



Citation for published version:

Milligan, LO, Clegg, J & Tikly, L 2016, 'Exploring the potential for language supportive learning in English Medium Instruction: a Rwandan case study', *Comparative Education*, vol. 52, no. 3, pp. 328-342.
<https://doi.org/10.1080/03050068.2016.1185258>

DOI:

[10.1080/03050068.2016.1185258](https://doi.org/10.1080/03050068.2016.1185258)

Publication date:

2016

Document Version

Peer reviewed version

[Link to publication](#)

This is an Accepted Manuscript of an article published by Taylor & Francis in *Comparative Education* on 12 Jul 2016 available online: <http://www.tandfonline.com/10.1080/03050068.2016.1185258>

University of Bath

Alternative formats

If you require this document in an alternative format, please contact:
openaccess@bath.ac.uk

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

**Exploring the potential for language supportive learning in
English Medium Instruction: A Rwandan case study**

Lizzi O. Milligan (a), John Clegg (b) and Leon Tikly (c)

(a) Department of Education, University of Bath, Bath, UK

(b) Independent Consultant, London, UK

(c) Graduate School of Education, University of Bristol, Bristol, UK, visiting Professor at the Centre for Education Rights and Transformation, University of Johannesburg and at the Centre for International Teacher Education, Cape Peninsula University of Technology

Corresponding author: E.M.A.Milligan@bath.ac.uk

Exploring the potential for language supportive learning in English Medium Instruction: A Rwandan case study

This article puts forward the argument for language supportive learning for learners in English medium instruction (EMI) classrooms based on the findings from a mixed-methods study in Rwanda. The article first reviews the relevant literature and research which looks at the concept of language support, focusing on textbooks and pedagogy in Sub-Saharan African EMI countries. The scant literature which exists suggests that current teaching practice and textbook design are not targeted for learners learning in a second language which frequently results in the global language acting as a major barrier to effective learning across the curriculum. The potential of 'language supportive textbooks and pedagogy' for addressing such a barrier is then considered through an analysis of a recent intervention in Primary 4 Rwandan classrooms. Findings suggest that language supportive learning can lead to significant improvements in learner outcomes and more effective engagement with subjects across the curriculum. Conclusions consider implications for bilingual education policies in Rwanda and further afield.

Keywords: language; education quality; Rwanda; textbooks; pedagogy

Introduction

There is an increasingly accepted view (Michaelowa et al., 2009; Smith 2011) that in sub-Saharan Africa (SSA) school achievement is influenced by learner ability in the medium of instruction (MoI). Significant evidence suggests that learner ability in the MoI is often too low for students to achieve satisfactory levels of subject knowledge and that many teachers are not confident enough in the MoI to teach to expected standards (Brock-Utne et al. 2010; Williams 2011). Despite the significant evidence base, language and its relation to learning processes and outcomes, is poorly articulated in the wider development literature (Brock-Utne, 2015). For example, the 2013/4 Education for all Global Monitoring report (UNESCO 2014, 285) gives very limited space to issues of second language (L2) acquisition and the challenges of teaching and learning in a second

language in a report of almost 500 pages dedicated to teaching and learning in the global south.

As we move into the post-2015 Education for All (EFA) era, there has been a significant shift in global discussions towards educational quality with the World Bank and UNESCO both setting 'a learning agenda'. However, as Alexander (2015) and Barrett et al. (2015) have recently highlighted, there remains limited discussion of the contexts and processes that contribute to effective learning and crucially, the importance of pedagogy. This article, along with others in this Special Issue, seeks to place language at the heart of the learning nexus through a recognition that learners have little prospect of engaging in quality learning if they cannot understand the language they are supposed to be learning in. The concept of language supportive learning is put forward as a potential means of bridging the L2 proficiency gap and addressing this important quality-of-learning issue. This is based on the findings of a Department for International Development (DfID) funded research project in Rwanda in Primary four classes, the first year where English is the MoI. The project aimed to address one particular aspect of language-related underperformance in school: the readability of English-medium textbooks and the ability of subject teachers to support learners in acquiring subject knowledge through reading textbooks.

Language, learning, textbooks and pedagogy in Sub-Saharan Africa

Many authors have highlighted the significant evidence from across SSA that those who learn through EMI struggle to learn effectively (Alidou, 2003; Probyn, 2006; Uwezo, 2010; Rea-Dickins and Yu, 2013). This is not only in their development of English but extends to their learning across the curriculum where children 'face considerable cognitive and linguistic challenges in acquiring conceptual understanding' (Rea-Dickins and Yu, 2013: 190). In a small-scale study of science teaching practice in EMI in South Africa, Probyn (2006) concludes that the gap between learners' English proficiency and the linguistic demands of the language used in classrooms prevents learners in South Africa from being able to successfully engage with the curriculum. Alidou (2003) and Brock-Utne (2005) have argued that low levels of L2 proficiency of learners can lead to learners remaining silent or only engaging in choral repetition. Benson (2005) has

similarly suggested that low L2 levels lead to learners, particularly girls, being reluctant to speak in class because of fear of punishment.

