging in Africa during the past 15 years, which draw selectively on these theories and models. The research gaps that are identified, form the bridge to the second part of the address, which describes the results of a small-scale research project that was aimed at establishing first-year university students' views on translanguaging as a pedagogical strategy and a vehicle for the development of African languages. In conclusion, I summarise my vision for the Unit for Academic Literacy in promoting a multilingual mindset in which our students' strongest languages are utilised as resources for meaning making and social cohesion.

Background and rationale

Two interrelated issues serve as the rationale for this address: students' struggles to study through medium of English (conceptual access); and government policy frameworks and incentives to promote the use of African languages in higher education in order to facilitate conceptual access and social inclusion (Stroud and Kerfoot 2013, 396), or as phrased by Madiba (2013, 394), 'to open implementational and ideological spaces for multilingual education'.

Numerous researchers across the world have highlighted university students' struggle to cope with the demands of studying at university through the medium of a former colonial language that is either a foreign or a second language to them, for example Tsuneyoshi (2005) – Japan; Erling and Hilgendorf (2006) – Germany; Hellekjaer (2009) – Norway; Kerklaan, Moreira and Boersma (2008) – Portugal; Crawford Camiciottoli (2010) – Italy; Evans and Morrison (2011) – Hong Kong; and Kagwesage (2013) – Rwanda. In South Africa, scholars such as Dalvit and De Klerk (2005); Weideman (2006); and Deyi, Simon, Ncobo and Thole (2007) have pointed to low academic literacy in English as one of the major causes of dropout

among African students. The struggles of students for whom English is not the L1 is generally ascribed to both the expansion of English-medium teaching in response to globalisation (Joseph and Ramani 2012, 22), and the massification of higher education (Boughey 2000:281; Evans and Morrisson 2011, 148). In South Africa the apartheid-born system of Bantu Education, poorly trained teachers and dysfunctional schools have been added as contributing causes (Heugh 2000, 4-6).

In situations where a former colonial language is the medium of instruction, minority languages are often regarded as a problem (Ramani, Kekana, Modiba and Joseph 2007, 208). However, in reality multilingualism is the norm, rather than the exception, in most countries of the world (Cummins 2000; Heugh 2003; Heugh and Skutnabb-Kangas 2010; Hornberger 2003). This situation calls for strategies to be put in place that value 'language as a resource', instead of regarding 'language as a problem'. Orientations of language as a resource encapsulate the belief that 'language communities, and thus their systems of communication, each have instrumental value and are interdependent rather than parallel, separate and fundamentally unequal' (Heugh 2003, 47). Stronger and weaker interpretations of language as a resource orientation are found among linguists. Joseph and Ramani (Joseph and Ramani 2004; Joseph and Ramani 2012), among others, adhere to a strong interpretation. They argue that the mother tongue is the most effective route to attaining higher levels of academic cognition, and is immediately usable as medium of instruction – not only after terminology and materials have been developed in it. For universities with highly diverse student populations, complementary models (which may also be regarded as a weaker interpretation) may be the best solution. Here English remains the primary medium of instruction, and students use their first languages as auxiliary mediums of learning, which allows them 'to participate meaningfully in knowledge creation, dissemination and application' (Madiba 2013, 394). Makalela and McCabe (2013) suggest a choice between stronger and weaker interpretations of a multilingual policy for universities situated in regions with strong regional languages, to which they respectively refer as 'institutional' and 'individual' multilingual policies. For instance, at the University of Limpopo, English is the de facto medium of instruction, but 56% of the students are speakers of Sepedi and 24,5% are speakers of Xitsonga as an L1 (Makalela and McCabe 2013, 410). Here, either a trifocal institutional model or a complementary model (English plus Sepedi and Xitsonga) may be feasible.

During the past 15 years, various government policies have attempted to give substance to the provisions of the SA constitution with regard to language in education, *viz.* the *Language policy for higher education* (Department of Education 2002); *The development of indigenous languages as mediums of instruction in higher education* (Department of Education 2003); the *Report of the Ministerial Committee on Transformation and Social Cohesion and the Elimination of Discrimination in Public Higher Education Institutions* (Department of Education 2008); the *Charter for Humanities and Social Sciences Catalytic Project of Concept Formation in African Languages* (Department of Higher Education 2011); the *Green Paper on post-secondary school education and training* (Department of Higher Education 2012a); and the *Ministerial Advisory Panel on African Languages in Higher Education* (Department of Higher Education 2012b).

Two of these documents make overt mention of the extension of vocabulary and the development of scientific terminologies, *viz.* the *Language policy for higher education* (Department of Education 2002) and *The development of indigenous languages as mediums of instruction in higher education* (Department of Education 2003). The *Language policy for higher education* states that South African languages other than Afrikaans and English should be considered as mediums of instruction in institutions of higher learning. The policy recognises that for it to succeed this initiative needs corpus planning, within which the development of multilingual glossaries and dictionaries is imperative. The policy further requires that each university should identify at least one indigenous language for development and acquisition by other speakers. This brief is extended by *The development of indigenous languages as mediums of instruction in higher education* (Department of Education 2003), which confirms that in order for the indigenous languages to be used as mediums of instruction at tertiary level their scientific terminologies need to be extended. One of the strategies mentioned is collaboration between institutions of higher learning and the private sector to identify and translate key texts into the indigenous languages. Collaboration among universities is encouraged to ensure that efforts are not duplicated. Madiba (2013, 387) confirms that the 2003 policy, in particular, 'has led to the adoption of multilingual education policies in about 20 of the 23 universities'. However, Stroud and Kerfoot (2013, 397) contend that institutional policies have failed, and advocate for 'radical re-conceptualisation of the design of academic language and literacy programmes […] in which all available languages and semiotic resources are used and promoted in pursuit of learning'.

