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## **Textbook availability and use in Rwandan basic education: a mixed-methods study**

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# **Textbook availability and use in Rwandan basic education: a mixed-methods study**

Textbooks and related learning materials, such as workbooks and teacher guides, are widely assumed to be key inputs in effective schooling systems. Some recent statistical analyses have challenged the validity of such assumptions and highlighted the tendency for textbook availability to be used as a proxy for textbook use. However, few studies have explored whether textbooks are actually used, and if not, why not. This article aims to address this gap in the literature by presenting the findings from a nationwide survey of textbook use in Rwandan basic education with a detailed analysis of the current use of textbooks in a range of Rwandan classroom settings and explores the barriers to their effective use. Findings show that textbooks are infrequently used because of inconsistencies in the availability of textbooks for all learners and perceptions of the quality and accessibility of those books that are available. Conclusions suggest the implications for textbook development, distribution and use in Rwanda and point to the need for greater understanding of the complexities of the ways that textbooks can be used as effective learning support materials for all learners.

Keywords: textbooks; education quality; learning

## **1. Introduction**

Millions of dollars are invested annually by African governments and donors to purchase textbooks and related learning materials such as workbooks and teacher guides. The rationale for such investment is rarely fully explained beyond general statements about the importance of learning support materials (LSM) for the provision of quality education. Two recent World Bank publications have reiterated the primarily positive impact of textbook use, particularly as a cost-effective measure to improving learning outcomes (Fredriksen and Brar, 2015; Read and Bontoux, 2016). Fredriksen and Brar (2015:22) highlight that ‘there is widespread agreement that, apart from qualified and committed teachers, no other input is likely to be more cost-effective than high quality learning materials available to all students’. Read and Bontoux (2016) further suggest that

repeated evidence for forty years has shown the overwhelmingly positive impact of textbooks on learning. However, they do conclude that this is dependent on the textbooks being available for teachers and learners to use and in a language that is widely understood. This evidence base has recently been challenged (Glewwe, Kremer and Moulin, 2009; Kuecken and Valfort, 2013). These studies have questioned the widespread advocacy of the positive and significant correlation between textbook use and improved learner outcomes in low income countries since textbook availability in schools is often used as a proxy for textbook use. While these studies quantitatively highlight the need to understand more about the ways that textbooks are used, few empirical studies have explored textbook use in class situations, their mediation by teachers and how they aid or hinder learning, particularly in disadvantaged socio-economic communities and for all learners (Opoku-Amankwa, 2010).

Rwanda's promotion of textbooks can be seen to be underpinned by a strong belief in their positive impact on learning. Improving learning outcomes is central to the government's broader aims of social and economic development (Author 3, forthcoming). The emphasis on quality is highlighted in the 2013-2018 Education Sector Strategic Plan (ESSP). Target 3 of the ESSP calls for improved quality and learning outcomes across primary and secondary education (MINEDUC, 2013: 9). One of the ways quality has been conceptualized in the ESSP is through ensuring that children have access to effective learning materials in the classroom. This includes the provision of textbooks. Output 3.4 for Target 3 explicitly references the need for improved student/textbook ratio as well as access to reading material for all schoolchildren. This has resulted in both public and private initiatives such as USAID funded project 'Literacy,

Language, and Learning' aiming to improve the availability and use of innovative reading instructional materials.

Recent data has pointed to the successful distribution of textbooks in schools across the country. Through its decentralization policy, Rwanda's capitation grant system has successfully enabled head teachers to procure textbooks directly from publishers based upon the particular needs of the school (Transparency International, 2012). This system has shifted the decision-making responsibility to schools to choose the quantity and type of textbooks and reading materials they require (MINEDUC, 2013: 21). Some recent studies have suggested that this has led to improved learner/textbooks ratios (MINEDUC, 2014; Transparency International, 2013). Textbooks have thus been identified as a tool that can help to improve learning across all subject areas.

