This is the author-approved manuscript version of a journal article published in:

Paxton, M. 2007. "You would be a master of a subject if taught in Xhosa…": an investigation into the complexities of bilingual concept development in an English medium university in South Africa. *International Journal of Learning*. 14(6): 61-68.

"You would be a Master of a Subject if Taught in Xhosa…": An Investigation into the Complexities of Bilingual Concept Development in an English Medium University in South Africa

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 Abstract
This paper reports on a research project which set out to explore what happens when students at an English medium university in South Africa are given opportunities to negotiate conceptual understanding in their primary languages. The project employed a range of methods, including concept translation, multilingual tutorial groups, interviews and a survey questionnaire to develop a richer understanding of the possibilities for multilingual teaching and learning in English medium tertiary education settings in South Africa. By allowing the student voices in the bilingual tutorial discussions to illustrate the complex difficulties that students face when they negotiate understanding of new concepts in their primary languages, this paper develops a textured understanding of multilingual concept formation. In addition, the study has provided valuable insights into students' attitudes to multilingual teaching and learning which highlight the very complex relationships between language, learning and identity. Therefore this research should add to the body of research that has begun to emerge on shifting language attitudes and identity negotiation in the multilingual tertiary education context of South Africa (de Kadt 2005, Bangeni and Kapp, in press). The paper concludes by looking at ways in which English medium institutions can offer scaffolded support to ESL speakers who are learning through the medium of English.

Introduction

 Over the last ten to fifteen years, much of the research in academic development in South Africa has focused on acquisition of academic discourse and this has meant that the teaching of academic literacy has made important strides (Thesen and van Pletzen 2006, Paxton 2004, McKenna 2004). However, because of the complex multilingual context of many South African universities, the issue of learning through the medium of an additional language has perhaps not had the focus it should have had, considering that the majority of students in Academic Development Programmes (ADP) in South Africa have to learn through the medium of English although English may not be their mother tongue. In 1993 Bond warned of this when he said "some of us may be in danger of reducing the second language factor to irrelevance in our attempts to understand cognitive and epistemic demands of academic literacy" (1993: 150).

   The South African Department of Education brought multilingualism, and with it, the second language issue back onto centre stage when its Language Policy for Higher Education required institutions to include the strategies they had put in place 'to promote multilingualism' in their planning documents(Department of Education 2002). In response, UCT developed the multilingualism Plan1 (2004) and launched the Multilingualism Education Project to begin the process of promoting multilingualism in the institutional policies and practices and making the campus more of a home to all students.

   At the time of the Multilingualism Plan, 65% of the student population indicated that they regarded English as a first language, while the other 35% had home languages which included all the official South African languages and more. The plan underlined the fact that the medium of instruction at UCT still privileged first language speakers and made academic curricula inaccessible to speakers of English as an additional language (EAL). For instance, it reported that '[i]n several programmes/degrees the discrepancy in throughput rate between English first-language and second-language students is currently over 20 per cent' (2003:2). These discrepancies cannot be located

entirely in second language issues as there are a number of other factors that have impacted on epistemological access to tertiary education in South Africa, particularly the inferior educational legacy of apartheid and its impact on black schooling; nevertheless the second language issue is a significant factor in understanding poor throughput rates.

These statistics are supported by research in mathematics and science education in schools in South Africa (Rollnick and Rutherford 2002, Adler1998, Setati et al. 2002) which highlight many of the problems stemming from the use of English as the instructional language. As Setati et al. (2002) point out, learners in South Africa's ex-Department of Education and Training (DET) schools have been exposed to a curious kind of bilingualism because, although they study English as a Second Language at school, they study through the medium of English from age 9 or 10 and this has had significant implications for the learning process. For instance, as MacFarlane (29.11.06) points out, a young Xhosa-speaking child who is taught mathematics in English might learn a little about English but nothing about mathematics.

Students in these contexts may develop competence in the new language, English, at the BICS (Basic Interpersonal Communication Skills2) level but this may not enable them to perform at the CALP (Cognitive Academic Language Proficiency) level (Cummins 1996). The reason for this is that development of academic skills in English depends not just on exposure to English but equally on the knowledge and concepts developed in the students' own language (Cummins 1996), but research in South African schools (Macdonald 1990) has indicated that students often switch to English as the medium of instruction before they have had a chance to develop CALP skills in a primary language and therefore are not able to transfer the cognitive/academic or literacy-related skills from the primary language to English.