One of the strategies that holds potential both for supporting the language as a resource orientation (acquisition planning) by empowering students to become proficient in the medium of instruction, and for occupying the niches that governmental and institutional policies have created for scientific meaning making through students' strongest languages, has become known as 'translanguaging'. In terms of this strategy 'at least two languages are used in a functionally integrated manner to mediate cognitive, social and affective processes in literacy and learning' (Palmer, Martinez, Mateus and Henderson 2014, 759). Theoretically, translanguaging has been linked to a number of theories and models that attempt to account for the process of learning through medium of and becoming literate in a second or an additional language. The following section provides an overview of some of the most influential theories, which, to varying degrees, regard the L1 as an indispensable resource in gaining epistemological access.

Theories underpinning the learning of language (and content) in multilingual contexts

From the 1980s until recently, empirical studies on learning through a second language drew strongly on cognition-based models that originated in the distinction between BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) (Cummins 1979). The Threshold Hypothesis links to the BICS/CALP distinction, and holds that when studying through medium of a second language there is a threshold level of L2 competence which learners must attain in order to avoid cognitive disadvantages. The Common Underlying Proficiency model expresses the assumption that despite the differences between the L1 and L2 in terms of surface features there is a common underlying proficiency that determines a learner's performance on cognitively demanding (academic) tasks in both the L1 and the L2.

This notion was theorised as the Developmental Interdependence Hypothesis (Cummins 2000), and proposes that the level of L1 development makes it possible to develop similar levels of competence in L2. If a learner whose mother tongue is not a high-function language is submerged in an L2 (serving as the LOLT), such a learner is left without a basis for learning the second language well enough to attain the threshold level in it. This hypothesis has been offered as a partial explanation for why some L1 speakers of African languages struggle to assimilate decontextualized language through medium of English, even as late as their first year of university study, despite the fact that at that point in their academic careers

they have participated in at least 9 years of schooling through medium of English. Boughey (2000, 288) contends that many African students have not had the exposure to 'ways of knowing about and looking at the world that are already "academic"; neither have they fully acquired the "surface" forms of the language to express meanings'.

Cognitive models that are focused on languages as discrete entities, even though such languages may be underpinned by a shared repository of cognitive resources, have been criticised by proponents of new flexible approaches. Wei (2011, 1), for instance, regards language not as an entity, but as an act – the act of 'languaging': users continually make strategic choices from all the semiotic resources at their disposal. If Wei's assumption is correct, then a learner's entire semiotic repertoire is present at all times, and thus also surface features (grammar, lexis, phonetics) can be hybrid instead of 'pure'.

The Four-quadrant model (Figure 1), which was designed to aid thinking when designing learning for children with English as an additional language, specifically with minority groups in Canada in mind, also links to the BICS/CALP distinction.
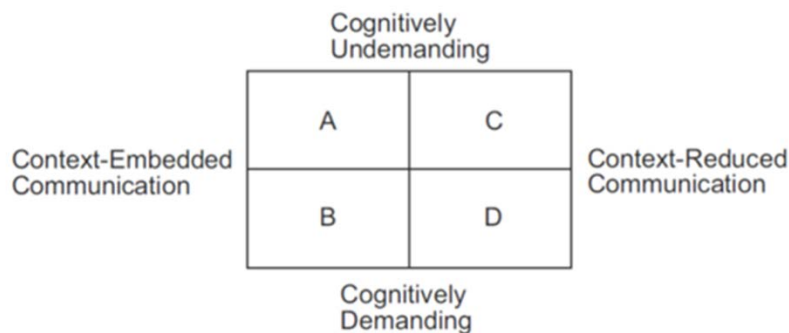
Figure 1: Cummins' (1996) four-quadrant model

The model describes the relationship between language proficiency and academic achievement in terms of two axes: context-embedded versus context-reduced proficiency; and cognitively demanding versus cognitively undemanding activities. Context-embedded language proficiency on the horizontal continuum refers to communication where the messages are embedded in a disambiguating context that contains situational and paralinguistic cues. The left extreme of the continuum represents conversational language, whereas the right extreme represents the communicative demands of academic contexts. The

vertical continuum represents the measure of cognitive effort required by the communicative task, ranging from cognitively undemanding activities to cognitively demanding activities.

An advantage of this model is that it justifies a range of flexible language practices in university classrooms, which are depicted in Figure 2.
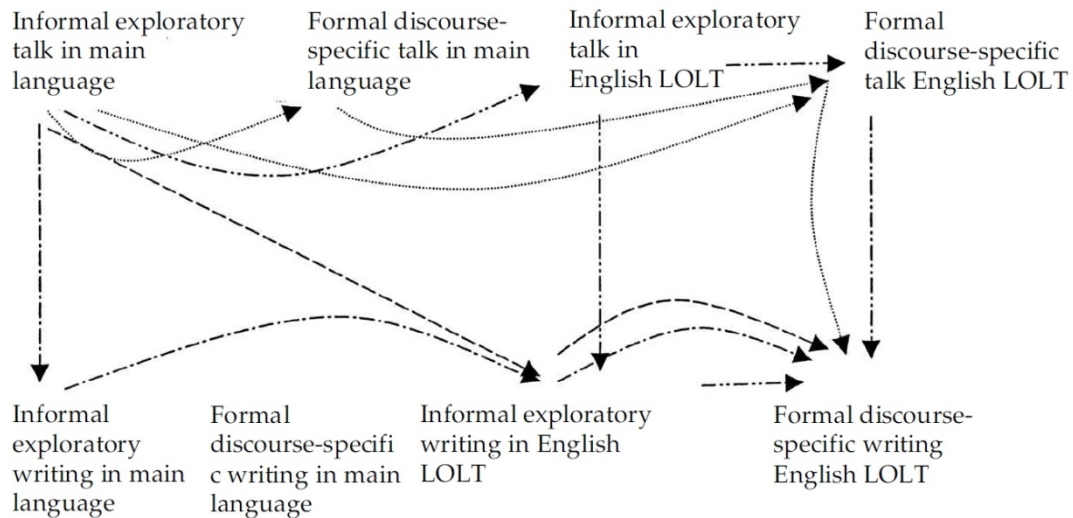
A BICS in face-to-face contexts may sometimes be appropriate for classroom talk (e.g. management functions) *L1 and/or L2 (English) and/or other vernaculars*	C Interpersonal communication in a-synchronous communication (e.g. email, text messages and other social media) *L1 and/or other vernaculars and/or or L2*
B Exploratory classroom talk among teacher and peers about academic topics (negotiating meaning; problem-solving) *Flexible use of L1 and other vernaculars; and L2 (English)*	D CALP: higher-order reasoning (critical reading of academic texts; writing in academic genres; terminology) *Currently L2; DHET goal to develop African languages (L1) to this level*