There is very limited understanding of the ways in which textbook availability translates into actual textbook use in Rwandan classrooms. This article addresses this gap in the literature, both in Rwanda and by drawing implications further afield. Perceived barriers to systematic textbook use are explored and conclusions consider the ways that textbooks can be used more effectively to support learner outcomes.

## **2. Literature review**

In the era of 'the learning agenda', there has been a renewed interest in what are the most effective inputs that contribute to improved learning for all learners. Here, textbooks are frequently cited in key donor documents as a key component of a positive learning environment (Hanushek & Woessmann, 2010; Department for International Development,

2010; Fredricksen & Brar, 2015). The positive relationship between textbook use and learner outcomes is often discussed in a general manner without reference to the evidence or the contexts from where such evidence has been collected. For example, in the Department for International Development (DfID) (2010) guidance note *learning and teaching materials: policy and practice for provision*, the relationship between textbook availability in schools and learner outcomes appears uncontested with only references made to two projects from early 2000s. Similarly, in World Bank documentation, it is claimed that the availability of textbooks appeared to be the single most positive factor in predicting educational achievement (World Bank, 2008; Fredricksen & Brar, 2015). Fehrler, Michaelowa & Wechtler (2009) in their study of 22 Sub-Saharan countries, also concluded that textbook investment are cost-effective, customizable and useful. These studies suggest that LSM, and textbooks in particular, are effective inputs to learning. Such arguments have underpinned many governments and donors' widespread provision of textbooks. It follows that if textbooks are delivered into school settings, then children will learn more effectively.

The simplicity of the presentation of the relationship between textbooks and learning, however, has the tendency to mask the complexities of this relationship. Firstly, there is limited consideration given to issues related to the quality, relevance and accessibility of the textbook. Heyneman (2006: 47) has outlined some of the key determinants of a quality textbook:

A pedagogically effective textbook is accessible to the full range of student experience and ability. It is natural in the teacher's hands. It is expected to build readiness for the next level, its modules fit well with teacher preferences and choices, and it chooses topics and their sequencing based on an understanding of student preferences. Learning how students respond to various language levels, sequences,

and the mixture of pedagogical strategies is why good textbooks are rare and why effective textbooks are always more costly.

This highlights the complexity of the content of textbooks, the ways in which they are used in classrooms by teachers and how they are applied to learners with different cognitive and language abilities. It also brings into question how far widespread assumptions can be held about the effectiveness of textbooks, as a homogeneous entity, without greater understanding of the content of the books and the complexity of their use by teachers and learners alike.

Secondly, it has been argued that much of the evidence used to show the effectiveness of textbooks draws on measures for textbook availability or presence in the classroom rather than actual analysis of the ways in which they are used by teachers and learners to support learning. Spaul (2012) has noted that while a number of studies have found that the educational returns to textbooks are large and significant in South Africa (Van der Berg & Louw, 2006) and Sub-Saharan Africa (Fehrler et al., 2009), this refers to the availability of textbooks rather than whether and how they are used. This critique is not new. Twenty years ago, Moulton (1994) reviewed the literature related to how teachers use textbooks in the USA and 'developing countries'. Moulton (1994) explores whether textbook availability can be used as a proxy for textbook usage, particularly within World Bank studies, and highlights that the links between availability and use are rarely established.

Kuechen et al. (2013) highlight the lack of evidence for the impact of textbook access on learner achievement before analysing the Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) data. They find no average impact of textbook access (ownership or sharing in the classroom) on achievement for primary learners.

Glewwe et al. (2009) also highlight that much of the evidence for the relationship between textbook use and learner outcomes should not be taken for granted because of the way in which variables have been identified and included. For example, they point to the Heyneman and Jamison (1980) study which showed positive correlations between textbook access and student test scores in literacy and maths but they argue that these are at risk of bias because of omitted variables.

