AFRICAN LANGUAGES AND ICT EDUCATION
Attitudes of Black University Students

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Abstract: In South Africa, English plays a dominant role compared to African languages in empowering domain. Better access to Education through the use of African languages is an object of heated debate. This paper shows that an intervention involving the use of an African language in the domain of ICT Education can change the attitudes of Black university students. The methodology used included a survey with preliminary and follow-up questionnaires and interviews and an intervention involving the use of localised software and of an on-line glossary of computer terms translated, explained and exemplified in an African language (isiXhosa). This experience increased the support for the use of African languages as additional LoLT, even in the English-dominated field of study of Computer Science. This is an initial step towards promoting linguistic equality between English and African languages and social equality between their speakers.

1 INTRODUCTION

Language is recognised as a crucial issue in the transformation agenda and in redressing past inequalities in South Africa. The possibility of using African languages as Languages of Learning and Teaching (LoLT) in South Africa is an object of heated debate. Such languages can make a significant contribution to enhancing epistemological access for their speakers to all domains of knowledge at all levels. One of the arguments against their use is negative attitudes among their own speakers, who seem to consider African languages appropriate only for low status domains and informal communication. A working definition of *language attitude* accepted by most authors in the field (Edwards 1994:97-98) is "a disposition to respond favourably or unfavourably to a language". A number of factors such as self-perception, self-presentation and self-justification play an important role in determining one's attitudes and behaviour.

The study discussed here is part of a broader, on-going research which attempts to challenge the association of African languages with low-status domains. In this paper we explore the impact of an intervention involving the use of an African language as an additional LoLT on the attitudes of speakers of African languages who are also students of computer literacy at an historically "White" institution. This is a particularly challenging context in which to advocate for the use of African languages. Prospective members of the emerging Black elite are under a lot of pressure to gain English academic proficiency, in a domain where the linguistic dominance of English is particularly evident. The choice of such context is deliberate. We hope that success in improving students' attitudes will provide a strong argument for a more extensive use of African languages in other subjects and at lower levels of education.

2 CONTEXT AND RELATED WORK

2.1 ICT Education and African Languages in South Africa

The South African Government recognises the

paramount importance of technology as well as Mathematics and Science education for the development of the country and to address past inequalities. The Department of Education (DoE 2005) recognises that the education system has a crucial role to play in bringing the advantages offered by new technologies to members of previously disadvantaged communities. Various projects have been instituted.

While most projects focus on the deployment of ICT infrastructure, i.e. PCs and Internet connections, comparatively little attention is given to the development of human resources. The e-Education White Paper highlights the importance of supporting ICT integration in teaching and learning and building educators', managers' and students' confidence in the use of ICT. Infrastructure is often just "dumped" in schools without a clear integration strategy (see Brandt 2006). As noted by Czerniewicz (2004), it is not enough to provide physical access to computers and information. In order for ICT to be effective in education, the conditions must be created for students to effectively appropriate the use of the new technologies, understand how they work and how to use them.

Chisholm (2004) argues that, together with lack of access to ICT, the language barrier posed by the use of English is a factor in the entrenchment of inequality in South African education. The Department of Education (DoE 2005) acknowledges the potential role of English as a "gatekeeper" to the study of ICT and to its use in education, and emphasises the need to promote technological discourse in African languages. Most students in marginalised schools are speakers of an African language who are excluded both from the study of empowering subjects (such as Computer Science, for instance) and from gaining proficiency in the dominant language in these fields (i.e. English). Until the use of ICT in education rises from the currently low levels (Tlabela 2007), the university remains the main arena in the struggle for equal access to ICT.

Greyling and Calitz (2002) note that Computer Science departments at South African universities are under pressure from the computer industry to produce Black graduates and postgraduates. A decade after the end of Apartheid, Black students are still under-represented in ICT-related fields of study such as Information Systems and Computer Science. According to Greyling and Calitz, language problems are partly to blame. However, the approach they propose, i.e. devising strategies to better select and streamline potential Computer Science students, is reactive rather than proactive. In other words, their focus is on optimising the use of resources of the university given the context (i.e. underpreparedness of many Black students, dominance of English in the ICT field, etc.).