Figure 2: Adapted version of Cummins' Four-quadrant model

The model draws upon Joseph and Ramani (2004) and Ramani *et al.* (2007), who recommend that learners should be allowed to experience the need for higher cognitive levels of the L1 through their struggle to use the L1 while grappling with academic concepts. These authors predict that the demand for L1 terminology will grow as a result of their need for it 'without handicapping learners' access to academic concepts in their own language' (Ramani *et al.* 2007, 218).

The 'Journey' model (Figure 3) of Setati, Adler, Reed and Bapoo (2002) also deals with learning (through) a second language. What is different about their approach is the emphasis on bi- and multilinguals' 'unique and specific configuration of language, which should not be considered as the sum of two or more complete or incomplete monolinguals' (Setati *et al.* 2002, 133). The model emphasises that language and cognition are inextricably intertwined during exploratory activities (Quadrant B-type), 'which is part of learners' apprenticeship into the discourse genres of subjects in the school curriculum' (Quadrant D-type) (2002, 130). Shifts occur along three (imagined) axes: talk x writing; the 'main' (strongest) language

x English as the LOLT; and formal x informal communication. Both horizontal and vertical shifts are possible:

Informal exploratory talk in main language   Formal discourse-specific talk in main language   Informal exploratory talk in English LOLT   Formal discourse-specific talk English LOLT

Informal exploratory writing in main language   Formal discourse-specific writing in main language   Informal exploratory writing in English LOLT   Formal discourse-specific writing English LOLT
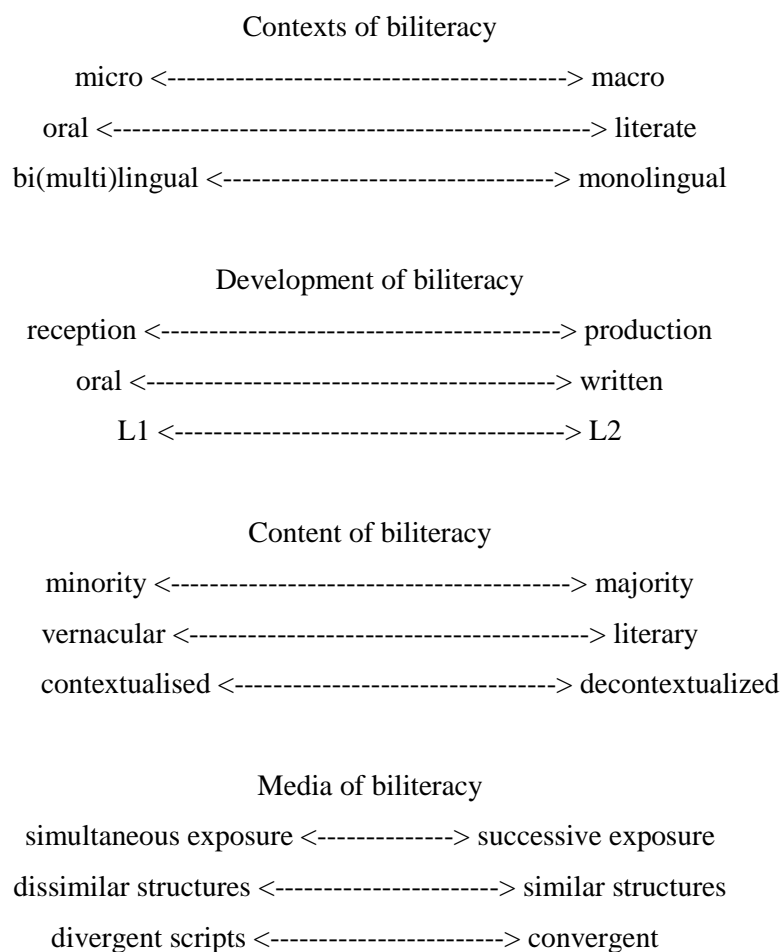
Figure 3: 'Journey' model of Setati *et al*. (2002, 147)

This model is particularly attractive because of the various pathways it offers for learning, irrespective of whether the focus is learning a language or learning through a language. The exact configuration of a particular situation will eventually indicate a pathway through the diagram, which should inform curriculum design and classroom practice. However, the model has an important drawback when viewed through the lens of a flexible multilingual policy: Its ultimate focus is on English as the highest standard of academic achievement, which is demonstrated by one of the authors' main findings:

> Across English, mathematics and science classes the journey that had to be navigated from learners' informal, exploratory talk in their main language to formal, discourse-specific talk and formal written work in English appeared to be incomplete (Setati *et al*. 2002, 139).

Hornberger's Continua of Biliteracy model (1989) (Figure 4) overcomes this 'deficit' of the Journey model and challenges compartmentalized, monolingual literacy practices by creating spaces for fluid, multilingual practices (Hornberger and Skilton-Sylvester 2000). Continua, clustered under the 'nested' rubrics of *contexts*, *content*, *development* and *mediums* of biliteracy, represent the complex and fluid interrelationships that are prevalent between literacy and bilingualism.