There is a very limited body of literature which has qualitatively explored the ways that textbooks are actually used in classroom situations. In one small scale study of 60 classroom observations in one school in Kumasi, Ghana, Opoku-Amankwa (2010) highlighted that although the national textbook policy expects 1:1 textbook-to-learner ratio, classroom norms do not allow for textbooks to be used regularly. These include teachers' attitudes towards the textbook policy, the large class sizes and the seating arrangements in the classrooms which force learners to share textbooks on one work bench. Interestingly, he observes that when learners share there is often 'a power broker' within the group who controls access to the textbook. In the current authors' research in schools across East Africa, we can draw on many anecdotes of textbooks' presence in schools that support some of the observations drawn by Opoku-Amankwa (2010). These include that the books are often locked away, infrequently used in classroom teaching and very rarely available for student independent learning. There are clear limitations, though, to drawing on such anecdotal evidence which suggests the need for more comprehensive studies of the ways that textbooks are used, or not, in a range of classroom contexts.

While it has been widely noted that textbook quality and effectiveness for all learners are important factors in textbook design (see for example, Heyneman, 2006), the evidence

for the effectiveness of textbooks for all learners is also contested. A DfID funded study (Lewin and Stuart, 2003) into teacher training in low income countries is widely cited in DfID literature in the rationale for investment in teaching and learning materials since the findings suggest that the impact of textbooks is greatest in the poorest countries where teacher quality may be low and where facilities and resources are scarce and generally of poor quality. However, apart from this project, there is little evidence of improving learning outcomes for the most disadvantaged. Glewwe et al. (2009) and Kuecken et al. (2013) both show textbook use only shows positive impact on learners with higher socio-economic status. Furthermore, Glewwe et al.'s study (2009) finds little correlation between textbook sharing in classrooms in selected rural Kenyan primary schools and improved test scores with the only significant improvement being learners who were already high achievers prior to the intervention. If LSM are to support learning for all, the enablers and barriers to their effective use need closer examination in a range of contexts. This is particularly important for disadvantaged learners such as those who do not have access to reading materials or opportunities to speak in the Medium of Instruction (MoI) at home.

In a recent study in Rwanda (Authors 1 & 2, 2016), significantly better learner outcomes were recorded for primary 4 learners regularly using language supportive textbooks for a four month period, as compared with learners not exposed to the intervention. These textbooks were designed in more accessible English and with a variety of activities to develop all learners' subject knowledge and language capacity. The results suggest that relevant and accessible LSM can improve learning outcomes for all learners, including those with very low pre-test scores, but only when used regularly and with teachers who are trained and confident in their use. However, conclusions from this study highlighted

that there remains limited evidence about the extent to which and how textbooks are being applied within classrooms and schools. As UNESCO (2016), renew calls for all learners to have access to textbooks, it is timely to consider how far textbook availability translates into textbook use. This study aims to shed light on this issue through the development of a nationally representative dataset for textbook use.

### **3. Data and methodology**

#### ***3.1 The research methodology***

The study utilised a mixed-methods survey design (Robson and McCartan, 2016) to enable the collection of representative data about the extent of textbook use across a range of classroom contexts and in-depth exploration of the barriers and enablers to textbook use from the perspectives of teachers, learners and the school management. The fieldwork was carried out between March and May of 2015. Quantitative data were collected at 120 schools through spot checks of textbook availability and follow-up structured classroom observations of textbook access and use. The number of textbooks present in a school was based on an estimation by head teachers with the validity of this checked by researchers' visit to school store rooms or libraries. One randomly chosen class was checked per year group (e.g. Primary 1, Primary 2, etc). If textbooks were observed in classrooms, the researcher entered the classroom and proceeded to carry out a structured classroom observation to document how books were used by teachers and learners. See table 1 for the total sample.