According to Alexander (2001), South African universities have an important role to play with respect to the intellectualisation of African languages, both by assisting in developing them and by using them as LoLT, particularly in high-status subjects. Finlayson and Madiba (2000:48) explicitly refer to the advantages of using both English and an African language in science education at tertiary level (see Inglis 1993:131). According to Finlayson and Madiba (2002:42), African languages lag behind English and Afrikaans particularly when it comes to modern terminology and registers. This makes the possibility of using them within scientific academic discourse a contentious issue.

Using African languages to teach highly empowering but traditionally English-dominated subjects (such as Computer Science, for instance) at a tertiary level could have two sets of effects. First of all, it would improve their status. This, in turn, would improve the attitudes of their speakers and their sense of pride in using them in all domains. Raising the status of African languages would raise the status of their speakers. Secondly, the use of African languages would facilitate the participation of their speakers in such domains, thus effectively addressing the inequalities of the past. This would have a deep transformative impact on the specific academic discourse of scientific and technological disciplines as well as on society as a whole. The intellectualisation of African languages through their use in higher education could contribute (and potentially drive) social transformation.

2.2 Support for African Languages in Different Domains

African languages are often associated with low status domains. In this section we discuss four studies on the language attitudes of Black university students towards the use of their language: de Klerk's (1996) research at Rhodes University, Dyers' (1998) PhD research at the University of the Western Cape (UWC), research at the University of Fort Hare (Dalvit and de Klerk 2005), and Aziakpono's Master's research at Rhodes University (2008). The four studies had different scope, were conducted at different times, focused on different students and used different wordings for questions.

Moreover, different researchers approached the issue from different ideological standpoints.

Overall support for the use of African languages vis-à-vis English was strikingly similar at the four institutions over the same period. It was comparatively low in de Klerk's (1996) and Dyers's (1998) studies, conducted shortly after the end of apartheid. In Dalvit's (2004) and Aziakpono's (2008) studies, a stronger pro-African languages orientation could indicate a shift in the ideological balance. Similar attitudes at institutions with very different linguistic compositions suggest that attitudes reflected ideological orientation rather than being a response to practical considerations. If the latter were the case, one would have expected stronger support for the use of isiXhosa at Fort Hare, where 80% of the student population speaks the language (see Dalvit and de Klerk 2005), than at Rhodes, where the percentage of isiXhosa speakers is close to 15% (see Aziakpono 2008).

While considering the possible challenges to the use of an African language in tertiary education, fear of possible tensions with speakers of other languages and of loss of English proficiency were the most prominent concerns, expressed by one-third of the respondents in Dalvit and de Klerk's (2005) and Aziakpono's (2008) studies. The belief that using different African languages would fuel tribalism entrenches the role of English as a *lingua franca*, equally disempowering for all speakers of an African language. The belief that using one's mother tongue would detract from English proficiency polarises the language issue as a clear-cut choice, in which the higher-status language prevails at the expense of all others.

In both Dalvit and de Klerk's (2005) and Aziakpono's (2008) studies, the sample was split in half between support for an English-only and a dual-medium model. Moving away from a clear-cut choice between one and the other and adding complexity to the picture highlighted possible areas of support for the use of isiXhosa as an additional LoLT. More than three-quarters of the students in the two studies recognised that their mother tongue has a crucial role to play in tutorials, additional teaching material etc. This was considered most appropriate for the first year and for subjects in the Faculties of Education and Humanities (roughly one-third of the sample) rather than Science (approximately 15%). This reflects the association of African languages with low-status disciplines and domains.

Dyers notes that code-switching was common in tutorials, and argues that negative overt attitudes towards the use of isiXhosa by some of the students contradicted the positive covert attitudes shown in actual practice. She also argues that use of isiXhosa might be a sign of the frustration many students experienced with academic English. In both Dalvit and de Klerk's (2005) and Aziakpono's studies, respondents believed that using isiXhosa would improve their understanding of things they studied (mentioned by more than one-third), and, to a lesser extent, increase their confidence. Less than one-fifth believed it would improve their marks. These figures, consistent across different institutional contexts, reflect the discrepancy between learning informally scaffolded through isiXhosa, and assessment, which only takes place in English. This coupled with the fact that only a small minority (approximately 15%) felt that using isiXhosa would not help them at all, could be seen as an indicator of potential for change.