Contexts of biliteracy

micro <-----------------------------------> macro

oral <---> literate

bi(multi)lingual <---------------------------------> monolingual

Development of biliteracy

reception <----------------------------------> production

oral <----------------------------------> written

L1 <-------------------------------------> L2

Content of biliteracy

minority <---------------------------------> majority

vernacular <-----------------------------------> literary

contextualised <-------------------------------> decontextualized

Media of biliteracy

simultaneous exposure <--------------> successive exposure

dissimilar structures <-----------------------> similar structures

divergent scripts <-----------------------> convergent

Figure 4: Continua of Biliteracy model (Hornberger and Link 2012, 265)

Although the model can be criticised for its positioning of language practices at different ends of a continuum, which to an extent 'inhibit[s] the demonstration of hybridity or simultaneity' (Van der Walt 2013, 117), it may also be argued that 'the more their learning contexts allow learners to draw on all points of the continua, the greater are the chances for their full biliterate development' (Hornberger and Skilton-Sylvester 2000, 98). In this way the Continua of Biliteracy model further paved the way for flexible approaches to language learning in bi- and multilingual contexts, of which translanguaging has attracted much interest lately.

Translanguaging

The notion of translanguaging developed against the background of the historical separation of Welsh and English (Lewis, Jones and Baker 2012b, 641). From the 1990s the popularity of translanguaging in education started growing internationally, mainly spurred on by a growing

view of bilingualism as being an advantage, rather than a disadvantage. Initially, the focus was still set on bilinguals, and particularly on the function of translanguaging to assist learners in accessing different linguistic features of two languages in order to mediate complex cognitive processes (Lewis *et al*. 2012b, 641). Baker (2011) discusses four potential educational advantages to translanguaging: to promote a deeper and fuller understanding of the subject matter; to help the development of the weaker language; to facilitate home–school links and co-operation; and to help the integration of fluent speakers with early learners. Particularly the first two advantages may apply to content integrated academic literacy learning in higher education. It would also be worthwhile to explore Baker's third advantage, with specific reference to the strategic combination of collaboration and group work. In addition to these advantages, Garcia (2011, 147) recently claimed that translanguaging is an essential metadiscursive for students of the twenty-first century. The research of Wei (2011, 1) adds yet another dimension by highlighting the spaces opened up for multimodal communication as part of multimodal advantages of translanguaging: It allows multilingual speakers to make context-sensitive and strategic choices from the semiotic resources they have at their disposal. To these benefits Pavlenko and Norton (2007), Creese and Blackledge (2010) and Canagarajah (2011) add the establishment of identity positions, and the endorsement of using different languages and literacies simultaneously to engage the audience. Finally, translanguaging is also useful as a strategy for concept development (its cognitive function) in higher education, while simultaneously providing a 'safe space' for experimenting with the creation and use of terminology in the African languages, as highlighted by the work of Madiba (2014) and Nkomo and Madiba (2011).

In the next section I summarise a number of empirical studies on translanguaging in South Africa that were published during the past 15 years, which demonstrate some of the advantages mentioned.

Empirical studies on translanguaging in higher education in South Africa
Van der Walt, Mabule and De Beer (2001) count among the first researchers to problematise the common perception that instruction has to be solely in the language of learning and teaching (English). The authors found 'responsible' code-switching (translanguaging) beneficial in improving students' understanding of subject material in Biology, Physical Science and Mathematics, while simultaneously improving learning and developing technical terms that can provide a bridge to the L1, and aid learning (2001, 75).

Van der Walt and Dornbrack (2011) explored the strategies and coping mechanisms that successful Afrikaans-English bilingual students employ to mediate cognitively challenging material. Qualitative content analysis of individual interviews and post-intervention questionnaires with 11 students registered for the Postgraduate Certificate in Education (PGCE) brought to light that despite the emotional and physical strain students suffered by studying through a second language (2011, 95) they persevered and obtained high levels of fluency in the LOLT, among others by using various strategies of translanguaging.

The research done by Paxton (2009) in an academic literacy module within an extended programme (2009, 351) revealed that the students were generally very positive about the opportunity to discuss difficult concepts in their mother tongues during tutorials. She concludes that giving L2 students access to the concepts they need for exploring ideas and concepts in both English and their primary languages, 'using a range of languages and discourses to negotiate the meaning of unfamiliar terms' constitutes an important pedagogy that needs to be incorporated in curricula (2009, 356).

The focus of the research undertaken by Madiba (2010; 2014) has been 'the role of multilingual glossaries in providing scaffolding for concept literacy in different disciplines at tertiary level' (Madiba 2014, 68). In a pilot project an English glossary translated into the other 10 official South African languages, was used as input to facilitate concept literacy through translanguaging between English, IsiXhosa and Tshivenda (Madiba 2014, 70). Drawing on their multilingual and multiliterate resources, mixing them with English to learn and explain the meanings of concepts, and combining translanguaging with other multimodal resources proved to be a productive strategy to promote discussion and deeper understanding of the concepts at hand.

Joseph and Ramani (2004, 254) and Ramani *et al.* (2007) demonstrate how students enrolled for the bilingual bachelor's degree in English and Multilingualism were guided from basic interpersonal communication, through exploratory talk about academic topics, to higher-level academic literacies through medium of the L1 (Sepedi) (Joseph and Ramani 2004, 254). Going beyond the suggestions by Paxton (2009) and Madiba (2014), they recommend that learners be allowed to experience the need for higher levels of the L1 while struggling to use

the L1 in order to grapple with academic concepts. They conclude that terminologisation is not a prerequisite for L1 instruction at university level (Ramani *et al*. 2007, 218).

The research of Makalela (2014; 2015) focuses on the learning of an additional language at university level, more specifically on establishing the effectiveness of a fluid communicative language practice among Nguni speakers learning Sepedi. Main findings from his research were that 'the use of translanguaging approaches in the Sepedi class dismantles ethno-linguistic divisions of the past' (Makalela 2014, 102), and that the methodology was liberating for speakers of historically marginalised languages and also affirmed the fluid linguistic identities of their speakers. His later study (2015) confirmed these findings, and indicated that translanguaging practices authenticated students' multilingual identities, created an emotionally safe environment, and improved their oral reading competencies.