Research from primary schools in a number of African countries suggests that learner L2 reading ability is also often very low. Williams (1998; 2004; 2011) has shown that English reading ability in EMI countries in SSA is low. Uwezo data (2010) shows that 50% of Tanzanian Standard 7 learners cannot read English at Standard 2 level. This can partly be explained by the fact that classroom reading events, where learners could practise their reading in the second language, are rare. In South Africa, Probyn (2006) claims that there is little reading happening in primary school classrooms supporting earlier evidence from Taylor and Vinjevold (1999) who concluded that children do very little reading in a normal primary lesson. Rubagumya et al. (2011) researched language use in Tanzanian Form 8 and Ghanaian Year 4 schools, at the switch of MoI, and concluded that reading opportunities are infrequent.

Chimombo (1989), 27 years ago, argued for the importance of readability of textbooks for EMI learning in Malawi, by highlighting the differences in the language level and the language itself between the English taught in English lessons and the English used in textbooks for other subjects. The argument continued that there is an assumption that English learning and reading practice were seen as tasks restricted to English lessons. Crucially, the implications suggest that these issues related to textbooks and pedagogy impacted on students' ability to engage with and effectively learn in other subjects. There is little to suggest that education policy or research thinking has moved on significantly regarding the importance of readability of textbooks and learning in the second language in Sub-Saharan African classrooms with very limited research about the appropriateness of textbooks for their learners in SSA. Existing evidence on classroom reading by low language ability learners in SSA shows texts to be designed mainly for native English readers (Glewwe, Kremer, and Moulin 2007; Rubagumya et al. 2011). This literature concludes that textbooks are especially difficult for those with low levels of English. Rubagumya et al. (2011)'s research in Ghana and Tanzania showed that textbooks in both contexts are difficult to read, particularly so for learners who are in their first year of EMI. For example, in Tanzania, textbooks designed for year 8 learners are appropriate for native speakers in a number of grades higher than that. A key finding from this literature is that textbook publishers assume reading fluency from learners. Heugh (2006) further

argues that these books usually contain none of the features of high-accessibility textbooks designed for use by L2 learners.

Significant evidence also suggests that teachers' English proficiency impacts on the quality and type of teaching that teachers can engage in. Alidou (2003) and Brock-Utne (2005) have argued that low levels of proficiency of both teachers and learners can lead to less effective pedagogical practice and a reliance on teacher-centred interaction. In the context of EMI, it is rare to find that the use of an African language by teachers or learners is officially sanctioned in language in education policies once the switch from L1 to L2 as the MoI has happened. Examples abound of unofficial use of African languages, particularly for the explanation of new concepts to learners who are struggling to comprehend in English. However, this practice is often contentious, taking place covertly and with teachers and learners often feeling they are doing something wrong since this is non-compliant with official language policies (Clegg and Afitska 2011). It is therefore difficult to find examples of good or accepted practice of the use of 'code-switching' or other pedagogical practices that may support effective teaching and learning (see Clegg & Simpson in this issue).

Probyn's (2006) study considered the ways in which teachers help students to engage across the curriculum. In observations, Probyn identified the presence of 'language support strategies' such as encouraging learners to speak aloud in English and using the chalkboard to give notes, diagrams and illustrations. Her conclusions suggest that:

all teachers need to understand the role of language in learning ... how to develop learners' proficiency in the language of learning and teaching; how to use the learners' home language as a resource to develop conceptual understanding and as a bridge to learning additional languages; and the importance of reading and writing in developing the academic language skills needed for learning so that they are able to plan for lessons that meet the need for both cognitive challenge and language support.

(Probyn 2006, 408)

This study is one of a limited number which has explicitly looked at the ways in which teachers can develop learners' second language and enable greater engagement across the curriculum. In policy discussions, it is rare to find language being discussed as an issue

for all teachers to consider. Rather, it is the territory of the English teachers in the school to develop learners' language.

Language supportive textbooks and pedagogy

Situated within the literature reviewed above, we argue that, when learners are learning in L2, teachers need to use a language supportive pedagogy designed for second language-medium classrooms, in conjunction with language supportive textbooks. This is particularly important for learners working in L2 in an early exit programme, i.e. transiting to L2 at an early age, as in Rwanda at Primary 4. In Sub-Saharan Africa as a whole, at the point of transit, learner L2 ability is low (Macdonald, 1993; Williams, 2011) and L2 reading ability especially so (Uwezo, 2013), whilst the language demands of the curriculum – and specifically of textbooks – are high. These learner language ability levels are normally too low for learners to achieve anything like grade-appropriate levels of subject knowledge. Language supportive pedagogy, however, recognises and compensates for learners' lack of skills in reading, speaking and writing and amplifies classroom meanings beyond the level achieved by conventional pedagogy (Gibbons, 2009). Forms of language supportive pedagogy are familiar in various sociolinguistic school contexts, chiefly in minority education (Gibbons, *op. cit.*), bilingual education (Baker, 2011) immersion education (Johnson and Swain, 1997) and CLIL (content and language integrated learning) (Ball et al., 2015), but rarely in Sub-saharan Africa (see Clegg and Simpson in this issue).

