POLICY BRIEF No. 03 | June 2023

Language of instruction and learning outcomes in Uganda

June 2023

In short…

- Teaching in a language that pupils understand is the most effective policy on language of instruction for stronger learning outcomes.
- One out of four enumeration areas in the Uwezo 2021 data are significantly linguistically diverse, meaning that selecting a language to transition towards local language instruction might be relatively uncontroversial in three out of four local areas in Uganda.
- Uganda is more linguistically diverse than the average low- and middle-income country. Developing materials and programs in only 17 local languages is likely to only reach fewer than two-thirds of pupils.
- Pupils in schools that teach fully or partially in local language in Uganda display weaker learning outcomes than their peers. However, this is likely due to other school- and pupil-level characteristics, rather than the language of instruction itself.
- Different language groups have varying levels of household wealth and learning outcomes. This suggests that an additional equity lens needs to be considered when selecting languages for instruction.
- Pupils from linguistic minority groups perform worse than their peers in the same local area, even after accounting for any socioeconomic or school differences.

Introduction

The language of instruction used in an educational system is one of the most impactful features and policy decisions that determine learning outcomes. The use of a given language of instruction over others, from the national to the hyper-local levels, is highly dependent on the political, historical, and economic factors surrounding a given region. However, these decisions can deeply affect how much pupils learn, which subgroups of pupils benefit from education, and in turn, the economic and social return on investment of a country's investment in education. In this sense, decisions around language of instruction must balance the scientific evidence of what works best to maximise learning outcomes at the individual level, with the socioeconomic factors, political decisions, input availability, and geographic and linguistic landscape of regions and countries.

To inform the current discussion around language of instruction policies in Uganda, this brief explores some of the evidence supporting mother tongue-based instruction, the linguistic landscape of the country, and some of the main challenges that would need to be overcome to implement mother tongue-based instruction within the Ugandan education system. To do so, we leverage international scientific and policy literature and the latest round of Uwezo data (2021). The Uwezo dataset is well-suited for this research because it mirrors the national census framework, ensuring comprehensive coverage of a geographically representative selection of villages and households. In total, children's skills in reading English and numeracy were assessed across 29 districts and cities out of the national total of 146, and across 12 districts in local languages. Within each district, 15 enumeration areas were selected using statistical methods to yield a representative subsample, and within each enumeration area, 20 households were chosen. Altogether, these procedures resulted in a sample of 14,553 children for reporting and analysing achievement in English reading and numeracy, and 5,527 for achievement in local languages.

Below, we provide eight insights around the issue of language of instruction in Uganda.

External evidence informing the language of instruction debate

1. All else being equal, teaching students in a language that they understand leads to significantly better learning outcomes, but designing these policies requires thoughtful implementation and capacity building.

It is estimated that between 4 and 5 of every 10 children around the world learn in a language other than their mother tongue (Crawford and Venegas, 2021; McBride et al., 2017). In other words, a large swath of children worldwide—including in Uganda—are expected to learn curriculum content as they also learn the language in which this curriculum is being taught (Erling et al., 2017).

Yet, a volume of evidence has emerged suggesting that, at a cognitive level, pupils learn best—particularly in the early grades— when they are taught in a language that they master, often their mother tongue (UNICEF, 2016; Crawford and Venegas, 2021). This finding applies both to literacy acquisition, but also to other key constructs like foundational numeracy and curricular knowledge (Crawford and Venegas, 2021). Furthermore, this can affect other factors such as grade progression and other outcomes determined through standardised assessments. For example, in South Africa, primary 3 pupils scored significantly lower

on a literacy assessment simply because they were tested in English and not in their first language, underestimating how well pupils could have done on the assessment had they been tested in a language that they did master (Spaull, 2016).

In Uganda, there have been highly successful mother tongue-based instruction interventions. For example, the median language cluster targeted by the School Health and Reading Program (SHRP) experienced an improvement of 0.31 standard deviations (SD) in reading outcomes. The full version of the Northern Uganda Literacy Project (NULP) led to increases of 0.64 SD in reading. These impacts rank in the 70th to 75th percentile and 90th to 99th percentile of all effect sizes in literacy-related subjects measured among studies in international education. In this sense, it is a hopeful sign for current and potential future policies that this type of intervention has had success in government schools and in Ugandan languages.

Despite these positive signs, the potential gains achieved through mother tongue-based instruction interventions are highly dependent on contextual factors and the quality of the implementation of the policy. For example, in Uganda, the School Health and Reading Program (SHRP) intervention improved learning outcomes in 9 out of 12 targeted languages and communities, but the magnitude of the impact varied widely by language, ranging from 0.11 standard deviations (SD) to 0.52 SD, depending on the language's features and family. Similarly, when certain features of the Northern Uganda Literacy Project (NULP) intervention were adapted for a second trial to reduce the per-pupil cost—particularly the number of support visits, some of the material inputs, and training delivered through a cascade process—, the effect size became null and for certain literacy outcomes, and even negative. Beyond the Ugandan borders, a policy that shifted instruction towards a mother tongue-based system in Ethiopia failed to deliver stronger learning outcomes in certain regions as it did not consider details such as pre-existing script usage and familiarity in those regions before the intervention (Chicoine, 2019). In Kenya, although a mother-tongue based program led to learning gains, these were not larger than those achieved when the programme was implemented in English (Piper et al., 2019). This fact, seemingly at odds with the evidence that suggests that children learn better in their first language, was partly due to the difficulty of asking teachers to use this language, given the higher prestige associated with English and the subsequent parental pressure to keep using English in class. (Piper et al., 2019).