Face-to-face questionnaires were also used to gather representative data of teachers' perspectives on any barriers to textbook use. Three teachers at each school were randomly selected to complete the questionnaire (N=360; Male=191; Female=158). At twelve of

the 120 schools, in-depth qualitative research was carried out. These schools included six government primary schools, three government secondary schools, two private primary schools, and one private secondary school. Semi-structured interviews were held with teachers and head teachers to provide the space for a more in-depth exploration of the nature and extent of textbook training needs. Focus group discussions (FGD) were chosen as a research method with students so that the researchers could explore learners' experiences of using textbooks in an informal way.

The sample was nationally representative with two government primary schools and one secondary school from each of Rwanda's 30 districts. Government or public schools are those owned and sponsored by the government. Government aided schools are those schools owned by churches but sponsored by the government especially paying teachers' salaries and providing school materials. Schools called nine/twelve year basic education (9/12YBE) are schools that combine pre-primary (if applicable), primary and lower/upper secondary. School selection in each district was random but also stratified according to rural, remote and town classifications based on geographic proximity to major infrastructures such as roads and trading centres. As a point of comparison, a private school (primary or secondary which do not receive any support from the government for textbooks) from each district was also sampled. Where there was more than one private school in a district, the school closest to one of the sampled public schools was identified. Four Teacher Training Colleges (TTCs) were also randomly selected to examine whether and how textbooks were integrated into teacher training.

Data collection method	Total schools	Total number
Spot-check of textbook use	120 schools	1396 classrooms
Classroom observation where textbooks identified		237 classrooms
Teacher survey		360 teachers
Semi-structured teacher interviews	12 schools	12 teachers
Focus groups with learners		12 groups
Semi-structured head teacher interviews		12 head teachers

Table 1: Total sample

Permission to carry out this research was provided and ethical clearance gained, at the national level, by the Director General of the Rwanda Education Board and the study's funders and at the district level, by District Education Officers. During school visits, teachers and head teachers were informed that the study focused on education quality. However, the specific focus on textbooks usage was not stated in order for classrooms to proceed in 'business as usual' fashion during spot checks. All interviews and surveys were carried out in the language preferred by study participants; typically Kinyarwanda.

### ***3.2 Findings***

#### *3.2.1 Textbook use in Rwandan classrooms*

As Table 2 illustrates, across the 120 schools, there were nearly half a million (475,941) textbooks available for 91,508 students. Of these, 77,262 (16.23%) were procured within the most recent round of capitation grants. The book-to-student ratio averaged out to approximately 5.2 textbooks per student. There were some differences by school type. There were more textbooks available at TTCs (31.8 per student) and secondary schools (8.4) than basic education (4.0) and primary schools (4.0). This shows that there are

textbooks available in all types of schools. This supports the research conducted by Transparency International (2012) which suggested that the capitation grant system has increased the numbers of textbooks in schools.

<b>Public</b>	<b>Total Books</b>	<b>Total Students</b>	<b>Books/ Student</b>
<b>School level</b>			
9/12YBE	20389	5121	<b>4.0</b>
Primary	132685	32820	<b>4.0</b>
Secondary	40364	5403	<b>7.5</b>
Secondary/TTC	30837	1359	<b>22.7</b>
<b>Total</b>	<b>224275</b>	<b>44703</b>	<b>5.0</b>
<b>Government aided</b>	<b>Total Books</b>	<b>Total Students</b>	<b>Books/ Student</b>
<b>School level</b>			
9/12YBE	8200	1969	<b>4.2</b>
Primary	118573	33875	<b>3.5</b>
Secondary	35621	3609	<b>9.9</b>
Secondary/TTC	49636	1168	<b>42.5</b>
<b>Total</b>	<b>212030</b>	<b>40621</b>	<b>5.2</b>
<b>Private</b>	<b>Total Books</b>	<b>Total Students</b>	<b>Books/ Student</b>
<b>School level</b>			
Primary	39636	6184	<b>6.4</b>
<b>Total</b>	<b>39636</b>	<b>6184</b>	<b>6.4</b>
	<b>TOTAL BOOKS</b>	<b>TOTAL STUDENTS</b>	<b>BOOKS/ STUDENT</b>
9/12YBE	28589	7090	<b>4.0</b>
Primary	290894	72879	<b>4.0</b>
Secondary	75985	9012	<b>8.4</b>
Secondary/TTC	80473	2527	<b>31.8</b>
<b>GRAND TOTAL</b>	<b>475941</b>	<b>91508</b>	<b>5.2</b>