Image 1 near here

Language supportive pedagogy is reflected in textbook design in textual characteristics, the range of activity types, the use of vocabulary, the use of visuals and the inclusion of bilingual practices (see image 1). At low levels of learner language ability, reading passages are short; sentences are short and grammatically simple; texts are clearly signposted. The number of academic words and subject-specific words is limited to the minimum needed while still conveying key topic messages. Vocabulary is accessible because of contextualisation and the low density of new words and learners are supported in their use of new subject concepts by L1 or bilingual glossaries and visuals. A range of activity types are used designed to support speaking, reading and writing about subject concepts in L2. A large number of different visuals are used to convey textual meanings.

Forms of bilingual practices are actively encouraged, in accordance with good practice in multilingual education (Garcia and Wei, 2014). Teachers are encouraged to use code-switching in specifically defined ways; learners use their L1 to discuss subject concepts in small groups and pairs, and in particular before and after reading and writing (see image 2). By drawing on these 'language accessible' techniques, the textbook can be used by learners to learn the content of a particular topic while recognising their low language ability.

Image 2 near here

The research project

The Rwandan policy context

In October 2008, English became the MoI across all levels of the education system (Rosendal, 2010). This was modified in 2011 so that the first three years of primary schooling reverted to learning in Kinyarwanda with English a compulsory subject. While this has many similarities with language in education policies across East Africa and further afield, it is remarkable in its break from the ex-colonial language, explained by a range of socio-economic, pragmatic and political reasons (see Samuelson and Freedman, 2010). The Rwandan policy context thus offers a distinct example of how EMI policy is influenced by the country being both post-colonial and post-conflict but also of contemporary assumptions about English as a global language.

It is a context in which many teachers are teaching in a third language, having trained and taught for many years in French before the shift to English in 2008. Many learners are also being exposed to English for the first time in school, particularly so in the rural areas. Pearson's (2014) ethnographic study of Rwandan language policy has highlighted some of teachers' perceived challenges in the switch to EMI. They stated that they lacked support for their shift from French to English and wanted training and materials to facilitate the new teaching requirements. The impact on learning has also been explored. In the Early Grade Reading Assessment in Rwanda in 2011, Primary 6 learners were asked to read a simple Primary 2 – Primary 3 level text. More than three in five (62%) learners achieved zero comprehension scores with only slightly more than 1 in 10 (11.6%) able to read the passage accurately (EGRA, 2011). However, it is important to note that

this may reflect difficulties for learners following the recent switch from French to English as much as for learning in a second language.

The research project sought to generate new evidence about the quality of learning and teaching in P4 classes across Rwanda and highlight the challenges of EMI in policy circles. While not advocating for EMI in Rwanda or other African contexts, this was undertaken within the policy environment where EMI is the current and anticipated future reality for learners from P4 through to higher education. In this sense, the project was developed from a starting point that if learners must learn in English then strategies are needed to support the linguistic capabilities and quality of learning for all learners within such an environment (see Tikly in this issue).

The research methodology

The intervention developed earlier work on developing language supportive materials and pedagogy in Tanzania and Ghana (Clegg and Afitska, 2011). It consisted of developing language supportive materials in conjunction with publishers and providing associated training for teachers in the use of materials. This rested on the assumption that the introduction of the new materials would require training as teachers were being required to significantly alter their pedagogical practices. The research design was mixed-method and exploratory with the main aim of understanding the pre-existing status of learning in P4 classrooms and the impact of the introduction of language supportive pedagogy training and textbooks. The sample was eight treatment and control schools selected within four districts - Ngororero district (Western province); Nyagatare district (Eastern province); Kamonyi district (Southern province); and Burera district (Northern province). Districts were purposefully selected from those with schools which serve the most disadvantaged communities in difficult delivery contexts. Six schools were selected in rural settings, of which two were in remote areas; two were in town settings to roughly reflect the demographic bias in Rwanda towards rurality.

These classifications were defined by the project team as:

- *Town*: school situated by a main road in a settlement where there is a market and access to banking facilities;
- *Rural*: school within three kilometres of a main road and/or a market town; and
- *Remote*: school more than three kilometres from a main road and/or market town.