In this sense, instructional reforms such as curriculum changes or shifts in the language of instruction are not enough if they are not accompanied by thoughtful implementation and capacity building (Chisholm & Leyendecker, 2008). Among the most important factors that policymakers need to consider to ensure that mother tongue-based interventions are successful are the linguistic features of the target languages and geographical coverage, the availability of high-quality materials and resources in the target languages, the training and support of teachers in how to effectively teach in the target languages, and the involvement of parents and communities in the implementation of the intervention. By taking these factors into account, policymakers can increase the chances of success for mother tongue-based interventions and improve learning outcomes for all children

The linguistic landscape in Uganda

One of the key factors that need to inform policies around the language of instruction in a country is its linguistic landscape: how many languages are spoken within its borders? How concentrated is each language in different regions? Is it common for people within a smaller geographical unit to speak different languages at home? All of these questions need to be answered first to then develop carefully crafted policies that can address issues like where to source teachers to teach in different languages, in how many

languages must classroom materials and teacher supports be developed, and how to wrestle with places where there is a high degree of linguistic diversity even at the school level.

2. There is a large degree of linguistic diversity in Uganda, even within smaller geographic areas

From a linguistic perspective, Uganda is a highly diverse country. The Ethnologue suggests that Uganda is home to 41 living indigenous languages and 3 living non-indigenous languages, and that of these indigenous languages, 15 are used in formal education to some extent (Ethnologue, 2023). In the Uwezo 2021 data, the heads of households report speaking 27 different languages across the 16 districts surveyed. Therefore, while the Uwezo data did not visit every area in the country, it does display a large degree of linguistic variation that mimics the national landscape.

The Uwezo 2021 data displays a complex picture in terms of linguistic diversity within the surveyed areas. This linguistic landscape can be taken as a positive sign to implement mother tongue-based interventions policies in Uganda in certain areas, but with a high degree of caution in other places[1]. First, in 60.6% of all enumeration areas, all surveyed households in that area report speaking the same language (Figure 1). In other words, in over 6 in every 10 localities, there is a linguistically homogeneous population such that the choice of a language of instruction that all children understand would be uncontroversial and obvious.

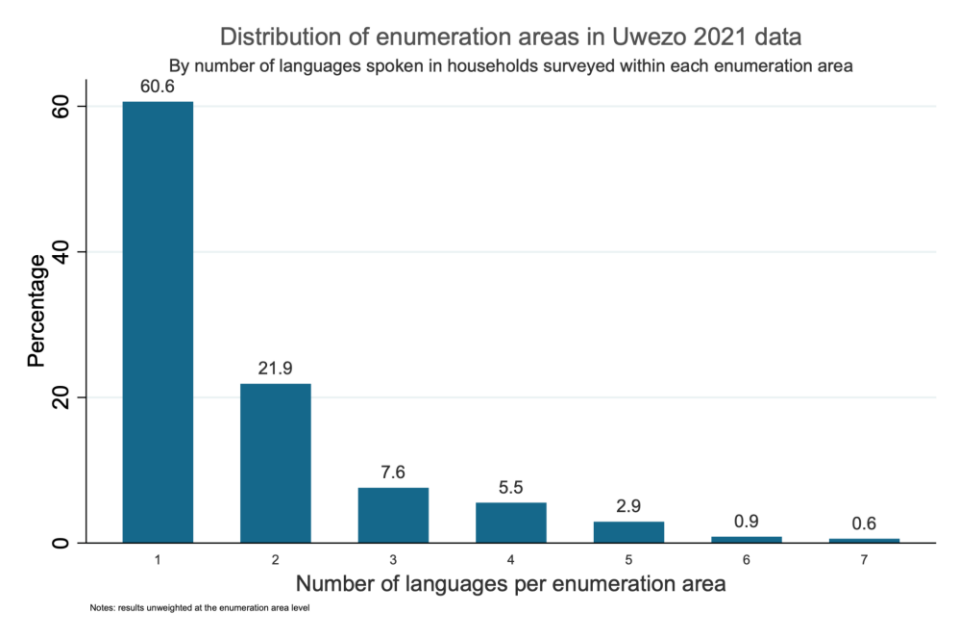

Figure 1

The remaining areas report a certain degree of linguistic diversity. In these cases, depending on the exact shares of the population that speak the different languages, choosing a single “mother tongue” language of instruction might be more challenging. In over 1 in 5 cases, there are only two different languages that households speak. In the remaining 1 in 6 areas, there are 3 or more different languages that households report using most predominantly at home.

[1] For the sake of this analysis, we consider an “enumeration area” to be a small enough geographic area so that pupils from anywhere in it can attend the same school. There are 435 different enumeration areas in the Uwezo 2021 data.

In places where more than one language is spoken in the same area, it is important to understand how predominant the usage of the different languages is. For example, an area where three languages are spoken, with 98%, 1%, and 1% of the population speaking each language, might effectively function as a single-language area. However, if the breakdown was closer to being 40%, 30%, and 30% of the population speaking each language respectively, the choice of a language of instruction would be more difficult. Therefore, understanding how predominant the majority (or plurality) language is can be helpful in planning local language of instruction policies. In this sense, in addition to the 60.6% of areas where a single language is spoken uniformly, an additional 15.2% of areas have a majority language that is spoken by over 80% of the residents. In other words, 3 out of 4 areas in the Uwezo 2021 data are either fully linguistically homogeneous or are near being fully homogeneous, with a linguistic minority of at most 20%.