Cummins' notion of CALP represents not only linguistic competence, but the ability to cope with the cognitive demands of the task, the decontextualised use of language (often in print) in an academic setting and the academic conventions (Cummins 1996). Vygotsky's theory of concept development complements the work of Cummins and is useful for gaining further insight into the complexities of CALP. His work emphasizes the important role played by exploratory talk in the development of new concepts. Vygotsky (1962) indicates that through schooling, students move from concrete thinking (in spontaneous concepts) to abstract thinking (in scientific concepts). These scientific concepts are mediated through words which are often decontextualised, instead of being directly seen or experienced. He notes that scientific concepts are developed through use in verbal interaction with an adult or peer. It is while the student engages in verbal interaction that she/he develops the higher thinking abilities of awareness, abstraction and control.

A number of local studies have been conducted to develop a better understanding of the role that code-switching3 plays in Southern African school classrooms (Setati 1998, Setati et al. 2002, Adendorff 1996, Cleghorn and Rollnick 2002). In their extended study of language in mathematics classrooms in South Africa, Setati et al. (2002) note that code switching is important for enabling learners to interact and explore ideas and concepts in a comfortable environment. Adendorff (1996:400) describes code switching as 'a form of sociolinguistic contextualizing behaviour' and he shows by means of data collected in an English medium school with Zulu-English bilingual students, that code switching is an extremely valuable communicative resource which enables teachers to accomplish both social and educational objectives, often clarifying information or giving additional meaning to what is said and done in a conversation. He sums up by saying 'the mother tongue is the solidarity code, the link language mediating between students' knowledge of the world (which is presented to them at home in the mother's tongue) and the preferred mode of representing that knowledge at school in English' (Adendorff 402).

It would seem therefore that the acquisition of new concepts can be better scaffolded by code switching and multilingual usage and that teaching methods that make effective use of code switching may allow richer understandings of difficult concepts and thus begin to close the gaps described in the multilingualism plan for UCT. In fact, studies have indicated that knowledge of a second language

can be an advantage in concept acquisition as it helps learners to see different representations of the same ideas (Swann and Cummings 1979 cited in Rutherford and Rollnick 1996). However, these studies were undertaken in primary and secondary school classrooms and very few South African studies have explored multilingual learning contexts in university classrooms for a better understanding of whether students' primary languages have a role to play in meaning making at university.

Paxton (2004) explored the way first-year student texts are built from a range of past and present discourses, discourse strategies and genres and that in these 'interim literacies' students build on their prior discourses to learn new ways of writing and to appropriate new meanings. The research focused on students writing in English and it showed that for speakers of English as an Additional Language (EAL) from rural and working class backgrounds, acquisition of the new discourses is a very particular challenge. In my postdoctoral research I decided to look more closely at what happens when bi- and multilingual students code switch and build on their primary languages to make sense of new concepts which they are learning through the medium of English. In order to develop a better understanding of how concepts transfer from one language to another, I ran a project with my first-year economics students to develop multilingual glossaries and to probe the ways in which students explained these concepts in their home languages. This paper describes the early stages of the multilingual glossary project in first-year economics. It begins with brief details of the methods used in the project and goes on to report on some of the findings. The data illustrate how important it is for multilingual students to explore their ideas in their primary languages and that learning is restricted when it is limited to the use of the second language only.

Method

The study was conducted during the first semester of 2006. Students in my Language and communications module in Microeconomics (ECO1010H) worked in home language groups on worksheets that required them to explain economic concepts in English and then in their home language and to provide examples of how they would use the concept in a sentence. Students found this quite a complex process which meant that the 45 minute period seemed not really long enough for working with just two concepts.

I have had all the material from the concept worksheets translated. After the July break, I administered a detailed questionnaire to all 103 students in the Commerce Academic Development Programme to further probe issues related to multilingual learning. This data has provided valuable insights into the very complex relationships between language, learning and identity and a more textured understanding of multilingual concept formation. This paper will focus on the initial work of the project which includes the survey and the glossary worksheets.

What emerged from this initial work was that the language of instruction and the language of learning are not necessarily the same for the group of students in the study. Thus the project has now been expanded to include informal Xhosa language peer group discussions organized amongst same-language speakers with a Xhosa-speaking tutor to guide the discussions and to support concept development. These discussion groups have been recorded and have added to the insights gained. Furthermore, they have allowed us to explore ways in which the institution can better support EAL students in learning through the medium of English while at the same time offering scaffolded support in some of the home languages of students at UCT.

Data from Student Survey

In this section I will highlight some of the findings from the survey questionnaire because students' attitudes to the language of instruction and their own perceptions of their learning difficulties provide a useful backdrop to the study. Students on the Commerce Academic Development Programme (CADP) were asked to complete the questionnaire and 37 of the 102 students returned completed

questionnaires. Although this is not a bad return, the results of the survey are probably a little skewed by the fact that only 4 were returned from the 28 students with lowest marks in the programme. It may well be that many of these students were EAL speakers.