Data collection was undertaken in three stages. The baseline study was in two stages with an initial qualitative phase of 24 classroom observations and interviews with Maths, Science and Social Studies teachers and head teachers in late 2013. In May 2014, the learner pre vocabulary and comprehension tests were taken by a randomly selected morning and afternoon P4 class (n=1241) across the control and intervention schools¹. Book chapters were piloted in two schools in early 2014 before three subject textbooks were fully developed by local writers, illustrators and editors who had been trained in language supportiveness. The subject content related to the P4 topics that would be covered in the intervention period. The textbooks were distributed at the intervention schools in May 2014. All P4 teachers in Maths, Social Studies and Science undertook training in language supportive pedagogy and using the language supportive textbooks and associated teacher guides. The training consisted of an initial workshop followed up by school based support in the use of materials by members of the project team. The third data collection phase took place May-September 2014 and involved three separate school visits for classroom observations, finishing with interviews with teachers and head teachers, focus groups with learners and the administration of the post-tests in mid-2014. The tests were checked for content and external validity.

The student test data were analysed using an independent t-test to see if there is a statistically significant difference in scores between those who had been involved in the intervention and those who had not. To see whether the difference between test scores in the two groups could be explained by the control/intervention grouping, the ANOVA test of variance was used (Hartas, 2015). The classroom observation data were analysed using content analysis with codes applied to determine the changes in pedagogic practice. All

¹ In Rwandan primary schools, it is common for a double shift system to operate with children either attending for the morning shift or the afternoon shift.

interview data were translated and transcribed before being thematically analysed (Braun and Clarke, 2006).

The research findings

The quantitative data suggests that the intervention has had a significant effect on improving learning outcomes across the eight project schools. At the baseline stage, learners from the eight project schools and eight similar comparator schools sat a comprehension test which included vocabulary and comprehension questions for science, mathematics and social studies. In the pre-test, the total percentage mean for all students was 36.53% (N=1075; sd =14.97, range 0-85%). This range in test scores was found across all schools with no single case skewing the data. The mean scores for the intervention (N=550) and control (N=525) groups were 37.58 and 35.42. An independent t test shows that the 2.16% difference between the test scores for these two groups is significant (0.018 two tailed). Further tests were carried out to examine how far the variance in the data can be explained by the control/intervention grouping. The effect of this group selection is only accountable for 0.3% of the total variance as shown in Table 1.

Table 1 near here.

Therefore, although there is a significant difference between the means, this cannot be said to be caused by the groupings, thus making the two groups valid for comparisons in the post-tests. Learners performed significantly better in the vocabulary (mean=39.55) than comprehension (mean=21.86) questions. However, the vocabulary scores can still be seen as low given that all the questions were based on vocabulary in the English curriculum from P1-the first term of P4. This is language that it is assumed learners will know; it is also vocabulary which is simpler than most of that used in existing textbooks. The baseline test results, thus, suggest that language is acting as a barrier for the majority of learners to access the content of science, maths and social studies textbooks with implications for their learning outcomes.

The post-tests were administered after four months of the intervention and included separate tests for science, maths and social studies. The total percentage mean for all students was 55.23% (N=1075; sd=15.61; range 11.67-93.33%). The test comprised of

36 vocabulary questions and 24 comprehension questions with students performing better in the vocabulary section (61.65%) than in the comprehension questions (45.57%). The mean for the maths section was 53.64, for the science section 52.79 and for social studies 59.27. For the overall test, the mean scores for learners at the project schools was 63.09% (N=550) compared with 47.00% for those at the comparator schools (N=525). An independent t test shows that a highly significant difference of 16.09% between the test scores for these two groups (0.000 two tailed). Further tests were carried out to examine how far the variance in the data can be explained by the control/intervention grouping. The effect of this group selection is accountable for a highly significant 26.5% of the total variance as shown in table 5. By way of comparison, this compares with the effect of gender accountable for only 0.4% of the total variance. This demonstrates that the intervention had a significant impact on learning.

Table 2 near here.

The qualitative interview data with teachers, learners and head teachers supports the quantitative findings that the intervention textbooks were easier to read and made learning more accessible. Many teachers made direct comparisons between existing textbooks and those of the intervention, highlighting differences in the length and difficulty of language in individual texts:

[the intervention] books are better because they are very easy compared to the other books. They have short text (which are easy for both my learners and myself) to read and understand. The other books are not good because they contain long text.
(Nyagatare Rural, Science and Maths Teacher)

However, whilst in the baseline study, discussions of the textbooks had centred on accessibility, reflections on the intervention textbooks for most teachers went beyond readability to wider issues of learner understanding and learning. For example, in the following two examples the teachers reflect on why the textbooks are better than existing ones and the repeated use of understanding is noteworthy:

These textbooks are easier for learners. They are summarised, the child can read and understand these books... They also have new words box that help the child

to understand more the content. The exercises are also well prepared and clear. Working in groups is also some to appreciate for these books

(Maths teacher, Nyagatare Remote)

The [intervention] textbooks have short texts and this makes it easy to understand the content... The use of Kinyarwanda also helps in the understanding of the content, but the other books have not this aspect and learners had to struggle to follow the teacher.