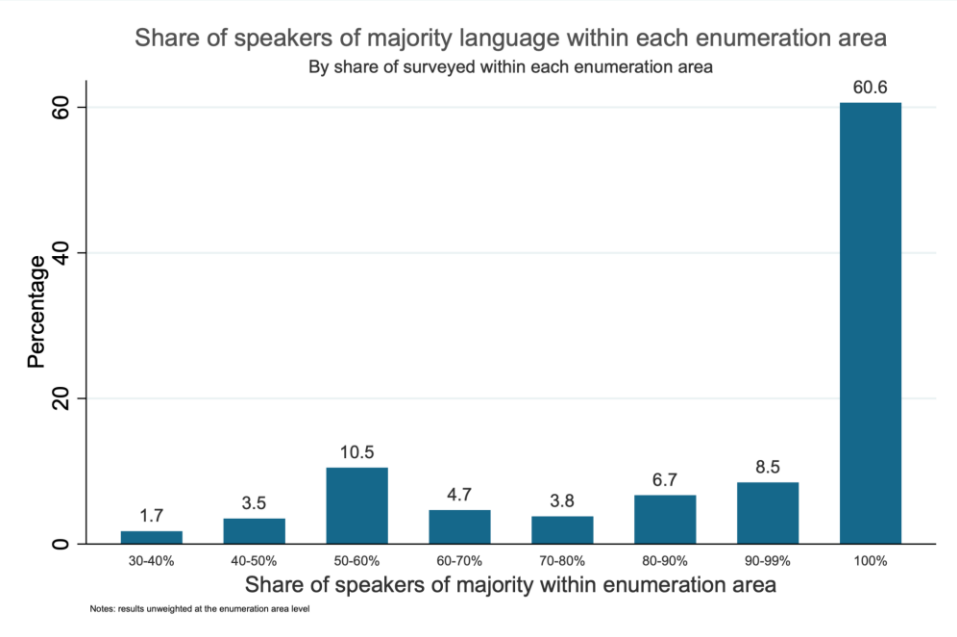

Figure 2

Among the remaining quarter of all areas, a fifth do not have a single language in the majority (>50%). Instead, these areas have a plurality language, which is spoken by more than any other language but by less than half of the population.

3. Around one-third of pupils can be reached by developing mother tongue interventions in the top five languages with more linguistically homogeneous areas, but a similar proportion of pupils live in highly diverse linguistic areas.

A report by the World Bank (Crawford and Venegas, 2021) on the policy considerations around teaching in mother tongue claims that in most countries, a large degree of progress can be achieved by targeting only a small number of languages. In fact, they claim that “three-quarters of the problem could be alleviated by offering instruction in an additional 220 languages worldwide—on average about one new language per country”.

In this sense, it is also important to understand, if a localised language of instruction policy based on mother tongue were to be implemented effectively in Uganda, how many languages would need to be targeted by

policymakers to achieve a given amount of progress in terms of the share of pupils reached by these efforts. To do so, we quantify the share of pre-primary and primary-aged children who live in linguistically homogeneous areas (i.e., >80% of households report speaking the same language), and rank languages by the share of pupils who could be reached through a mother tongue-based language of instruction localised at the enumeration area-level. Doing so, we first document that the top five languages in the Uwezo data by the number of speakers in linguistically homogeneous areas are, in decreasing order, Luganda, Lusoga, Lugbarati, Lumasaba, and Runyankole.