Of the students who returned completed surveys, 86.5% said that they spoke an African language at home, 29% described themselves as fully bilingual and one student spoke 6 languages. Although in theory English had been their medium of instruction at school, 56% of the students said that the language used mostly in school had been an African language. 45% said they were taught mathematics in a combination of English and their main language and 5% said they had been taught mathematics in their primary language. Not surprisingly then, English as it is used in the lecture halls at UCT presents quite a challenge for many of these students.

In response to the question 'How did you find the level of English at UCT?', 45% indicated that they found it "high" "very high" or "difficult to cope with" and 32% said they had not felt comfortable having to communicate in English when they first arrived. Students' observations on the questionnaire reveal their discomfort communicating in English. One student commented on her difficulties as follows:

> …everything is basically English, even if one doesn't understand, it's hard to find someone to explain in home language

and another said:

> I wasn't used to English before; I was use to isiZulu, my home language, so I always thought maybe I will make mistake when I'm speaking English

These students are still using their primary languages predominantly outside of the classroom. 55% said they use their home language more than half the time at UCT and 78% said they mixed languages when they spoke.

It is cause for concern in our institution that 32% of the students in the survey indicated that studying through the medium of English was affecting the way they learned. This indicates that we are perpetuating inequality through language.

Students' comments describe a complex process of meaning-making for those who are EAL speakers:

> It is easy to learn when you using your home language but with English you need to start learning language before you get to the concept

> Sometimes for me to understand things I have to interpret them as I would in my own language. Sometimes I miss what the lecturers are saying due to the lack of understanding of certain words.

Other remarks reflect the tensions that students experience because they see English as so desirable:

> English is good but for me I don't know how to speak English fluently so even if there is something that I do not quite understand in lectures or in workshop, I'm not that confident with my English to ask wherever I didn't understand so yes, in some ways English affect me.

This tension has played out in the response to the next question which asked whether students felt that they should be able to study through the medium of their home language. Although seven (19%) first language speakers of English indicated that it would be fairer if everyone could learn through his/her primary language, only three EAL speakers (8%) said they felt they should be able to study through their home language. The vast majority of the students indicated that they would not want to be taught in their primary languages. Most reasons given were that English was needed for the world of work or for global communication. A few students indicated that it would be impossible to teach UCT students through their primary languages because they were drawn from so many diverse language groups. Again many students reflected the ambiguities and tensions they were experiencing:

> Though it will be better to understand but most things in English we don't have words in our language so its gonna be difficulty I think I have to adjust myself and my confidence because I did make a choice by coming here. Making an excuse wont help as everything depends on me I have to adjust all other students who are doing the same

These apparent contradictions in what the students say about the medium of instruction are confirmed by the literature. Many theorists (Adendorff 1996, Setati et al. 2002, NEPI 1992) point out that the use of African languages as the language of learning and teaching has negative connotations because it is associated with the inferior educational legacy of apartheid. Parents' memories of Bantu education as well as their perception of English as a gateway to better education result in black parents' favouring English as language of learning and teaching (NEPI 1992:13 cited in Setati et al. 2002). Setati et al. (2002) indicate that despite language policies in the new South Africa, in practice English continues to dominate because in the post-apartheid era English is seen as the language of power and of social and economic advancement (Setati . 2002). Bangeni and Kapp's recent longitudinal study of 20 students at UCT showed that English continues to enjoy a privileged position among second-language university students because it is linked to "being educated, modern and upwardly mobile" (2007:266).

In my survey, 97% of the students said they felt they should be able to get support when studying through the medium of a second language and they provided some very helpful suggestions for ways in which EAL speakers could be assisted. Many recommended that bilingual tutors or mentors be appointed so that students could be mentored in their home languages if necessary, others called for mentors who could assist them with English. There were also a number of calls for bilingual lossaries, definitions of key concepts in different languages on the web or translation of lecture notes or study material into different languages.

The glossary exercise

In the group discussions I observed lively and sometimes quite heated discussions with extensive use of code-switching as defined above. Some students were concerned that their African language was 'not good enough'; they said they did not know 'the deep Xhosa' they needed to find the best translation, whereas others were quite confident. One student told me afterwards that it was not easy to explain terms because members of the group had different ideas. This led to long debates and arguments about the meanings of the concepts.

The translated worksheets were interesting for a number of reasons. Firstly the worksheets illustrated 'borrowings' from English. This is well illustrated in responses from the group that represented Setswana, Sesotho and Sepedi speakers. This group provided an appropriate English explanation for 'deficit' because they said it meant a shortfall. This is the meaning given in the textbook glossary. They then translated it as 'ke go shota' in their home language. In response to the

worksheet request to note down any issues that came up in the discussion they said:

> We don't know the actual word used for deficit, as a result we used the word that we use in the streets, which is township lingo.