(Social teacher, Kamonyi Rural)

The vast majority of teachers and head teachers were positive about the use of Kinyarwanda in the textbooks through glossaries and speaking activities. However, a small number did not think that the use of Kinyarwanda would help in developing the English language proficiency of learners. It is important to acknowledge these teachers' reservations about the use of L1 and its potential impact on learning in L2; although this can be a common misconception among practitioners (see Garcia and Wei, 2014).

Learners' feedback on the textbooks was overwhelmingly positive and mainly focused on their accessibility as compared with existing books. In all of the learner focus groups, the use of Kinyarwanda, in glossaries and its permitted use in the classroom, was given as a benefit of the new textbooks. Other benefits included that 'the books encourage discovery because of group discussion' and that 'they are easier to understand' (Learners from Ngorerero Rural and Nyagatere Rural). Another learner (Ngorerero Rural) noted that '*if I meet somebody and he asks me what I have learnt I can confidently tell because I know the meaning of what I am saying*', highlighting a perceived shift in learning outcomes. The level of enthusiasm and engagement from learners was also cited by many teachers and head teachers. Six of the Head teachers reported that they had spoken to learners and that they had all been positive about the textbooks. Three specifically reported that learners are more motivated to learn with the intervention textbooks because they are more at the level of the learner, easier to read and/or let learners learn outside of the classroom:

Learners also appreciated the textbooks saying that they have words that help them understand. They are really motivated to read these books. Sometimes I enter the classroom and find pupils reading on their own because they can get the meaning

without the teacher's intervention. Since they easily interact with the books all the time they are free, the teachers get surprised to find that children have some knowledge on the new topics and this makes them active in the lesson.

(HT, Nyagatare Rural)

An interesting finding that could be followed up through further research is that many learners, unprompted, talked about their learning outside the classroom. Five learner focus groups spoke about one of the key positive aspects of the books being that they could take them home and continue their reading and learning at home. Some of these reflected on the fact that parents and siblings were also able to help them in their learning: *They make us succeed the quizzes because this time parents can help us revise our lessons at home and as a result we succeed the quizzes at school. It was not the case with the other books because they were difficult even for the parents* (Learner, Ngororero Town). This is potentially significant given the strong correlation that has been found across East and Southern Africa about home-school links and learner outcomes (see Smith, 2011).

The quantitative and qualitative findings have shown that there is not only an improvement in learning outcomes but widespread support for the use of the intervention textbooks by learners, teachers and head teachers. This suggests that the textbooks can contribute to a more positive learning environment leading to successful learning outcomes; however, this is also dependent on the way in which the textbooks are used in the classroom. Observation data has shown improved classroom pedagogical practice for the majority of teachers. Table 3 demonstrates the changes that were observed and how they relate to language supportive pedagogy. Across all three of these aspects, there were higher levels than in the baseline study. In the main stage, in all lessons observed, learners had access to a textbook with the majority having their own textbook. By the final observations, all the classrooms were characterised by students engaging in a range of activities and actively using textbooks to support their learning. All teachers were also using the teacher's guide in Kinyarwanda and most lessons were clearly structured and planned. This is in comparison with the baseline observations where there only one quarter of the lessons observed saw teachers and learners with textbooks.

[Table 3 around here](#)

Learner talking increased with the presence of language supportive textbooks and pedagogy. This was both in the increased use of speaking activities and in the number of times individual learners were called upon to answer questions in full-class sessions. This is relevant in respect of evidence that teacher-learner discourse elsewhere in SSA is characterised by teacher-centred talk with very short learner responses (Hardman, 2008). Table 4 shows the mean number of short and long answers that learners gave during the lesson. A short answer is characterised as an answer given in response to a question (as compared with repetition) of less than three words; a long answer is at least four words, usually comprising of a sentence. This type of response by a learner suggests higher levels of content understanding and language proficiency. For both short and long answers, there is a great increase from the baseline to the main stage observation with the average number of short answers and long answers more than doubling (from 11.04 to 24.27 and 5.83 to 14.07 respectively).

Table 4 around here

In the baseline, nearly three quarters (74.70%) of lessons were characterised as teacher-led with little learner interaction, discussion or use of learning materials. By contrast, in the mainstage, less than one third (31.94%) of lessons were entirely teacher-led. In every lesson, learners engaged in at least one activity and in many learners completed written, talking and reading activities in groups with the teacher supporting this style of learning.