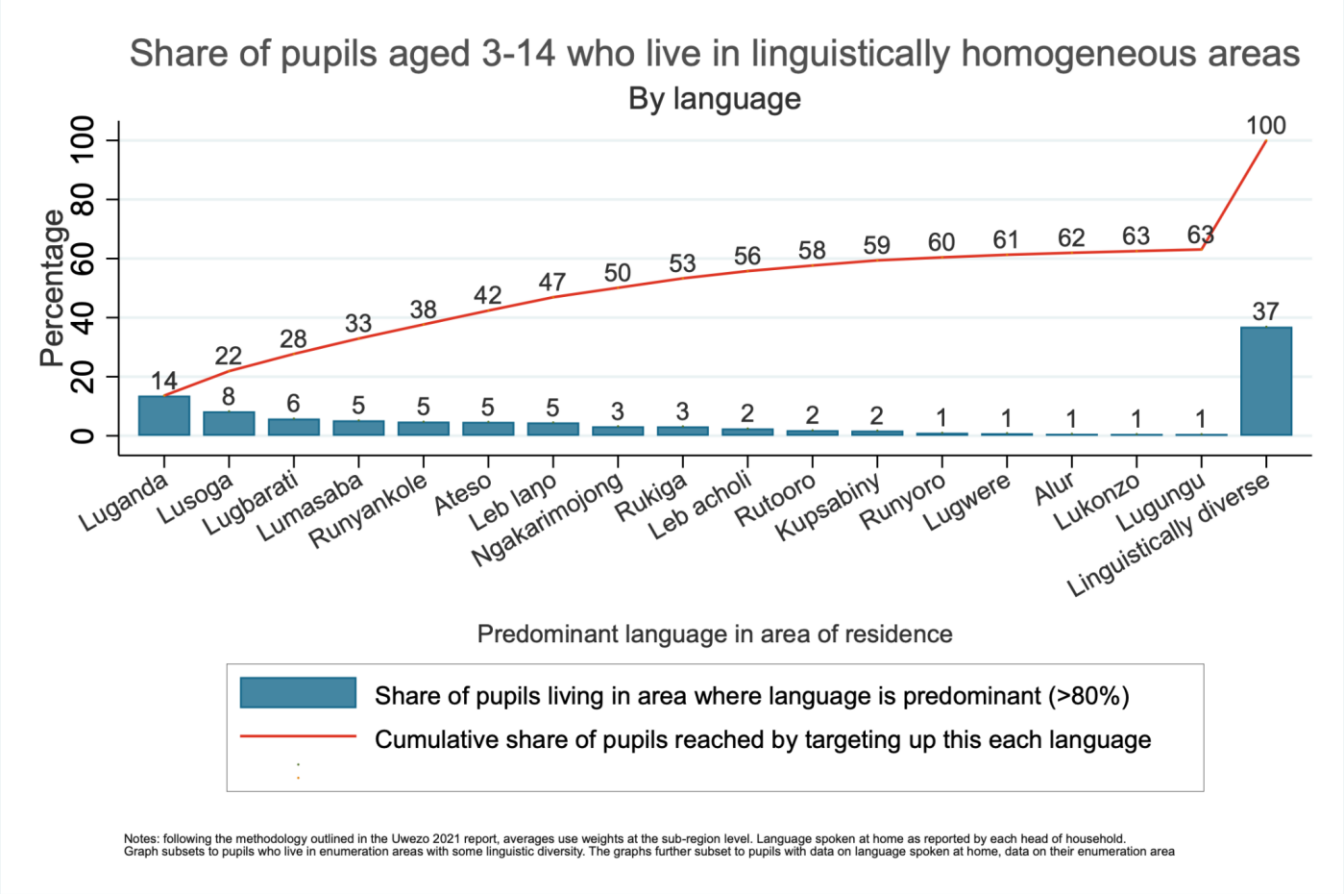

Figure 3

Furthermore, we find that 14% of all children in this age group could be reached by using Luganda as the LoI in areas where it is the predominant language (Figure 3). Further targeting Lusoga and Lugbarati would allow policymakers to reach an additional 8% and 6% of pre-primary and primary-aged pupils, and targeting these top five languages would allow policymakers to reach, in total, 38% of all pupils.

On the other side of the spectrum, 37% of pupils in the sample live in linguistically heterogeneous areas where implementing a common language of instruction might entail more compromises amongst language groups within the enumeration area. In fact, targeting all 17 languages that have linguistically homogeneous areas in the sample would only allow policymakers to reach 63% of all pupils in the sample.

While the World Bank estimates that worldwide, adding one language per country might reach on average three in four of the children being taught in a different language, adding 17 additional languages in Uganda would reach fewer than two in three. In this sense, the large linguistic diversity across Uganda as a country

and within its local communities make it so that the marginal benefit of each additional language in Uganda is relatively low, and as such, the issue of effectively implementing a language of instruction policy is significantly more challenging in Uganda than in the average low- and middle-income country.

4. Many pupils report attending schools which use local language at least partially

Among all pupils of pre-primary and primary age (3-14) in the Uwezo 2021 sample, 85% of them report attending a school that uses a mixture of local language and English, or only local language in the lower grades (Pre-primary - Primary 3). However, only 11% out of these attend a school that exclusively uses a local language. In this sense, three-quarters of pupils in Uganda attend a school that uses a partial mix of English and a local language as the language of instruction.

Importantly, among those that attend a school with some degree of local language used in instruction, nine in ten claim that they receive some instruction in the language that they speak at home. In fact, the distribution of the share of languages spoken at home and at school appears to be very even — with Luganda being slightly more represented in instruction, and speakers of more minority languages using their language more often at home than as a local language at school (Figure 4). Interestingly, those pupils whose home language differs from the local language spoken at school are not more likely to be of a lower socioeconomic status or female relative to their peers.

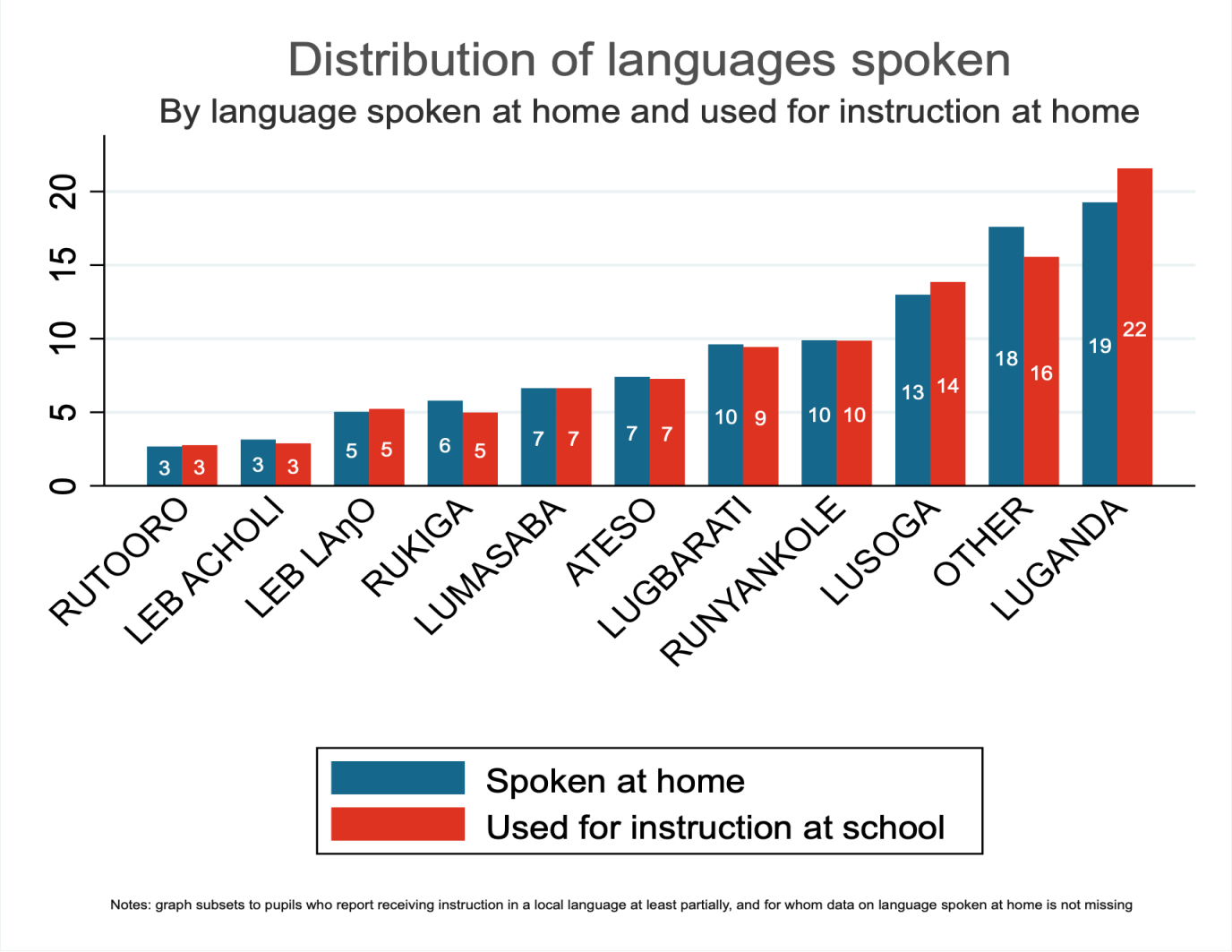

Figure 4

Learning outcomes in Uganda, by the language of instruction in schools and linguistic background of pupils