Maşoeu and de Villiers (2001) note that, at the present stage, localisation of software into African languages serves more a symbolic than an instrumental function. In other words, its main contribution is the promotion of the status of the African languages rather than increasing access to technology for their speakers. Although this could still be considered crucial to break the dominance of English in the field of ICT, one must consider that the users in Maşoeu and de Villiers's (2001) study, like most Black university students, were already familiar with computers in English. Research at a Master's level explored the experience of students' learning computer literacy partly in isiXhosa from the beginning, yielding encouraging results, both in terms of students' attitudes and access to the discipline.

3 METHODOLOGY

3.1 Research Design

The study described here is part of a broader research exploring issues of linguistic hegemony in ICT Education. The current paper focuses on how a practical intervention involving the use of an African language as an additional LoLT affects language attitudes.

The focus group for this study are students in the Computer Skills component of the Science Extended Studies Programme (CS1S) at a historically "White" South African tertiary institution. These are students with recognised academic potential, but who would not normally meet the requirements for admission

into university. The Computer Skills course is part of a series of offerings designed to equip students to cope with further studies in the Science Faculty. Most students in the course are speakers of isiXhsosa, the most widely spoken African language in the area.

In 2007, this group of students was exposed to and encouraged to use a glossary of approximately 150 computer terms translated, explained and exemplified in isiXhosa. The glossary was developed by a multi-disciplinary team within the University. The purpose of the intervention was to promote the status and use of isiXhosa in the empowering but English-dominated domain of ICT Education. The glossary was implemented both on-line, through the e-learning course students regularly use in class, and in print.

The use of the glossary was complemented by other initiatives involving the use of African languages in the ICT domain. The students' language attitudes were documented through two questionnaires, administered before and after the intervention respectively, as well as interviews and observations. Data were analysed descriptively rather than statistically, due to the small size of the focus group.

3.2 Questionnaires

Questionnaires are commonly used in research on language attitudes (see de Klerk 1996; Dyers 1998), often in combination with follow-up interviews. The two questionnaires used in this study served to evaluate a practical intervention and targeted students in the foundation computer course for Science.

Some of the studies mentioned above (i.e. Dyers 1998; see Frazer and Lawley 2000:93) made use of questionnaires in two languages. The questionnaire used in this study was made available in two languages. Using a questionnaire in two languages was intended to ensure the inclusion of students with low levels of English proficiency. These might be the most interesting respondents. The analysis of the differences between respondents who chose to fill in the English as opposed to the isiXhosa version promised to yield interesting results.

The first section of the questionnaire requested information about several background variables, such as language, gender, social and educational background, degree and year of study, level of computer literacy and familiarity with localised software in the student's mother tongue. The second section dealt with language attitudes towards

English and African languages in general and in the field of Computer Science. The third section concerned students' beliefs about possible consequences of the use of African languages as additional LoLT and envisaged best practices. The fourth section created space for comments and for respondents to leave their details for follow-up interviews. We used a combination of different types of questions (factual or concerning subjective experiences, open-ended and closed-ended) and answer formats (classic, rating scales, Likert scale or ranking). Attention was also paid to question order, proximity and avoiding bias (see Frankfort-Nachmias and Nachmias 1996 for a discussion on the use of each question type in language attitudes research).

For the administration of the questionnaire, we used the Moodle questionnaire feature. This entailed the risk of excluding those students who were not confident in using computers. To ensure participation and provide support, the questionnaire was run in class. The use of web-based instead of paper-based questionnaires made data collection and capturing much faster. The follow-up questionnaires run at the end of 2007 served an evaluative function and were functional in the preparation of the interviews. In order to maximise participation to get a more comprehensive overview, printed forms were used instead of the on-line system.