The changes to pedagogical practice were also supported in the data from interviews with head teachers, teachers and learners. Emphasis was placed on how learners were more engaged in classrooms:

‘Using Kinyarwanda in the classroom increased children’s participation in the lesson, hence learner-centred lessons. When you ask a question, they answer it very quickly because they understood the meaning of the question’

(Maths teacher, Burera Rural)

The link between increased use of the first language and more learner-centred lessons shows clear parallels with translanguaging practices (Garcia and Wei, 2014). Some teachers highlighted the importance of the language supportive pedagogy training to support them as teachers to implement the expected teaching approach in classrooms. This is a significant point as it suggests that the use of language supportive textbooks in

classrooms is dependent on teachers feeling confident in the different pedagogical practices, such as the increased time spent on activities and the legitimate use of Kinyarwanda (Clegg and Afitska, 2011). A number of teachers also commented on their improved confidence through the lesson observations and the feedback received from observers:

The implementation of the training was easy for me. The methodology we had simplified the way we were teaching before. The only difficulty was to balance the use of Kinyarwanda and English but I finally managed to balance it properly.

(Maths teacher, Kamonyi Town)

Overall, the quantitative and qualitative data suggests a very positive impact of the language supportive textbooks and pedagogy.

Conclusions

The most significant finding from this study is the impact of the use of language supportive learning on learner outcomes. At the school level, improved learner outcomes have been witnessed with learners achieving 16.09% higher on average than learners at similar comparator schools across Maths, Social studies and Science comprehension tests based on the topics of the second term of P4. This suggests that learners understood more of the content in the language supportive textbooks and learnt more effectively in classrooms where there was language supportive pedagogy than in comparable classrooms where either existing textbooks were being used or none at all. Significantly, there were improvements across all learner groups, including those that were shown to have very low English proficiency in the pre-tests. This highlights the potential of language supportive learning to support the most disadvantaged learners so that they are not denied access to learning by the barrier of English. This finding is particularly positive given that some of the most positive cases of effective L2 medium education are in high socio-economic contexts (see Clegg and Simpson, this issue). This is not only a language issue, but a social justice one, and further research is required for greater exploration of the ways that language supportive learning can counter marginalisation of disadvantaged learners in contexts where EMI is promoted.

There were also very positive qualitative findings with teachers, head teachers and learners showing their support for the use of such materials in comparison to existing textbooks. This was particularly in relation to the fact that the textbooks were deemed more accessible for all learner groups through easier English and the inclusion of glossaries in Kinyarwanda. Head teachers and teachers focused on the ease of the materials for supporting effective teaching and getting learners to be more engaged in the classroom. The classroom observations suggest that classrooms are characterised by learner-centred or mixed learner-teacher methodologies with textbooks being used to support more effective learning. The use of some Kinyarwanda is a key finding. This strongly supports the promotion of bilingual practices in the transitional years from L1 to L2 and highlights the importance of teachers feeling confident and legitimised in using L1 to support learning in L2 (Clegg and Afitska, 2011).

In terms of wider implications of the study, and to reiterate, the authors are not advocating an early exit approach from mother tongue education. The weight of international evidence is in favour of the use of a mother tongue-based bilingual approach for improving learning outcomes that involves a later exit to L2. Rather, support for language supportive EMI approaches is to acknowledge the reality of the policy environment facing disadvantaged groups of learners in Rwanda as elsewhere in SSA where early exit from mother tongue policies remain the norm. Even where the transition to L2 happens at a later stage in the basic schooling cycle as in Tanzania (see Barrett and Bainton in this issue), language supportive approaches can provide pedagogic ‘scaffolding’ to support the transition including the transfer of knowledge and skills gained over a number of years in L1 to L2 as the new language of learning. The findings presented in this article are a foundation from which a new research agenda can be developed about strategies that can best support all learners living with the realities of EMI, particularly in these transitional years.

There remain, however, key challenges in implementing language supportive techniques. For instance, it may not be easy to convince policy makers of the importance of a language supportive pedagogical approach where the strategic use of L1 is supported even where this demonstrably can assist in the transition to L2. In the absence of policy support for language supportive approaches, it will be difficult to convince publishers of the importance of investing in language supportive textbooks given that they are likely to be

costlier to produce at least initially and involve a greater investment in the training of textbook writers and illustrators. This again draws attention to the importance of not only further research but also policy advocacy in the area of EMI as it applies to disadvantaged groups of learners in challenging delivery contexts in sub-Saharan Africa.