The studies outlined above have in common that they all emphasise the advantage of translanguaging in mediating cognitively challenging material that has to be learnt through medium of a second language (English). Van der Walt *et al*. (2001), Paxton (2009), Madiba (2010; 2014) and Ramani *et al*. (2007) also mention the benefits of creating and/or using subject-field terminology in the L1 or strongest language to support conceptualisation, while Makalela (2014; 2015) highlights gains in identity formation and social cohesion. However, although all these studies contributed to a better understanding of some of the benefits of translanguaging, none of them attempted to elicit students' perceptions with regard to the gains of the strategy in terms of learning and literacy. The small-scale research project on which I report in this paper was aimed specifically at gaining an overview of the opinions of students from different linguistic backgrounds about the use of translanguaging as a tool to facilitate concept literacy using both English and the L1, while becoming academically literate in English.

Research project of restricted scope

Context

At the university where the research was conducted the official mediums of instruction are English and Afrikaans. However, English has become the preferred LOLT, while tuition is also offered in Afrikaans in core modules, with demand and economic justification serving as additional considerations (University of Pretoria Language Policy 2010).

The languages in which academic literacy interventions are offered, depend on the requirements of the faculties that prescribe such modules. Some faculties opt for interventions in both English and Afrikaans, while others opt for English only, sometimes irrespective of whether the students choose English or Afrikaans as their preferred LOLT. The Faculty of Natural and Agricultural Sciences has, for instance, opted for English only, whereas the Faculty of Law links the language of tuition chosen by the student to the language in which the academic literacy intervention has to be taken. The BSc programmes in Construction Economics, offered in the Faculty of Engineering, the Built Environment and Information Technology, represent yet another model. Students choose Afrikaans or English as an LOLT upon enrolment, and at first-year level they are divided into English and Afrikaans tuition groups. An academic literacy module (ALL 122) serves as an adjunct to a module in Building Science (BWT 110), and is taught in English to both groups (the English group comprising approximately 90 students and the Afrikaans group comprising approximately 60 students), irrespective of whether the students prefer to be assessed in English or Afrikaans in their mainstream modules. The entire population of students registered for BSc programmes in Construction Economics (QS, Real Estate, and Construction Management) in the first semester of 2015 was sampled initially, but later the monolingual English speakers were excluded from the sample.

One of the major assignments in Building Science 110 is writing a report on a visit to a construction site. For this report students need to conduct a brief literature review on the different elements and/or phases of house-building, and compare observations as well as information obtained through interviews on site with their synthesis of theory and best practices. Through this application students have to demonstrate an understanding of construction methods, planning and management processes. The main purpose of the adjunct module in academic literacy (ALL 122) is to equip the students with the necessary skills to cope with the process of gathering information, transforming information and presenting information in the report.

Two years of teaching ALL 122 provided the lecturers with first-hand experience of students' struggles to produce written work at a CALP level – particularly those with Afrikaans and African languages as mother tongues. Problems occur both at the surface level (grammar, lexis, spelling, referencing, formatting) and at deeper cognitive levels (structuring and linking paragraphs and sections, synthesising the literature, and integrating theory and application).

In 2014 the course designer (the author of this paper) and the co-ordinator of the module included additional tasks to scaffold reading and understanding of academic articles, as well as structuring of knowledge. One of the scaffolded tasks included comprehension reading of an academic article entitled *Implementing a waste management plan during the construction phase of a project: a case study* (McDonald and Smithers 1998). Translanguaging, translation and information visualisation (concept mapping) were used as part of the scaffolding to assist students in collaboratively understanding the concept of waste management. As the primary researcher, I was particularly interested in finding out:

1. how effective translanguaging is as a meaning making strategy in academic literacy interventions;
2. what students' attitudes are towards translanguaging as a pedagogical strategy;
3. how effective translanguaging is in facilitating L2 development (English);
4. how effective translanguaging is in facilitating L1 development and terminologisation in particular; and
5. what students' attitudes are towards creating subject-field terms in the African languages, which may facilitate communication in the L1.

Research site

The students in the English and the Afrikaans groups were requested to form groups of three to ten students who share the same mother tongue/strongest language. Each group was given a partially completed concept map on which the most important concepts and sub-concepts were labeled by means of English terms, to allow controlled discussion across groups. This step in the scaffolding exercise was combined with matching English definitions from a randomised list with their associated terms. Next, each group had to supply translation equivalents in the L1 for the given English terms, and also translate the definitions into the L1. Students were encouraged to use the mother tongue/strongest language, or a mix of English and the L1, to converse – as long as the medium of conversation assisted them to better understand the concepts and negotiate the definitions with their group members. In recent research Jones and Lewis (cited by Lewis, Jones and Baker 2012b, 659) identified a combination of translation and translanguaging as an important practice in bilingual classrooms in Wales. One of the types of translation activities included the translation of subject-related terminology.

The students who attended the English class on the day data collection took place consisted of 9 IsiXhosa speakers, 7 IsiZulu, 10 Sepedi, 7 Setswana, 4 each of Xitsonga and Tshivenda, and 16 English speakers. The English mother tongue students took part in the concept mapping exercise, but were not required to participate in the translanguaging and term-creation activities. Therefore the total number of students sampled in the English group was 41. The sample for the Afrikaans group comprised the 55 students who attended class on the day of data collection.

Data collection

After the students had completed the multilingual concept mapping task (in both classes) they were requested to respond in writing to a semi-structured survey questionnaire, comprising the following questions:

1. Has the strategy of translanguaging assisted you in making sense of the concept of waste management? Support your answer by giving reasons.
2. Do you think you will use the strategy during your small group discussions throughout the semester?
3. Has the strategy of translanguaging assisted you in developing competence and confidence in your weaker language (English)? Support your answer by giving reasons.
4. Do you think that the strategy of translanguaging could provide a platform for creating technical terms in your mother tongue/strongest language?
5. Would you use the terms that you have created? When/where?