To examine patterns in learning outcomes by the language of instruction used in each school and by each pupil's linguistic background, we use data from the Uwezo household survey conducted in 2021. Our analysis focuses on children aged 3-14, which is the intended age range for pre-primary and primary education, regardless of enrollment status. This age group is highly policy-relevant due to its large size and is also a major focus of the Uwezo data collection effort. For detailed information on the sampling methodology, please refer to the Uwezo National Learning Assessment Report, 2021 (Uwezo, 2021).

5. Pupils that attend schools that use local languages in instruction have much lower outcomes in both languages.

Although the vast majority of pupils (85%) attend schools that partially or fully use local languages in instruction, they are lagging far behind their peers that attend schools that use English-only as a language of instruction. For instance, while 18% of pupils that attend a school that uses local language reach the paragraph level in local language, 39% of their counterparts who attend schools that use English-only do (Figure 5a). When assessed in English, this gap is even larger. In other words, pupils in English-medium schools perform more than twice as well as their counterparts in schools that use local language, in reaching the paragraph level in both English and local language. Similarly, this pattern is not driven by the top performers, as a similar pattern in favour of pupils in English-medium schools is observed among the share of non-readers. Pupils in schools using a local language in instruction are significantly more likely to be non-readers in either English or local languages than their peers in English-medium schools (Figures 5b).

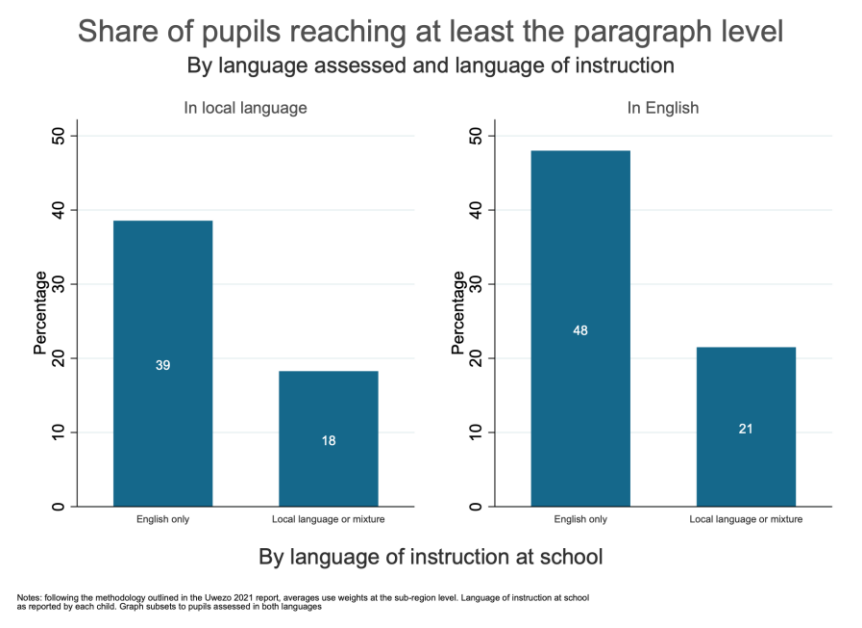

Figure 5a

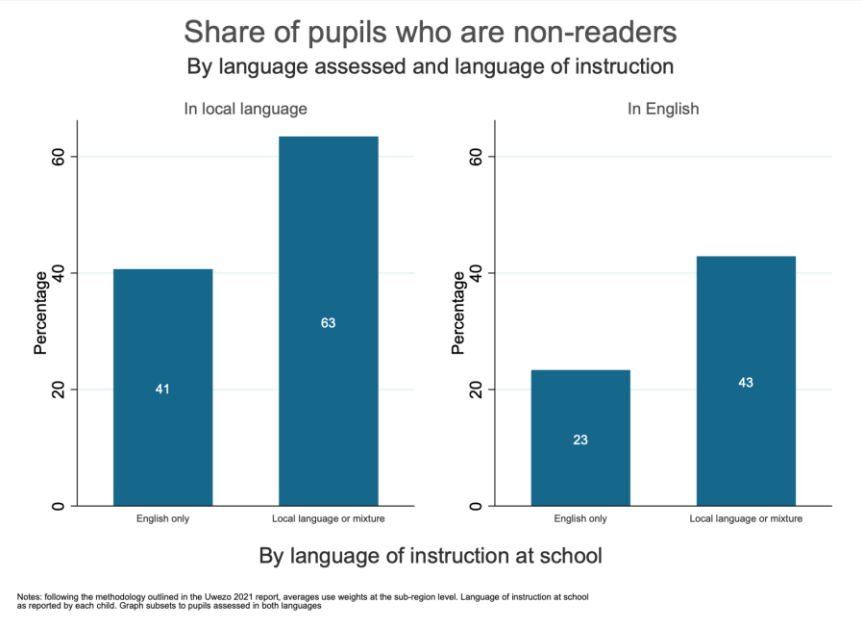

Figure 5b

More broadly, pupils in schools that use local language in instruction are on average two years behind their counterparts in schools that use English as a language of instruction. This gap ranges from 1.5 years in mathematics to 2.4 years in English (Table 1). These gaps remain similar even after controlling for key determinants of learning outcomes, such as household wealth, pupil gender and age, school ownership, and even the enumeration area.