References

- Alexander, R. J. (2015). Teaching and learning for all? The quality imperative revisited. *International Journal of Educational Development*, 40, 250-258.
- Alidou, H. (2003). The Medium of Instruction in Sub-Saharan Africa. In *Medium of Instruction Policies: Which Agenda? Whose Agenda?*, 195–214. Mahwah: Lawrence Earlbaum Associates.
- Alidou, H, A Boly, B Brock-Utne, Y Diallo, K Heugh, and H Wolff. (2006). *Optimizing Learning and Education in Africa – the Language Factor*. Paris: ADEA.
- Baker, C, (2011). *Foundations of Bilingual Education and Bilingualism*. Bristol: Multilingual Matters.
- Ball, P., Kelly, K. and Clegg, J. (2015). *Putting CLIL into Practice*. Oxford: Oxford University Press.
- Barrett, A., Sayed, Y., Schweisfurth, M., & Tikly, L. (2015). Learning, pedagogy and the post-2015 education and development agenda. *International Journal of Educational Development*, (40), 231-236.
- Benson, C. (2005). *Girls, Educational Equity and Mother Tongue-based Teaching*. Paris: UNESCO.
- Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), pp.77-101.
- Brock-Utne, B. (2005). Language-in-education Policies and Practices in Africa with a Special Focus on Tanzania and South Africa - Insights from Research in Progress. In *Decolonisation, Globalisation: Language-in-education Policy and Practice*, 173–93. Clevedon: England: Multilingual Matters.
- Brock-Utne, B. (2015). Language, Literacy, Power and Democracy in Africa. *Education and Society*, 33(2), 5-24.
- Brock-Utne, B, Z Desai, M Qorro, and A Pitman. (2010). *Language of Instruction in Tanzania and South Africa – Highlights from a Project*. Boston/Rotterdam: Sense Publishers.
- Chimombo, M. (1989). Readability of Subject Texts: Implications for ESL Teaching in Africa. *English for Specific Purposes* 8 (3): 255–64.
- Clegg, J, and O Afitska. (2011). Teaching and Learning in Two Languages in African Classrooms. *Comparative Education* 47 (1): 61–77.
- Garcia, O. and Wei, L. (2014). *Translanguaging: Language, Bilingualism and Education*. Basingstoke: Palgrave Macmillan

- Gibbons, P. (2009). *English Learners, Academic Literacy and Thinking: Learning in the Challenge Zone*. Portsmouth, N.H: Heinemann.
- Glewwe, P, M Kremer, and S Moulin. (2007). Many Children Left Behind? Textbooks and Test Scores in Kenya. *American Economic Journal: Applied Economics*, 1(1): 112-35
- Hardman, F. 2008. 'Teachers' use of feedback in whole-class and group-based talk'. In N. Mercer and S. Hodgkinson (eds). *Exploring Talk in School*. London: Sage.
- Hartas, D. ed., (2015). *Educational research and inquiry: Qualitative and quantitative approaches*. Bloomsbury Publishing.
- Heugh, K (2006) Theory and practice – language education models in Africa: research, design, decision-making, and outcomes in *Optimising Learning and Education in Africa – the Language Factor*. 56-84. Paris: Association for the Development of Education in Africa.
- Johnson, R. K, and M Swain. (1994). "From Core to Content: Bridging the L2 Proficiency Gap in Late Immersion." *Language and Education* 8 (4): 211–29.
- (1997). *Immersion Education: International Perspectives*. Cambridge: Cambridge University Press.
- Macdonald, C. (1993) *Towards a New Primary Curriculum in South Africa*. Pretoria: Human Sciences Research Council.
- Michaelowa, K, S Fehrler, and A Wechtler. (2009). The Cost-Effectiveness of Inputs in Primary Education: Insights from Recent Student Surveys for Sub-Saharan Africa. *Journal of Development Studies* 45 (9): 1545–78.
- Pearson, P., 2014. Policy without a plan: English as a medium of instruction in Rwanda. *Current issues in language planning*, 15(1), pp.39-56.
- Probyn, M. (2005). Language and the Struggle to Learn: The Intersection of Classroom Realities, Language Policy, and Neo-colonial and Globalisation Discourses in South African Schools. In *Decolonisation, Globalisation: Language-in-education Policy and Practice*, 155–74.
- . (2006). Language and Learning Science in South Africa. *Language and Education* 20 (5): 391–414.
- Rea-Dickins, P, and G Yu. (2013). "English Medium Instruction and Examining in Zanzibar : Ambitions, Pipe Dreams and Realities." In *Language Issues in Comparative Education*, 189–207. Sense Publishers.