Data analysis

The data were first analysed 'by hand', using a data table in MSWord, to derive an overview of the content. Preliminary codes were typed in rows inserted below each record. The table was then converted to a .pdf file and uploaded to a hermeneutic unit in the qualitative content analysis program AtlasTi. All the data were then recoded in AtlasTi. The 'final' codes were saved in the 'code manager' of the program. An output file containing all the codes and quotes was subsequently generated, saved and printed. The printout was re-read several times, followed by various cycles of thematic clustering until a coherent picture arose. The code families were then entered into AtlasTi and linked to the related codes. It became clear that the responses to questions 1 and 2, and 4 and 5, could be combined under one theme each, while question 3 required a theme of its own. The rationale was that questions 1 and 2

both probe students' response to the value of translanguaging as a meaning-making strategy; and questions 4 and 5 both pivot on students' attitudes towards terminologisation in the African languages; while question 3 deals with development of the L2. Themes 1 and 2 comprised two codes each (positive and negative responses to the relevant questions), while theme 3 comprised four codes: positive and negative appraisals of terminologisation with regard to two dimensions: translanguaging as a platform for terminologisation and intention to use the terms created during translanguaging.

After reading through all the quotes subsumed under each code I compiled a data table containing the three themes, the 8 codes and their supporting quotes. This led me to embark on an a posteriori coding cycle to label the different types of support provided by students. The final code book (represented as Table 1) reflects the outcome of the entire coding process:

Table 1: Coding scheme

Theme 1: Meaning making	Theme 2: L2 development	Theme 3: L1 development (terminologisation)	
Code 1 +Translanguaging assisted students in making sense of the concept of waste management • *Seeing the bigger picture* • *Discriminating between concepts* • *Simplifying complex concepts* • *Expressing own conceptual understandings*	**Code 3** +Translanguaging assisted students in developing competence and confidence in their weaker language (English) • *Expansion of English vocabulary* • *Improved confidence in using English*	**Code 5** +Translanguaging can serve as a platform to create terms in the African languages • *Communication (making yourself understood)* • *Agency*	**Code 7** +Intention to use L1 terms in future • *Social cohesion among speakers of different African languages* • *Social cohesion among members of the same language community (identity)*
Code 2 -Translanguaging did NOT assist students in making sense of the concept of waste management • *L1 (dialectical) variation* • *L1 complexity* • *Lack of specialised vocabulary in L1* • *English is my strongest language* • *English is the language of scientific communication*	**Code 4** - Translanguaging DID NOT assist students in developing competence and confidence in English • *English is my strongest language*	**Code 6** -Translanguaging is NOT likely to serve as a platform to create terms in the African languages • *L1 complexity* • *English is the universal language* .	**Code 8** - NO Intention to use L1 terms in future • *L1 complexity* • *L1 (dialectical) variation*

Discussion of findings

Theme 1: Meaning making (scaffolding understanding)

Code 1: Translanguaging assisted students in making sense of the concept of waste management

The majority of students in the English and the Afrikaans groups reported positive experiences of translanguaging (Question 1). In their responses to questions 1 and 2, 78 students indicated that translanguaging helped them to better understand the concept at hand (28 from a total of 41 in the English group, and 50 from a total of 55 in the Afrikaans group). Salient reasons include that it assisted them to understand 'the bigger picture' of waste management, to distinguish between different types of waste management and to simplify complex concepts. Apart from these receptive gains students also mentioned production – the advantage of better expressing their own conceptual understandings. The following quotes exemplify the prominent categories of supporting information:

Seeing the bigger picture

(1)   Yes, it has improved my total understanding of the concept [Tshivenda].

(2)   Yes, it expanded my mind in the concept waste management [Sepedi].

(3)   Yes, hearing and reading certain concepts in a language that comes naturally to me. It is easier to form a global picture of something, when it is explained to me in my language of choice [Afrikaans].

Discriminating between concepts

(4)   Yes, by using my home language it was easier to explain, understand and relate the terms to everyday activities [Sepedi].

(5)   I have learned in my language which is Sepedi the difference between other concepts used on site in English, like re-use, incineration, second-hand use and refill.

(6)   Yes, by hearing it in my own language I can better distinguish between different concepts in waste management [Afrikaans].

Simplifying complex concepts

(7)   Yes, because it makes the concept more simple since I have been discussing it in my mother tongue with my group mates [IsiZulu].

(8)   Yes, because it made me understand the concept more and it made it easier to know what it is all about [Sepedi].

(9)   Yes, breaking down waste management in your motherstongue [sic] makes it easier to understand in some instances [Afrikaans].

Expressing own conceptual understandings

(10) I felt that I was able to express my ideas and thoughts [Xitsonga].

(11) If I were speaking to the workers on site. It would help to make their lives easier and for them to understand more [Sepedi].

(12) To help those who don't understand the English technical terms on site. The mother tongue terms could be very useful [IsiZulu].

Although the first two questions of the questionnaire dealt with meaning making, a number of students alluded to the fact that translanguaging *created a safe space for meaning making* within a community of L1 speakers, as exemplified by the following quotes:

(13) Yes, I know my home language [Sepedi] better and more and have less fear of grammer [sic] and sentence construction.

(14) Yes, the big English words were hard, and I didn't understand all of them. I am more comfortable with my group in Afrikaans and therefore understood it better.

(15) The terms and phrases in my language are more understandable as I did Setswana as a home language at school and speak the language on a regular basis as well as read literature books in Setswana.

It is important to note that students mentioned conceptualisation not only in their answers to questions 1 and 2, but also often in their responses to questions 4 and 5. Although these responses were strictly speaking irrelevant, they give an impression of the salience of the understanding and communication of concepts during the process of translanguaging.

Code 2: Translanguaging did NOT assist students in making sense of the concept of waste management

Twenty-one students (15 from the English group and 6 from the Afrikaans group) indicated that they did *not* experience translanguaging as a helpful strategy. These students either reported that there was no benefit to them, or that translanguaging actually complicated their

understanding. The reasons given most frequently were that there is much internal variation in the African languages, that the L1 is too 'complex' to allow meaningful translanguaging, and the lack of specialised vocabulary in the L1:

L1 (dialectical) variation

(16) Xhosa varies depending where you are in SA.