It is important to note that the lower learning outcomes in schools that use local language for instruction may not be because they use local language. In fact, most of the scientific evidence to date suggests that using local language as a medium of instruction can actually improve learning outcomes. Instead, there might be other factors that affect these learning outcomes, such as the type of pupils that enrol in these schools or the material and teacher resources available in these schools. For instance, we observe that these schools tend to have a higher pupil-teacher ratio than their counterparts, they have larger enrolments by as many as 58 pupils, and they are 21 percentage points less likely to offer early childhood education. All of these factors might also affect learning outcomes, and as such, the lower outcomes for pupils in schools that use local language should not be understood as these schools having lower effectiveness because of their language of instruction, but as an issue that merits further investigation.

6. There is a strong relationship between household wealth and language spoken, and in turn, with learning outcomes

Another powerful trend emerging from the Uwezo 2021 data is that, on average, household wealth varies significantly by the language spoken at home. In turn, there are significant differences in learning outcomes by language spoken at home. Figure 6 displays that there is a positive relationship between the share of pupils in the top 40% of household wealth [2] within each household language group, and the share of pupils in that linguistic group that reach the word level in either English or local language.

[2] Following convention in household surveys in low- and middle-income countries, household wealth is calculated as the first component of a principal component analysis (PCA) among a series of variables indicating whether each household has a range of household items, such as TVs, radios, computers, vehicles, cattle, ovens, among others.

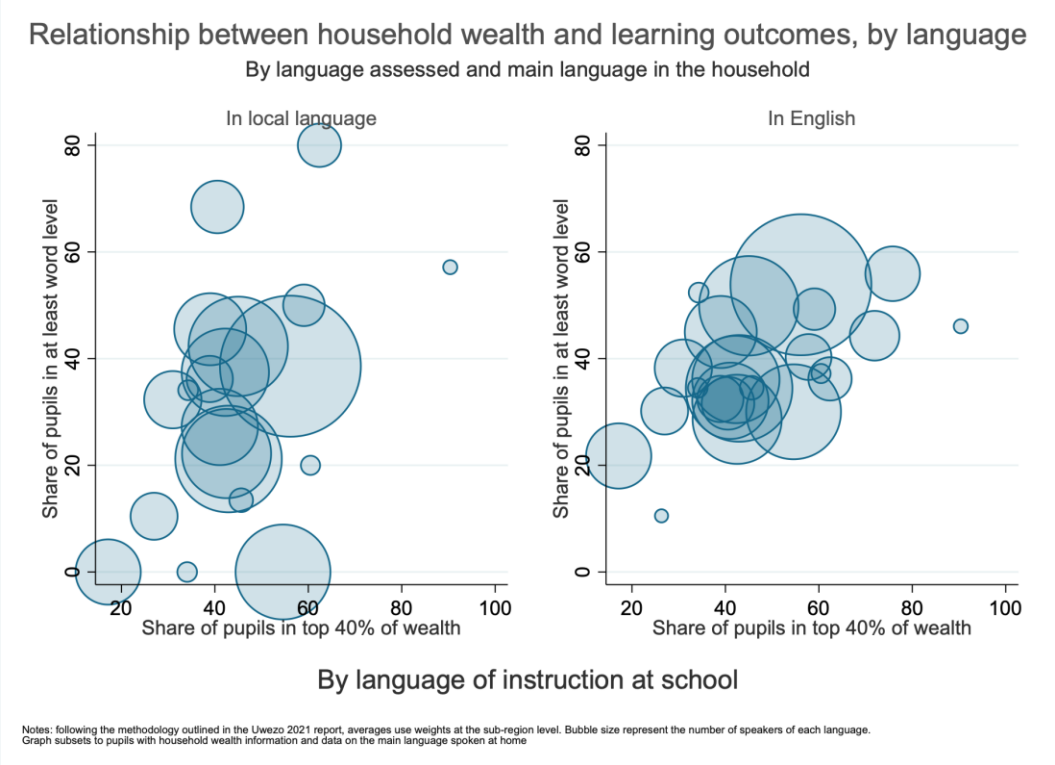

Figure 6

This finding suggests that if Uganda were to improve implementation of the language policy that promotes the use of local languages in its lower grade classroom instruction, the selection of the first languages to target would also need to consider that different linguistic groups have significantly different levels of household wealth and baseline levels. Therefore, a careful selection of the local languages of instruction will also need to attend to this factor to simultaneously promote higher quality and equity in classroom instruction.

7. Boys and girls have the same gap in learning levels, and have the same probability of attending local language schools

As documented in a separate policy brief (Uwezo Uganda, 2021), pre-primary and primary-aged girls in Uganda tend to outperform boys in terms of learning outcomes. In this sense, it is also valuable to know whether the language of instruction at school changes this gap in any meaningful way. Figure 7 shows that the fact that girls, on average, perform better than boys is consistent regardless of the language in which they are assessed and the language of instruction at their school. For instance, girls in English-medium schools are 5 percentage points more likely to be at least at the word level in English than boys, and they are also 5 percentage points more likely to be at this level in schools that use local language. Similarly, girls in English-medium schools are 5 percentage points less likely than boys to be non-readers when assessed in local language, and those that attend schools that use local language are also 5 percentage points less likely than boys to be non-readers in local language.