Table 2: Textbook numbers by school type

The spot check data shows that at least one textbook was present in approaching three fifths (58.5%) of 1,370 classrooms. More in-depth classroom observations were undertaken in 236 randomly selected classrooms where textbooks were identified. Here, there was significant disparity regarding the numbers of textbooks in classrooms. In more than half of classrooms where textbooks are present, there is only one in the hands of the

teacher (56.78%; n=134). This is higher in secondary and TTC classrooms (68.85%; n=42) than primary classrooms (52.57%; n=92).

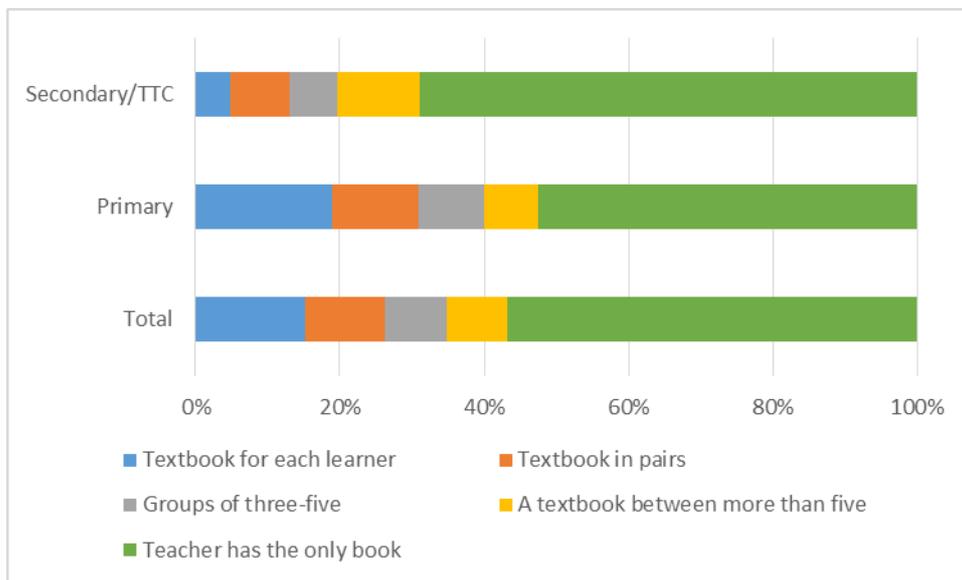


Figure 1: Textbook-student ratio in classrooms where textbooks are present

In primary classrooms, it is interesting to note that when learners do have access to textbooks, they are most likely to have access to their own textbook or one between two (65.06%; 54 of 83 classrooms). This suggests that while there are many classrooms where textbooks are only in the hands of teachers, there are also a significant proportion of classrooms where all learners have access to textbooks. It is evident that there can be no assumptions made about the presence of textbooks in schools and their subsequent availability to learners in classrooms.

Further analysis of the classroom observation data suggests that there is a wide range in the ways that teachers and learners use textbooks. As shown in Table 3, in only 23 lessons were learners observed using the textbooks for the whole fifteen minutes. This included reading or following the text with the teacher, looking at visuals or undertaking activities alone or in groups.