- Rosendal, T. (2010). Linguistic Landshapes: A Comparison of Official and Non-official Language Management in Rwanda and Uganda, Focusing on the Position of African Languages. Unpublished, Sweden: University of Gothenburg.
- Rubagumya, C, O Afitska, J Clegg, and P Kiliku. (2011). A Three-tier Citizenship: Can the State in Tanzania Guarantee Linguistic Human Rights? *International Journal of Educational Development* 31 (1): 78–85.
- Samuelson, B. & Freedman, S. (2010). Language policy, multilingual education and power in Rwanda. *Language Policy*, 9:191-215
- Smith, M. (2011). Which in- and Out-of-school Factors Explain Variations in Learning across Different Socio-economic Groups? Findings from South Africa. *Comparative Education* 47 (1): 79–102.
- Taylor, N, and P Vinjevold. (1999). *Getting Learning Right*. Cape Town: Pearson Education Publishers.
- Tikly, L, and A Barrett. (2011). Social Justice, Capabilities and the Quality of Education in Low Income Countries. *International Journal of Educational Development* 31 (1): 3–14.
- UNESCO. (2014). Teaching and Learning: Education for All. 2013/4 Global Monitoring Report. Paris: UNESCO.
- Uwezo. (2010). Are Our Children Learning? Annual Learning Assessment Report, Tanzania. Uwezo.
- (2013). Annual Report 2012. available at: <http://www.uwezo.net/wp-content/uploads/2012/08/2013-Annual-Report-Final-Web-version.pdf>. accessed 071215
- Williams, E. (1998). Investigating Bilingual Literacy: Evidence from Malawi and Zambia. DfID Education Research Series.
- . 2011. Language Policy, Politics and Development in Africa. In *Dreams and Realities: Developing Countries and the English Language*, 34–56. The British Council.
- Williams, E, L de Montford-Nayimfashe, E Ntakirutimana, and B O’Sullivan. (2004). *Proficiency in French, English and Kinyarwanda in the Primary and Secondary Sectors of the Rwandan Education System*. Unpublished report commissioned by CfBT Education Trust for the Department for International Development.

Images and tables

Figure 1: Introducing transport in the Primary 4 Social Sciences textbook

Transport is very important in our district. It helps people in many ways.

1. People can take their goods to the market.
2. People can travel to get services.
3. People can travel to work.

New words	
Kinyarwanda	English
serivisi / imirimo	service
akazi/ umurimo	work
isoko	market



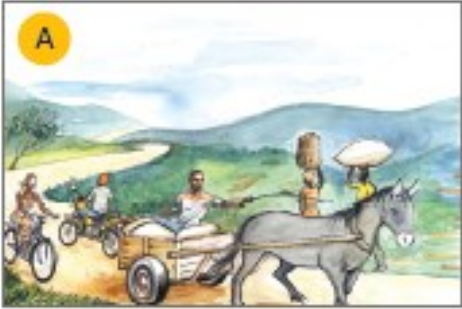


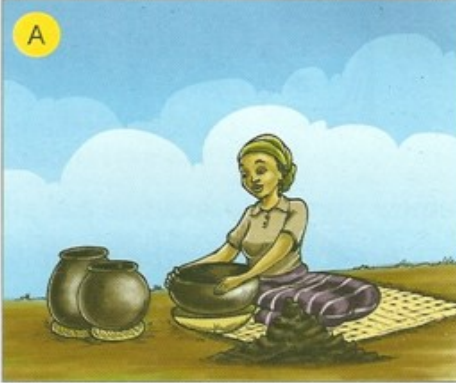
Figure 2: An example talking activity in the Primary 4 Science textbook

There are 3 types of soil:


- loam soil
- sand soil
- clay soil

We use loam soil for growing crops. We use sand soil for building. We use clay soil for making pots.


A



B



C



Activity 25: Talking in Kinyarwanda about uses of soil

Work in groups. Look at the pictures on page 10 and talk in Kinyarwanda about types of soil: how many types do you know? What do we use them for?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	165.423 ^a	1	165.423	4.559	.033
Intercept	259922.715	1	259922.715	7164.076	.000
IntCont	165.423	1	165.423	4.559	.033
Error	44952.658	1239	36.281		
Total	305618.000	1241			
Corrected Total	45118.081	1240			

*R Squared = .004 (Adjusted R Squared = .003); Dependent variable: total score

Table 1: Test of between subject effects, pre-test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	69600.053 ^a	1	69600.053	388.283	.000
Intercept	3255482.058	1	3255482.058	18161.590	.000
ContInt	69600.053	1	69600.053	388.283	.000
Error	192336.252	1073	179.251		
Total	3541369.444	1075			
Corrected Total	261936.305	1074			

a. R Squared = .266 (Adjusted R Squared = .265); dependent variable, total score

Table 2: Test of between subject effects, post-test

Aspect	Link to language supportive pedagogy	Measured by:
More consistent use of textbooks as teaching and learning materials	Allows learners and teachers to engage with the activities and read the simpler content for curriculum understanding and language development	Presence of textbooks in classroom and used by teachers and learners
More learner talking	Language development dependent on the frequent use of L2 and talking in L1 to explain key issues	Numbers of learner answers to teacher questions
More learner-centred learning	Teachers scaffold learning through range of reading, writing and talking activities	Observations of 'teacher-led' and 'learner-centred' practices (see methodology section)

Table 3: language supportive pedagogy

	Baseline observation	Observation 1	Observation 2	Observation 3	Main stage observation overall

Number of lessons	24	23	24	24	71
Short answers (Average per lesson)	11.04	22.14	22.17	28.33	24.27
Long answers (Average per lesson)	5.83	9.64	17.5	14.71	14.07

* Long (4 words or more); Short (1-3 words).

Table 4: number of questions