The Xhosa-speaking economics tutor whom I employed to work with me in this project pointed to the many different Xhosa dialects and the notable differences between rural and urban Xhosa, which is often more of a 'township lingo'. This may explain why there were so many disagreements about appropriate translations for the concepts.

Secondly, when students could find no direct translation for the concept, they often went into very lengthy explanations to get the meaning across. The group of Zulu speakers explained the meaning of the economic concept 'equity' as 'fairness' in English, but gave extended explanations of the concept in Zulu explaining that there was no direct translation for the concept, so they had used the Zulu word for 'balance' which could also mean fairness. Similarly, they commented that they could not find a direct translation for 'deficit' so they had explained it or used it in examples. A Xhosa speaker pointed out that translation of concepts is sometimes complex:

> You sometimes translate things from English to Xhosa and find that it is more difficult in it than it is in English. It gives you a whole paragraph in Xhosa when it is only one term in English

In the glossary exercise students often resorted to what Cummins (1996) refers to as BICS (Basic Interpersonal Communication Skills) to get the meaning across because they found that they did not have the academic term in their primary languages. On reflection, I realize that the glossary exercise should really have been video-taped to capture the animated gestures and facial expressions that students used as they discussed the concepts. The discussion of concepts was considered a crucial stage in the learning process and it is significant to note that translating into the home language is 'more difficult in it than it is in English' and 'that it gives you a whole paragraph in Xhosa when it is only one term in English' because this illustrates that students were gaining a richer understanding of the concept.

My third observation is that the glossary work-sheets often brought to the surface alternate meanings of concepts which would otherwise not have been detected. For instance, 'equity' is explained in the textbook glossary as follows:

> …a distribution of income that is considered to be fair or just. Note that an equitable distribution is not the same as an equal distribution and people have different views on what is equitable' (Sloman 2006:G: 5).

The group that represented Setswana, Sesotho and Sepedi speakers explained equity in English as follows: 'It means equal or having things on the same level' and gave an appropriate English example, namely 'Women want gender equity'. However, the example they gave in the primary language 'Maemo a Pirates le Chiefs me kgweleng ya dinao a lekana' translates as the soccer teams, Pirates and Chiefs, are equal and indicates a rather different meaning than 'fairness'. Students may well be confused about the meaning of 'equity' because it has a completely different meaning in accounting in which equity refers to what remains after liabilities are deducted from the assets of a business.

Alternate conceptions also arose among the group of Xhosa speakers as they tried to explain the meaning of the concept 'deficit'. On their worksheets they described 'deficit' as 'loss' in English, possibly because they could not find a direct Xhosa translation for the concept and so had used the Xhosa word 'ilahleko' (loss) to explain it.

I felt that the glossary worksheets had highlighted some important issues around concept acquisition but that there was a lot more probing that needed to be done and that the lengthy and sometimes quite passionate discussions students were having around the meanings of these words needed to be recorded in further peer group discussions. It seemed particularly important to know whether alternate conceptions such as those described above were confusing the students. Therefore, as indicated above, I decided to run informal African language peer group discussions led by a tutor who would be able to support concept development in English and the home language.

Conclusion

This study sought to develop a better understanding of how concepts transfer from one language to another and the findings described above emphasize that learning is restricted by the use of the second language only. The data showed that the students did not have clear understandings of the new concepts and that their learning needed to be scaffolded to broaden understanding of the concepts. The survey provided background information for the study as it captured some sense of the complex difficulties students experience when the medium of instruction is not their mother tongue. The glossary exercise illustrated how important it is that EAL students are given opportunities to explore ideas and concepts in both English and the primary language. Discussion of the concepts in English allows them to develop the appropriate discourse but it is clearly also very important that discussion also takes place in their primary languages. Without the use of an exercise such as the glossary worksheet, some learners' alternative conceptions would remain undetected. Written work and multiple choice questions might very well conceal misconceptions as students resort to rote learning because they do not fully understand the English texts and memorizing is seen as the only way to acquire the information. This indicates that far more discussion of concepts in the primary language is needed if concepts are to be clarified and misconceptions, identified and eliminated.

The students' suggestions of ways in which EAL learners could be supported in the tertiary learning environment are worth noting. Interventions such as those they recommend may well be quite costly, but at the same time they are well overdue and perhaps costs could be reduced if institutions were to work collaboratively on projects such as developing online glossaries.

Acknowledgment

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