<b>Textbooks used by:</b>	Total (N=236)		Primary (N=175)		Secondary/ TTC (N=61)	
	<i>Learners for whole observed session</i>	23	9.75%	19	10.86%	4
<i>Learners for some of the observed session</i>	65	27.54%	48	27.43%	17	27.87%
<i>Only teachers for the whole observed session</i>	80	33.90%	62	35.43%	18	29.51%
<i>At least one textbook was present but not used</i>	68	28.81%	46	26.29%	22	36.07%

Table 3: textbook use by teachers and learners

Of these 23 lessons, there were only 8 lessons where all learners had access to a book; 6 where they were between pairs and 9 where they were between three or more students. Given the small sample size of lessons where there was systematic use of textbooks, tests of correlation between textbook availability and use are not possible. However, it is interesting to note that although there were 54 classrooms where learners had access to textbooks by themselves or pairs, in only 14 of these lessons were learners systematically using the books for learning. This suggests that using a proxy of textbook availability at either the school or classroom level for textbook use is highly problematic.

Another important finding is that there is also great variation in school policies about how textbooks can be accessed outside of classrooms. In approaching half of schools (54 of 120), there were school libraries but researchers could not determine how regularly learners could access textbooks during school hours. While the vast majority of schools had policies for the borrowing of books to take home (100 of 120 schools), this tended to

be determined by individual teachers and their propensity to borrow books and avail them to students rather than learners having the agency to borrow books themselves. It is important to note that some schools had different policies for which books could be borrowed, for example, only books for certain subjects. Other schools only allowed books to be borrowed by registered learners or those in the lower grades. At secondary schools, in particular, parents were encouraged to buy textbooks for learners to use at home. This further suggests that no assumptions can be made about how textbook availability at school can translate into textbook usage outside of the classroom; this is particularly in relation to how different policies impact on the ability of learners to work independently at home, and how it differentially affects those learners who cannot afford to buy books (Smith and Barrett, 2011).

### *3.2.2. Perceived barriers to textbook use for effective teaching and learning*

Thematic analysis of the qualitative data identified three main barriers to the more frequent use of textbooks in the classroom. These related to textbook supply, quality and accessibility. Regarding textbook supply, when asked to reflect on the barriers to their textbook use, the most frequent response by the twelve teachers was that textbook supply remained insufficient with student numbers significantly larger than the books available. For instance, one teacher of social studies in P6 rural public school reflected that:

Some lessons have very few textbooks. There is no way every learner can have a textbook. For example, you have two textbooks in the library but you have 40 students. It is not easy. In that case you use those books to prepare the notes to be given to learners.

There are two aspects of this quote that are worth noting. The first points to an assumption by this teacher that there is an expectation for every learner to have a textbook for effective learning to take place. The second is that the teacher notes that the textbook

content may still be used to prepare notes to give to learners. Other teachers also commented on using a single textbook to prepare notes or ‘having to transcribe the material on the blackboard’ (S3 Mathematics teacher in a government aided school). This suggests that while there are textbooks available, the reduced number acts as a barrier to their use as a learning aide resulting in the books acting as a didactic resource for the teacher.

Some teachers observed that the lack of textbooks was more problematic at different grade levels and school types. One P5 Teacher in a private school, for example, noted that:

If you look at the lower classes, every learner has a textbook. In upper classes there is [sic] not enough...for example in P5, I have to write the text on the blackboard for children to read.

Books being availed by the government are only provided to public schools and since they are written on "Not for sale", this becomes a serious barrier to private schools since they are not even allowed to buy them. The question is: “How come the government provide the curriculum to all schools, yet textbooks and other school materials which respond to that curriculum cannot even be bought by private schools?” (P5 teacher, private school)

Learners in the focus group discussions also noted the variety in availability of textbooks. Many stated that textbooks were used in some classes, particularly at the primary level in English, Kinyarwanda, and Mathematics lessons, but that this was not consistent across grades or subjects. They noted that when books were used in lesson they were often

shared in groups. For example, one student in a public secondary school suggested that textbooks are used to complete exercises but that these were ‘six learners in one group with two textbooks’. This is just a short statement, but it highlights an important lesson regarding the government’s commitment to provide an adequate book supply to learners: without a sufficient supply, the ability of textbooks to function as an effective learning tool may be compromised.