3.3 Interviews and Observations

Interviews are an established and widely used method in the social sciences and in educational research. In the present study interviews were used not only to supplement information obtained using other methods, but we used evaluative interviews in order to assess its impact and the possible limiting factors. Interviews were complemented by personal communication and classroom observation, to obtain a comprehensive picture of the language dynamics of a multilingual Computer Science classroom.

Various authors (Frankfort-Nachmias and Nachmias 1996) discuss the use of different types of interviews and their limits as research methods. The preferred interview type in the present study was the focused interview (roughly corresponding to a semi-structured interview). The topic and purpose of the research was briefly introduced and explained. This initiated a dialogue in which the respondents were free to address issues that particularly concerned them. An interview guide (usually in the form of a list of topics) was used to help keep the interview going and to stay "on track".

A number of randomly selected students, tutors and mentors were interviewed. Interviewees were either contacted in class or selected from those who left their details (indicating they would like to be interviewed) in one of the questionnaires. The initial interview guide was drafted based on critical issues involving the use of African languages in the field of ICT emerging from the relevant literature. Subsequent interview guides were informed by responses to the questionnaire, classroom observation, informal conversations with students and their lecturers and feedback on the implementation. While analysing the interviews, information collected through these additional methods was considered. In particular, informal communication with the lecturer of the course provided interesting insights.

4 INTERVENTION, FINDINGS AND DISCUSSION

4.1 Classroom intervention

During the first term, CS1S students familiarised themselves with computers, e-mail and Web applications. The "English – isiXhosa computer glossary" was added to the course in March 2007. By that time one could assume that students would have the necessary level of familiarity with computers to use it. Before being exposed to the glossary, students filled in a language attitudes questionnaire (Appendix A). This served as a baseline for a follow-up questionnaire (Appendix B) administered at the end of the year. Comparison between the results for the two questionnaires captured changes in language attitudes.

During a 15-minute slot at the beginning of a lecture, we explained to the students how to use the on-line glossary, and gave them the chance to test it. At the same time, we distributed print copies of the glossary. Initial reactions varied between amusement and enthusiasm; a few students made sarcastic remarks such as "I will give this to my grandmother". Results from previous language attitudes studies suggested that an intervention giving prominence to one African language (i.e. isiXhosa) over the others might be perceived to cause tensions among students. We therefore made it a priority, in this first meeting, to explain that we were experimenting with a model which, if proven successful, could be applied to all African languages.

Students were encouraged to use the glossary throughout the year. Reminders were sent through the tutors and lecturer, who fully supported the intervention. During the second term, students were invited to write one of their practicals using localised software in their language. This took place in the laboratory, hosted by the School of Languages, which features software that allows students to operate computers almost entirely in an African language. It was not possible to assess whether students used software in English as opposed to an African language for the practical. The impact of this experience was eventually assessed in the follow-up questionnaire at the end of the year and through interviews.

4.2 Shift in Language Attitudes

Students were administered two questionnaires: one before and one after the intervention, followed by interviews. The first, 21-item questionnaire was available in both English and isiXhosa. Out of the 42 students enrolled in the course, 38 filled in the questionnaire. Students had 15 minutes to fill in the questionnaire in class, although they could finish it in their own time.

The second questionnaire was also available in two languages. It included a subset of questions from the first one as well as new questions, mainly related to the glossary. In an attempt to maximise the collection of feedback and to avoid the problems experienced with the on-line version, this time the questionnaire was administered in print format. This yielded a response rate of 33 out of 42 students. When compared to the figure for the previous questionnaire, however, it should be noted that the follow-up questionnaire was completed by all students attending the class on that particular day. Informal communication with the lecturer confirmed that attendance was generally poor throughout the year.

Figures for all background variables were consistent with the available statistical data for the class. Distribution according to area of provenance (25% urban, 54% semi-urban and 21% rural) and type of school attended (71% former "Black", 8% former "Coloured" and 21% former "White") obviously remained the same in both questionnaires, as did those for home language. These figures suggest that the majority of the foundation students attended schools for speakers of English as a second language. This is consistent with the statistical data available from the university.