(17) IsiXhosa is a very broad language and so it is not easy to find the best word for what you want.

(18) IsiXhosa is branched.

L1 complexity

(19) Xhosa is too complex.

(20) No, it has not helped. It just made concepts more difficult because isiXhosa is too complex.

(21) No, I find my home language difficult and it was hard for me to translate most of the english [sic] words which involves waste management to Tshivenda.

Lack of sufficiently specialised vocabulary in L1

(22) No, because of the fact that English has a lot of synonyms and Sepedi has limited words. It therefore made it challenging to come up with the correct word without using a phrase.

(23) No, it made me realise how my language has a shortage of some terms especially regarding waste, so it made it even more complicated [Setswana].

(24) No, the translation from English to Sepedi is difficult as many words have a similar function, just changing of a couple of words changes the whole meaning.

Some of the students shifted the focus away from the inadequacies of the L1 to their own proficiency in English: These students regard *English as their strongest language*, particularly because they studied through medium of English from very early on in their careers. Those who did not take their mother tongue as a school subject never acquired written skills in the L1:

(25) I feel more confident speaking English. It has always been my stronger language [Setswana].

(26) English has been a part of my life. I was taught in english [sic] so understand terms in English better than in Xhosa.

(27) Zulu is in actual fact my weaker language. I understood the concept better in English.

A considerable number of students indicated that because *English is the language of scientific communication*, it is not beneficial to use the vernacular for academic communication:

(28) English is the universal language, there is no need for technical terms in mother tongue (Yes I know I sound ignorant) [Sepedi]

(29) I would make them [terms in the Xitsonga] sound more like the English language because that's the language that everyone is used to.

(30) By understanding the words/ideas in your home language [Afrikaans], you can learn the english [sic] terms, and learn the meaning of it. One day in the future it will benifit [sic] me, because it is the most common language.

It is interesting to note that the English LOLT group's responses to Question 2 were slightly less positive than their responses to Question 1: 20 students reported conceptual gains, 5 were uncertain, and 16 were appreciative of the strategy of translanguaging. Among the Afrikaans group 49 of the 55were positive, while 2 were uncertain and 4 felt that they would not use the strategy. The majority of positive responses emphasises understanding. Other reasons for positive responses include facilitation of collaborative planning and confidence building, especially among members of the Afrikaans group. Negative responses from the English group centred on the multilingual composition of the (self-selected) groups for the BWT report; the fact that English is their strongest language; and internal variation in the L1.

Theme 2: L2 development

Van der Walt (2013, 113) is convinced that a 'third space', as was provided in the context of the present research, 'offers the possibility of linking academic literacy development in the powerful LOLT with the use of "non-standard", home or community languages'. Thus, there could be gains for both the L1 and the L2. Overall, more than 70% of the students thought that their English skills had improved as a result of translanguaging. However, internally there was a large difference between the responses of the English and the Afrikaans groups. Fifty out of the 55 Afrikaans L1 students thought that their English and improved, whereas only 21 of the 41 students in the English group reported positive experiences of L2 development (five were neutral and 15 reported a negative appraisal).

Code 3: Translanguaging assisted students in developing competence and confidence in their weaker language (English)

The most important gain reported by the Afrikaans group was *expansion of their English vocabulary*, and the second most important gain was *improved confidence in using English*, as exemplified by the following quotes:

(31) Yes, it made my vocabulary of English much beter [sic] and understanding it [Afrikaans]

(32) Yes, I learned new words and feel much comfortable with the language and more confident in doing tasks in English [Afrikaans].

(33) Yes, by doing so I learn the meaning of new English words and I am becoming more comfortable doing work in English [Afrikaans].

Code 4: Translanguaging did NOT assist students in developing competence and confidence in English

The majority of those who did *not* feel that their English (L2) had developed through translanguaging were from the English group (15, as opposed to 5 from the Afrikaans group). The majority of the negative responses centred on the respondents' belief that *English is their strongest language*, usually as a result of their schooling history:

(34) Because it is more easier to communicate in english [sic] than in IsiXhosa. I never studied IsiXhosa.

(35) I'm used to English as it is what I have learnt from pre-school [Sepedi].

(36) No, english [sic] is not my weaker language in fact my mother tongue [Tshivenda] is weaker.

Theme 3: L1 development (terminologisation)

Responses to the questions on L1 development was only explored with regard to the English group (n = 41), since Afrikaans already disposes of a fully developed scientific terminology in the field of Building Science. The existence of a bilingual *Building Dictionary*, of which the first edition was published in 1960, may serve as a justification for this claim.

Code 5: Translanguaging can serve as a platform to create terms in the African languages

Seventy five per cent of students in the English group indicated that they were positive about translanguaging as a platform to create technical terms in the African languages. One of the

prominent reasons for a positive attitude to term creation was *facilitation of understanding* (6 responses). Another reason that featured a few times was a sense of *agency* connected to contributions with regard to term creation in the L1:

Communication (making yourself understood)

(37) The words I can use them in the presences of the people who are speaking my mother tongue in order to understand each other [Xitsonga].

(38) Yes, because it will increase the rate of understanding [Sepedi].

Agency

(39) Yes, because the strategy has made me feel that it is possible for me to create technical terms in Sepedi.

(40) Yes, we can help to broaden our knowledge in our mother language [Sepedi].

(41) Yes, we need to do it because right now most terms are derived from the English language [Setswana].

Code 6: Translanguaging is NOT likely to serve as a platform to create terms in the African languages

Reservations (negative responses) expressed by students were that term creation in the African languages is a complex process and that English is the universal language.

L1 complexity

(42) After making up or creating ideas in Xitsonga I feel it is much easier to then translate back to English.

(43) We had to think long and hard about translating the terms of which I am still not sure if I understood them [IsiXhosa].

English is the universal language

(44) No, I do not think so. English is the universal language, there is no need for technical terms in mother tongue (Yes I know I sound ignorant) [Setswana].