The second most cited barrier to textbook use by teachers was the quality of the textbooks available. Some suggested that the books available were old and so teachers could not depend on them to provide reliable and timely information on contemporary topics, as noted by a Foundation of Education teacher in a TTC:

The problem that we face is that textbooks are insufficient. Some of them are out of date. When there is new topic in the curriculum we have a problem to find textbooks with information that is talking about that topic.

This statement was supported by other teachers who noted that the textbooks available may not match the existing curriculum. A number of teachers also pointed to broader concerns about the reliability of textbook content which resulted in them opting to draw from other resources to provide instruction for students. One P3 Mathematics teacher in rural public school explained that she did not choose to textbooks in teaching because s/he had ‘noticed that some textbooks have errors..[preferring]...to consult other sources in order to find the right answer’. One teacher, in particular, suggested that the issues with content related to the government policy of encouraging the use of textbooks from different publishers. S/he explained that:

Some textbooks are contradictory in content. I don’t know it is due to different publishers or what. So we don’t value some books because they contain mistakes.

That teachers were concerned about the quality of textbooks presents a significant barrier that would need to be addressed to encourage teachers to integrate textbook use more regularly into lessons.

The final key barrier that teachers highlighted was a mismatch between textbook content and learner linguistic capabilities. These teachers pointed to the gap between the language abilities of young people and the high level of language found in textbooks. This is eloquently explained by a P3 English teacher in rural public school, who highlights the problem with the length and complexity of the English used, even as early as Primary 3 when English is an additional subject taught:

I have a problem with [second language] materials in P3. We received the speakers and textbooks. The problem is that the stories are too long—one story can cover three pages, for example. When the speaker is on children get lost with these very long stories. By the time the speakers finish the story children didn't get anything from it. I reported the problem to the head teacher but no solution was provided. The speaker [of the story] speaks at a high level compared to the level of our children in P3.

If learners (and sometimes teachers) struggle to discern the written language, textbooks were seen as a barrier, rather than an effective tool, for delivering a lesson in an effective way. Some teachers reflected that they do not use textbooks directly with learners since the learners are not able to understand the content. The above quoted teacher developed her own strategy whereby she read the textbook first and then simplified the language to make the textbook content more accessible to learners. While this suggests an effective response to using the textbooks as a teaching resource, it is a time-consuming strategy for the teacher and does not reflect how textbooks are expected to be used when they are written and procured.

A final key barrier to the systematic use of textbooks can be seen in the teacher survey responses to their training. When asked if they had received any training in using textbooks, only 98 out of 349 (28.1%) teachers responded “yes”. This was consistent across school levels and type. Of those who had received training, there was a mix of responses for where the training had been delivered. Some had received in-service training by the Rwanda Education Board, others while in pre-service training at university and a small number from other sources, such as Volunteer Services Overseas. It is an important finding that over two thirds (71.9%) of teachers in Rwanda reported to not having received any pre-service or in-service training about methodologies for integrating textbooks into their teaching. It is also evident that teachers would like training in this area. Regardless of whether teachers had been trained or not, all teachers who indicated they would like training in using textbooks. Head teacher interviews also suggested that training in the use of textbooks could contribute to their more effective use. This prospect of training teachers to use textbooks was seen by some as salient and timely given the introduction of the new competency-based curriculum. As one head teacher in a rural public secondary school explained:

Some have been trained in science and the impact was positive. They were trained on the curriculum and related textbooks. Because the Ministry is going to launch a new curriculum, we would like to think that those other teachers will be trained.

The support for more specialised training was also noted by the head teacher of one of the TTCs who explained that tutors had not been trained in using textbooks as they train the student-teachers.