The majority (17, i.e. 74%) of the students spoke isiXhosa. Although only 2 students indicated English as their home language at registration, 5 indicated it as their home language in the questionnaire, invariably in combination with an African language. This suggests that, when given the option, respondents did not indicate English as their *sole* home language, but chose it in combination with isiXhosa.

In spite of the practical which took place in the lab which features software localised in all eleven South African languages, only 7 students out of 32 (i.e. 22%) reported having used software in their language by the end of the year. Given the wording of the question, this might imply that students did see the localised software but, in order to complete their practical on time, preferred to use the English interface they were familiar with. This was partly confirmed during follow-up interviews, although some students had not understood that software was available in their language, and others deliberately refused to use it.

Several students (12) added comments on localised software. These ranged from enthusiastic support (e.g. "it was so impressive", "I think it would make me understand things better") to scepticism (e.g. "I haven't used it because it wouldn't make sense to me"). Most criticism concerned the terminology used (e.g. "the terms seem much more complicated in isiXhosa"). During the follow-up interviews, one student commented enthusiastically that seeing software in his language was "like when you are in a foreign country and you meet someone who speaks your language".

Comparison between the two questionnaires points to a positive shift in attitudes towards African languages, but reflects the discrepancy between practice and policy: confidence in speaking about computers in one's mother tongue was not matched by increased support for mother-tongue education. The number of those who believed they could speak about computers in their mother tongue increased from 6 (i.e. 21%) in the first questionnaire to 14 (i.e. 44%) in the second. This is particularly significant if one considers that, while in the first questionnaire no respondent agreed *strongly*, in the second an equal number ticked the "agree" and "strongly agree" option. Besides the intervention, this could be due to the fact that, after attending the course, students felt more confident about speaking about computers in any language. The number of those who believed their language should be used more in education increased from 17 (i.e. 58%) to 21 (i.e. 67%).

However, in this case the increase was due to a higher number of students ticking the "agree" box.

In both questionnaires, respondents were asked to rank possible problems associated with using material in the African languages in the teaching and learning of Computer Science. On a scale 1 to 5, the average for all problems showed little variation, decreasing from 3.2. to 3.1. Results indicated that being exposed to resources in an African language increased ranking for some of the possible problems (see first, second and third row). At the same time, this experience helped students to deconstruct some of the arguments perpetuating the exclusion of African languages from the academic domain (fourth, fifth and sixth row).

The belief that using resources in the African languages would entail lower levels of English proficiency ranked consistently highest (3.3 and 3.5). This can be seen as a reflection of the linguistic hegemony of English. The perception that material in an African language would be difficult to read and understand was the one which increased the most as a result of the intervention. This raises concerns about the quality of the material used rather than the idea of using resources in an African language.

The intervention countered some of the arguments against the use of African languages in the academic domain. Figures reflecting the fear that this kind of intervention would create tensions with speakers of other languages, which ranked as the most important problem in both questionnaires, decreased from 4 to 3.7. As confirmed in the follow-up interviews, students seemed to understand that this was a model which could be applied to any language. This is consistent with the fact that all the 8 speakers of African languages other than isiXhosa in the sample invariably agreed that the glossary we developed should be replicated for other languages. Not surprisingly, ranking for lack of terminology in the African languages as a problem was the one that decreased the most, from 3.4 to 2.7. Deconstructing the argument of lack of terminology as a reason to exclude African languages from the ICT domain was probably the main contribution of the intervention.

4.3 Feedback on the Glossary

Respondents were asked to rank the perceived usefulness of various types of additional teaching and learning material in an African language for Computer Science. On a scale 1 to 5, the average for all types of material showed little variation, decreasing from 3.7 to 3.6. Exposing students to

software in their mother tongue increased their perception of its usefulness. Localised software, while ranking the lowest in both questionnaires (3.1 and 3.5 respectively) was the only resource for which perceived usefulness increased. The 7 students who reported using localised software ranked its usefulness higher than the average for the sample (3.7 as opposed to 3.5) and commented positively on it (e.g. "It was a little bit different than usual, but in a good way").