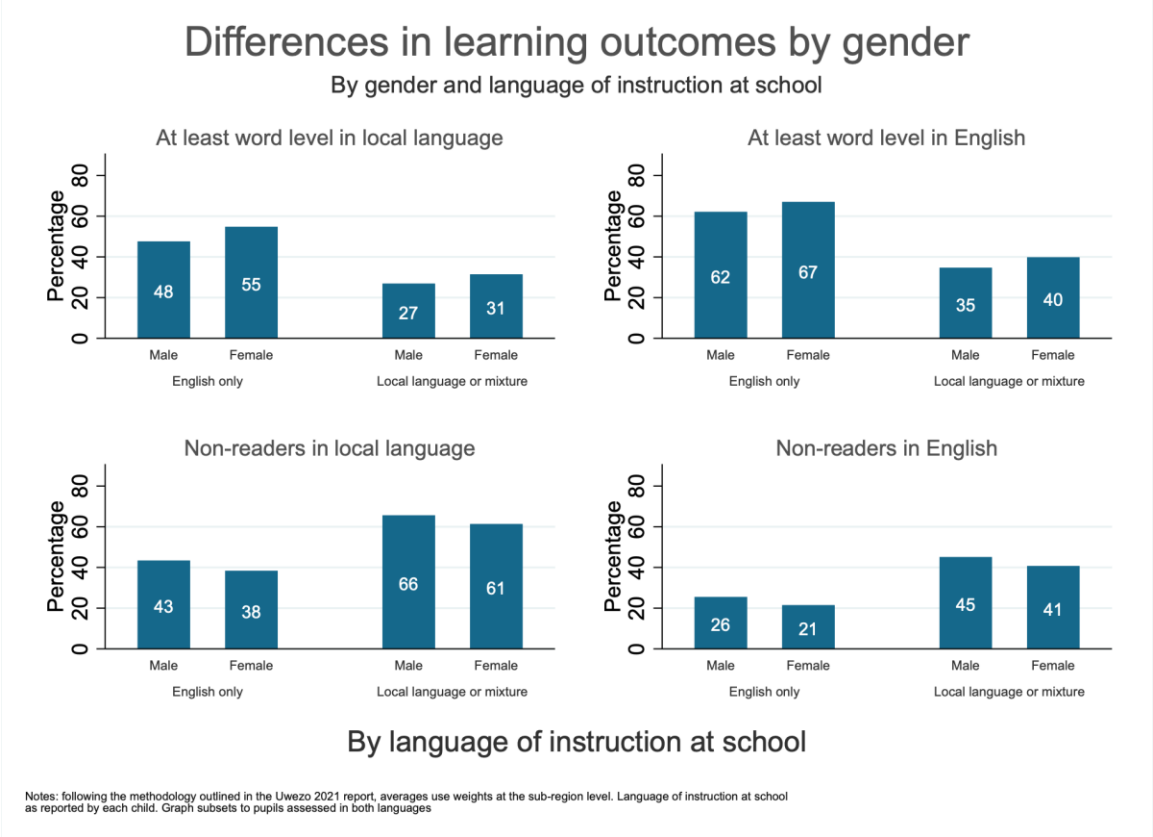

Figure 7

In this sense, there is not much intersectionality between gender and language of instruction. Both boys and girls in Uganda experience low learning outcomes, and these are particularly low for both boys and girls among those pupils that attend schools that use local languages in their instruction.

8. Linguistic minorities often lag behind their peers, even when considering their location and socioeconomic status

Given that it is common for areas within Uganda to host a significant degree of linguistic diversity, it is also valuable to know how the learning outcomes of pupils who are not part of the linguistic group that is most prevalent in their area fare relative to their counterparts from the most commonly spoken language in the area. Figure 8 below compares outcomes in maths, English, and local language for pupils who are part of the largest linguistic group within their enumeration area and their peers.

Consistently, pupils who are part of the local linguistic minority display lower learning levels than their counterparts, regardless of whether they attend an English-medium school or a school that uses local languages in instruction. More precisely, we estimate that pupils who are part of linguistic minority groups within their area are 5 months behind their peers in English and local language, and almost 7 months behind in maths. These differences are stark, as they emerge after controlling for the enumeration area and socioeconomic background of pupils. In other words, pupils who do not speak the same language as the majority in their local area but who have similar household wealth, gender, age, and grade, and attend the same type of school in the same local area still perform worse than their counterparts who do speak the language that the majority of people in their area speak.