#### **4. Discussion and conclusions**

In recognition of the limited recent evidence base for textbook use, this study has provided a Rwandan nationwide survey of the use of textbooks in basic education and the barriers to their more frequent and effective use. The first key finding from this study is that textbooks are widely available in all schools but that this does not translate into access in the classroom with textbooks only present in approaching three in five (58.5%) classrooms. Furthermore, in these classrooms, it was most likely for the textbook only to be used by the teacher as a teaching aid. There were no clear patterns to how the books are being used with only very limited examples of textbooks being used systematically as learning support material available to all learners. It is evident that textbook availability cannot be seen to translate into their use as effective learning support materials for all learners in the classroom.

This brings into question how far the ESSP priority for ensuring that all children have access to effective learning materials is being fulfilled across all levels of basic education. Further research is needed to explore how far lack of access to such materials is impacting on the learning outcomes of different groups of learners. This is particularly for (1) lower achieving children in the classroom since previous studies have suggested that the positive correlation between textbooks and learning outcomes does not include this grouping (Glewwe et al., 2010) and (2) children in lower socio-economic groups who are less likely to be able to access textbooks to support learning outside of the classroom. The finding that textbooks are rarely being used also has significant implications for the literature which identifies a relationship between effective learning and the availability of textbooks (Hanushek & Woessmann, 2010; DfID 2010; Fredricksen & Brar, 2015). This adds a new evidence base to the literature that has already questioned the use of textbook presence in the classroom as a proxy for textbook use (for example, Moulton, 1994;

Spaull, 2012). The analysis also highlights the importance of mixed-methods studies that can explore in more detail the complexities of textbook use.

The findings have also suggested a number of barriers to textbook use. There was little indication that teachers were opposed to using textbooks. However, evidence suggests that the perceived challenges were preventing their regular use. The main barriers were the availability of enough textbooks for all learners in the classroom, concerns about reliability and quality of existing textbooks and the perceived gap between textbook content and the linguistic capabilities of learners.

Significantly, the majority of teachers had not received any training in the use of textbooks. There are clear implications here for training in the use of limited textbook resources. Furthermore, if textbooks are to be used more systematically, teachers need to be trained and enabled to use them as effective teaching and learning materials. There are also implications regarding the quality and accessibility of the textbooks used for the process of textbook development and procurement. Addressing the issues related to textbook use will, therefore, require a system-wide approach to enable consistency across textbook production by publishers, procurement by REB and teacher training in the use of textbooks, at both the pre-service and in-service levels. This supports findings that were identified in a previous study about language supportive textbooks and pedagogy (Authors 1 & 2, 2016) regarding the need for change across textbook design and their use in the classroom. This is particularly relevant at a time that there is great interest in the role that technology can play in making textbooks more accessible in e-book form since findings have highlighted that accessibility cannot be assumed to translate to use. Appropriate texts alongside ongoing teacher training will be needed to help support the increased use of e-books in the classroom.

At the time of writing, Rwanda has recently gone through a curriculum review and a new competency-based curriculum is being introduced. This provides a real opportunity for the roll-out of high quality and accessible textbooks together with the implementation of related training. It is particularly recommended that textbook procurement guidelines are reviewed to ensure that textbooks are more carefully matched to the content of the curriculum, the cognitive level and the ability of learners in the English language; the revision of inspection guidelines to take account of textbook use in classrooms; a review of the teacher training curriculum is reviewed to incorporate a greater emphasis on effective use of textbooks and language supportive pedagogies used to support the delivery of the curriculum; and training for teacher trainers and school based mentors that focuses on incorporating a greater emphasis on effective use of textbooks in initial and continuing professional development. While these recommendations are specific to Rwanda, there are also implications further afield. There is a clear need to go beyond the assumptions around textbook use to develop greater understanding of the complexity of the processes by which textbooks are developed, distributed and used so that they can more consistently become effective learning support materials for all learners.

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