Figures referring to a glossary of computer terms explained in an African language raised concerns about the quality of the material used in the intervention. A glossary was consistently rated as the most useful in both questionnaires (4.3. and 3.8). However, exposing students to a practical example of it seemed to decrease its perceived usefulness more than was the case with other types of resources. While the vast majority (24 out of 31 respondents, i.e. 80%) agreed that the glossary we developed was a good idea, only two-thirds of those who used it (16 out of 24, i.e. 66%) agreed it was of good quality and easy to use.

Responses to the follow-up questionnaire confirmed a tendency to consider the use of African languages as LoLT suitable "for someone else". Among students who claimed they did use the glossary, only 7 out of 23 (i.e. 30%) believed that the glossary could help them, while 16 (i.e. 70%) agreed it would be useful for others. It is reasonable to assume that this attitude was even stronger among isiXhosa-speaking students who chose not to use the glossary at all.

Of the 12 respondents who claimed not to have used the glossary, 5 indicated they did not speak isiXhosa as the main reason. The interviews revealed that one of them was an isiXhosa speaker who attended schools for speakers of English as a first language. An additional 6 respondents claimed they did not need the glossary, and only one indicated he or she preferred to use English. Comments seemed to be more favourable among non-isiXhosa speakers (e.g. "if there was one in Tshivenda I would use it") than among isiXhosa speakers (e.g. "I cannot read isiXhosa").

As noted above, actual use of the glossary was difficult to assess. Out of a total of 33 respondents to the follow-up questionnaire, 24 answered questions for those who used the glossary and 12 answered questions on why they did not use the glossary. The interviews clarified that the overlap of 3 respondents could be explained by the fact that some people used the glossary at least once, but were still in a position to explain why they did not use it further.

Responses did not give a clear indication of which format is best to use for the glossary. A roughly equal proportion (one quarter) of those who used the glossary preferred the print or the on-line version. For the remaining half of the respondents it did not seem to matter. One of the suggestions for improvement (i.e. "You could make its own web page and not just on Moodle") pointed to the need for a standalone application. Although this had already been set up, CS1S students were not made aware of it. This avoided confusion and streamlined all the feedback through the on-line glossary in their course.

Comments in the first questionnaire ranged from mild optimism (e.g. "I think it could be useful if we get a chance to use computers in our language though it might be a little bit hard at first but it's always okay to learn new things") to scepticism (e.g. "it would be a great idea to see material produced in our home languages, but also an impossible task") and categorical rejection (e.g. "it is better to learn in English"). Students emphasised that English was the main language in the ICT domain. A few respondents mentioned that having somebody to explain things in their mother tongue would help. This is consistent with high ranking for the usefulness of such a solution, which matched the rankings for the glossary in the second questionnaire (i.e. 3.8). However, this reinforces rather than challenges the traditional association of African languages with orality and low-status domains.

Comments on both questionnaires emphasised two issues noted above. First of all, respondents felt that the use of African languages as LoLT could help "others", either students with lower levels of computer literacy or students at lower levels of education. Secondly, respondents to both questionnaires emphasised the need to make resources available in all languages, not to create tensions between speakers of different languages (e.g. "It would be unfair to other people who do not speak my language", "There are a lot of official languages and all of them would need to be accommodated").

Comments to the follow-up questionnaire were generally more positive than in the first one. Most comments were favourable to the use of African languages, and remarks about the impossibility of using such languages in the ICT domain were virtually non-existent. Another noticeable difference is that many more students wrote their comments in isiXhosa. This is consistent with the fact that the number of respondents who filled in the isiXhosa version rose from 5 (i.e. 13%) in the first

questionnaire to 14 (i.e. 42%) in the second. This appears to be a significant difference, and could be considered an indicator of a shift in the students' attitudes.

Three points emerged strongly in the feedback, both in English and in isiXhosa, in the second questionnaire. First of all, it was clear that both English and African languages had to be used at the same time (e.g. "*ukuba ulwimi lwesiNgesi lunokusetyenziswa kunye nesiXhosa kungabhetele*", which means "if English were used together with isiXhosa it would be better", "I think it would be good to use my language with English because I personally experienced this in primary and high school and if there is a shortage of lectures I am willing to volunteer myself"). Emphasis on using *both* languages is consistent with the fear that using African languages would entail lower levels of English proficiency. As noted above, this fear was reinforced by the actual example of teaching material in an African language.