Code 7: Intention to use L1 terms in future

Just over half of the English group expressed a positive inclination towards the use of newly created terms in the African languages; 10% were neutral, and just over a third indicated a reluctance to use L1 terms. The positive responses were clustered around the sub-themes of social cohesion among speakers of different African languages (Ubuntu) and speakers of the same African language (identity):

Social cohesion among speakers of different African languages (Ubuntu)

(45) I would use them in such a way that would help our mother language and these terms could be used by other people of different languages [Sepedi].

(46) I believe it [IsiZulu] would prove to be useful on site in order to communicate with workers who struggle with nonAfrican [sic] languages.

(47) To help those who don't understand the English technical terms on site IsiZulu could be very useful.

Social cohesion among members of the same language community (identity)

(48) By trying to speak to people on site who speak the same language as myself, thus making communication a lot easier [Tshivenda].

(49) If I were speaking to the workers on site. It would help to make their lives easier and for them to understand more if I spoke to them in their home language [Sepedi].

(50) I could use these terms when communicating with people who speak my language on site [Setswana].

Code 8: NO Intention to use L1 terms in future

Responses reflecting a negative attitude towards future use of the created L1 terms include that *the African languages are 'complex',* and that there is a considerable amount of *internal variation*. Thus it is easier for them to revert to the English term:

L1 complexity

(51) I wouldn't be able to use them effectively because I find it much easier to use the English term [Sepedi]

(52) I cannot use the terms because they actually complicate understanding [Setswana].

L1 (dialectical) variation

(53)   I would not be able to. Xhosa is broad and varies depending on where you live in South Africa. It would be difficult to communicate.

Summative remarks

From the content analysis it is clear that L2 speakers of English from all the represented language groups found the strategy of translanguaging to be beneficial. Overall, cognitive gains featured as the most prominent benefit to students. The majority felt that the process scaffolded their understanding of the concept of waste management (and its sub-concepts) by painting the bigger picture, simplifying complex concepts, helping them to differentiate between related concepts, and helping them to express conceptual content. Only the IsiXhosa L1 group repeatedly voiced the opinion that using their mother tongue complicated instead of simplified their understanding. This finding resonates with Deumert (2009, cited by Dyers and Davids 2015, 21) that speakers of IsiXhosa prefer to use English in texting, as IsiXhosa was regarded to be 'difficult', 'complicated' and 'deep'.

Apart from meaning making, students also highlighted affective gains, such as the space to experiment with language in a safe environment, and collaboration. The speakers of African languages emphasised the benefit of creating a safe environment for experimenting with the L1, whereas Afrikaans speakers emphasised the opportunities for using the L2 in a non-threatening environment, and collaboration. These findings resonate with three of the potential educational advantages of translanguaging mentioned by Lewis, Jones and Baker (2012a, 645): a deeper and fuller understanding of the subject matter; the possible development of the weaker language (concurrent development of L2 ability and subject content); and co-operation.

The Afrikaans mother tongue group was more homogeneously in favour of translanguaging than the English group. A possible explanation is that the exposure of the Afrikaans group to English as a scientific language had been limited, since all higher cognitive level activities had been performed in Afrikaans prior to enrolment at the university. In contrast, the speakers of African languages had received tuition in English for at least 9 years. However, factors such as growing up in print-poor environments, parents not engaging in stimulating cognitive activities, early submersion in English (subtractive bilingualism), inadequately trained

teachers and dysfunctional schools may have caused inadequate development of academic literacy in both the L1 and the L2. The fact that speakers of African languages were accustomed to English as a medium of instruction may have caused them to consider their English as adequate for academic discourse.

Despite reservations among some students in the English group, two thirds expressed support for L1 terminologisation. The primary support included social cohesion among speakers of different African languages (Ubuntu) and social cohesion among speakers of the same language (identity). Reasons for a lack of enthusiasm for terminologisation include perceived lack of existing terms in the L1 (terminological gaps); perceived lack of standardisation in the L1 owing to internal (dialectical) variation; and perceived complexity of the L1 (which may be because of a lack of terms, which necessitates complex syntactic constructions to convey the meaning).

It is not clear from the research what roles students could play in the process of extending the use of the African languages in scientific text and talk. Stroud and Kerfoot (2013, 402) are confident that translanguaging 'can contribute to building academic registers in African languages through bottom-up processes in which students are co-creators of knowledge'. Madiba (2014, 78), on the other hand, believes that glossaries should be compiled by lexicographers, but linked to pedagogical activities, with feedback obtained from students and other users on a regular basis. Two students in my survey voiced the opinion that subject-field experts who understand the African languages should be responsible for creating terms, and that it should not be left in the hands of students.

Overall, the findings of the study suggest that translanguaging is a useful tool to perform multiple pedagogical functions in multilingual contexts, and may contribute towards the intellectualisation of the African languages through the creation of new terms, as well as trialling terms created by experts.

A logical next step would be to investigate translanguaging strategies in a systematic way. It may be a useful starting point to explore the pedagogical functions of translanguaging, and from there to develop curriculum guidelines, which could finally be operationalized as module-specific exercises for use in classrooms and tutorial groups. Ultimately, the

effectiveness of these strategies will have to be measured in respect of academic performance.

Vision for the Unit for Academic Literacy

My vision for the UAL, in collaboration with other language departments, is to become centrally involved in devising strategies that would enhance both acquisition planning (using the strongest languages of students as resources) and corpus planning (developing terminological resources to enable all official languages to the highest levels of scientific discourse). To facilitate this mammoth task it will be necessary to follow a multi-pronged approach: opening up spaces for translanguaging, even where the lecturer is not multilingual; utilising senior students' multilingual abilities combined with their subject-expertise to compensate for a lack of multilingual abilities in our lecturers; establishing and nurturing university–government and inter-university partnerships; investing in curriculum design activities at various levels in formal and informal tuition spaces; providing 'train the trainer' courses and workshops as an extension of the activities of the UAL; and providing non-curricular support in the format of writing laboratory interventions that recognise and build on the diversity of multiliterate and multimodal skills our students bring to the university.

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