The second point which emerged from comments to the follow-up questionnaire is the difficulty of the words used (e.g. "simplify the language", "*nisebenzise amagama alula esiXhosa*", which means "use simple Xhosa words"). Although every effort was made to use simple and common words, further efforts in this direction could address the concerns students raised about the quality of the glossary. As mentioned above, issues of quality might have hampered the perceived potential usefulness of the glossary.

The third point which emerged from feedback to the follow-up questionnaire is that students wanted to be involved in the process (e.g. "You can always ask every student that knows Xhosa to help you with vocabulary"). Little usage of the localised software in the Peter Mtuze Multimedia Laboratory raised concern about the actual commitment of students. However, positive comments indicate a willingness to counter the linguistic hegemony of English by showing support and voicing one's opinion. This is confirmed by the fact that 25 respondents (i.e. 76%) left their details in order to be contacted for an interview.

4.4 Follow-up Interviews

Follow-up interviews were conducted between the end of October and the beginning of November 2007. Out of the 25 students who left their details in the questionnaire, 15 were contacted for 5 individual and 5 group interviews. The latter involved two interviewees each and, in spite of various efforts, it was not possible to organise interviews with larger groups.

The interviews served a number of purposes. First of all, they were used to probe the responses to the questionnaire. They confirmed most of the observed trends and included interviewees with a wide spectrum of different orientations. Among speakers of isiXhosa, these ranged from the scepticism of a student who had attended schools for speakers of English as a first language, and did not see much point in using an African language at university, to the enthusiastic position of a student from a rural area. Non-isiXhosa speakers were supportive of the initiative, and seemed to understand that this was the experimentation of a model which could be used for languages other than isiXhosa. This was a crucial point to assess since the fear that promoting isiXhosa might create tensions with speakers of other languages emerged strongly from the questionnaire.

Most isiXhosa speakers indicated using the glossary, though it was not clear to what extent. Some non-isiXhosa speakers, mainly speakers of isiZulu, also reported looking at it and thought it was a good idea. There was no clear indication of whether students preferred the print or on-line version, although the former was more readily available when preparing for tests. It made little sense to ask whether the glossary had any impact on performance, since it was an optional resource. Comparison of the CS1S marks for the 2006 and 2007 cohort confirmed that there was no noticeable variation in the marks of isiXhosa speakers compared to those for speakers of other languages.

5 CONCLUSIONS

In this paper we discussed the issues related to the use of African languages in the empowering but English-dominated field of ICT Education in South Africa. Analysis of language attitudes suggests that an intervention involving the use of a (mainly) web-based glossary of computer terms translated, explained and exemplified in an African language mildly improved students' attitudes towards the use of African languages in the ICT domain. This was supported by the higher number of students who filled in the isiXhosa version of the follow-up questionnaire and wrote comments in isiXhosa, as well as by the comments themselves.

Attitudes towards the use of African languages as LoLT showed mixed orientations. The fear that using African languages as a LoLT would entail

lower English proficiency remained strong. However, fear of possible inter-linguistic tensions decreased, as did perceived lack of terminology in African languages. The latter two are important arguments, often used to entrench the linguistic hegemony of English and perpetuate the exclusion of African languages from the academic domain.

As a result of this research, staff members in other departments (Economics, Politics) expressed an interest in having similar glossaries developed for their disciplines and integrated in their courses. A reasonable outcome to expect of such interventions would be an improvement of support for African languages. However, a larger-scale intervention and better integration within the course structure might provide opportunities for research into the impact of additional teaching material in the African languages on students' marks. While attitudinal change among Black students is a precondition for the success of any such intervention, improved performance would be a strong argument in favour of a more extensive use of African languages in tertiary education. Comparison of findings across different disciplines would contribute to a better understanding of the relationship between linguistic hegemony and access to discipline-specific academic discourse.

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