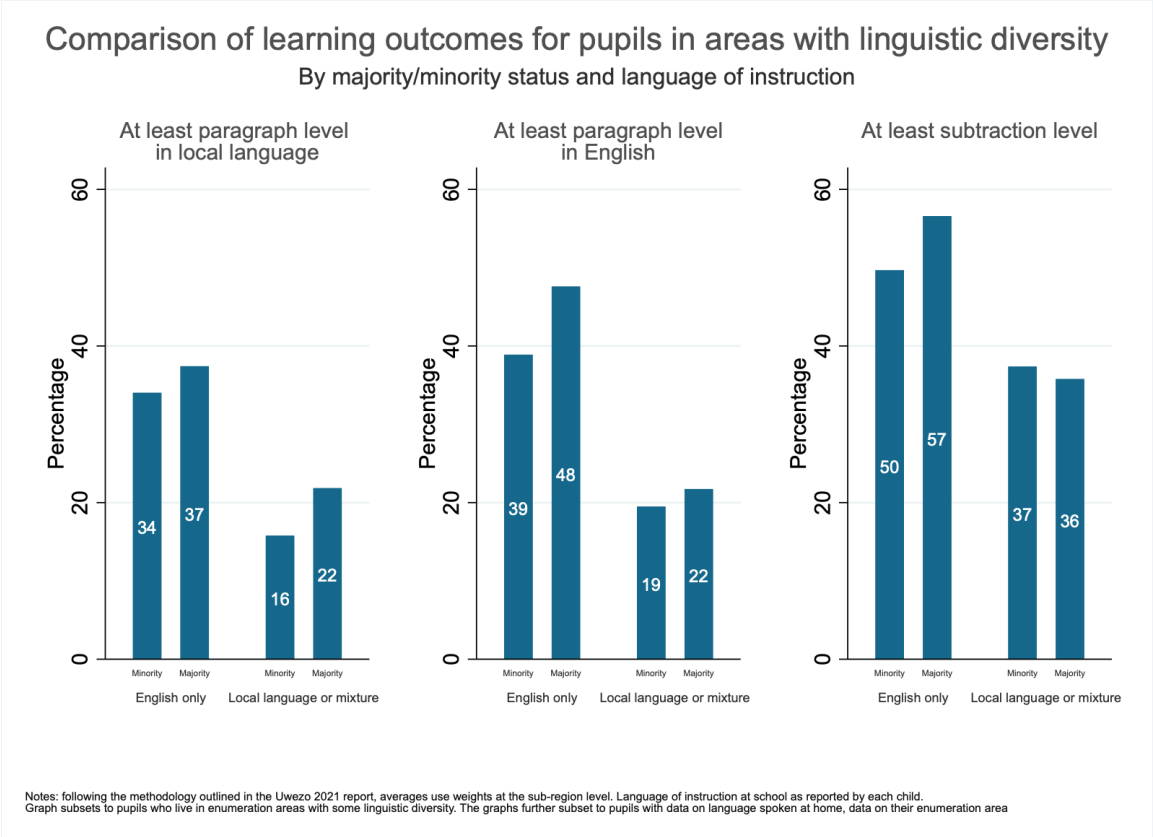

Figure 8

These findings are important as they suggest that policymakers would do well to carefully consider the needs and learning outcomes of pupils in linguistic minority groups. These pupils are likely to be starting from a lower learning level than their peers, and they might also be facing additional social challenges. In this sense, a blanket policy moving the language of instruction to the majority language in areas where there is a significant minority language group might also disadvantage these pupils. As such, in highly linguistically diverse places like Uganda, tailored attention must be paid to different local areas to ensure that a move to local language instruction is sound for all pupils in the area, consistent with higher quality and equity in the provision of education.

Looking forward

The scientific evidence is converging on the fact that, all else being equal, individual pupils learn better when taught in a language they understand. However, from a policymaker's perspective, mother tongue-based instruction is a complex issue and must be carefully navigated in highly linguistically diverse contexts like Uganda. While a transition to mother tongue-based instruction is possible for many pupils in Uganda, this change must be made thoughtfully, considering all the local factors that could increase the probability of success or, conversely, dampen its effectiveness. Some of the issues that we recommend that policymakers consider include:

- **The linguistic composition of communities.** In three out of every four communities in the Uwezo sample, the linguistic landscape is homogeneous enough that there would be a clear majority

language to transition to. However, there are important factors to consider around the linguistic make-up of communities. First, one in four communities have a significant degree of linguistic diversity. This means that selecting a language of instruction for local schools in these communities might be a socially and politically contentious issue. Additionally, there might be socially desirable effects to having pupils from different linguistic backgrounds sharing their time in school. As such, imposing a single local language or segregated instruction by linguistic background might also not be desirable for policymakers. Second, pupils who come from a linguistic minority within their local area are already experiencing lower learning outcomes relative to their peers, even after accounting for different socioeconomic characteristics. Therefore, during a shift in the language of instruction towards the local majority language, policymakers need to pay careful attention to the potential side effects widening existing inequities and the additional needs that pupils in minority linguistic groups within their community might have. In this sense, the community-level linguistic makeup needs to be carefully considered to avoid unintended consequences for pupils and communities.

- **The selection of languages to move instruction towards.** As mother tongue-based policies are developed for linguistically homogeneous communities, policymakers need to balance the number of pupils reached by targeting each linguistic group, and their relative need in terms of learning outcomes. In other words, careful attention should be paid to which languages are the most likely to reach more pupils, i.e., those with the most and largest homogeneous linguistic communities. However, policymakers must also consider how targeting certain languages might widen or narrow pre-existing inequalities, as linguistic communities differ significantly by the level of household wealth and learning outcomes. Furthermore, previous mother tongue-based programs developed for the Ugandan context suggest that linguistic characteristics might moderate the effect of future mother tongue-based interventions. In turn, this suggests that policymakers must also factor this in to better understand which languages might need additional investment so that mother tongue-based interventions in these languages are also effective.
- **The existing resources for different languages.** Given the socioeconomic differences across linguistic groups described in this report, it is likely that different linguistic groups also have different levels of access to educational inputs (e.g., both the financial means to purchase books, but also the actual existence of books in each language), and to qualified people who are able to work and teach effectively in local languages. The relative lack of these existing resources for specific linguistic groups does not mean that policymakers should not aim to shift towards mother tongue-based instruction in those languages if it makes sense otherwise—as this would likely widen pre-existing gaps in learning outcomes further. However, policymakers should be aware of the fact that the more socioeconomically disadvantaged a linguistic group is, the more support and targeted interventions it will require to make any mother tongue-based programme a success.
- **Other changes to the educational ecosystem that might also improve learning outcomes.** While the language of instruction plays a significant role in determining learning outcomes, it is not the only factor that policymakers need to consider. Other interventions in the region that have improved overall classroom pedagogy through structured pedagogy initiatives have experienced significant learning gains, even if these programs have not been in mother tongue (Chakera et al., 2020; Piper et al., 2018; Gray-Lobe et al. 2022). Similarly, the provision of high-quality early childhood education might be a powerful lever to improve school readiness and foundational skills among pupils (Bendini and Devercelli, 2022). Finally, adjustments to the curriculum and ability-grouping interventions have allowed instruction to be better catered to pupils' learning levels, and as such, have also yielded significant learning gains (Banerjee et al., 2023). In this sense, while the language of instruction is an important factor to consider, it is neither the only factor to consider, nor enough to fully turn around the existing learning crisis in the country.
- **Increase the demand for mother tongue-based instruction.** Pupils currently in schools that use mother tongue-based instruction display lower learning outcomes, but it is unknown what individual,

school, or community characteristics drive this deficit. Similarly, mother tongue-based interventions in other East African countries have proven to not be particularly popular with parents and teachers, which might in turn dampen their implementation and, ultimately, their effectiveness. Therefore, understanding what factors affect parents' decisions around what school to send their children to, and how to drive up their demand for effective, mother tongue-based instruction is paramount as policymakers consider the language of instruction to use in local schools.

Annex

Table 1: difference in learning outcomes between pupils that attend a school which uses a local language partially or fully for instruction, and those that attend a school that only use English as the medium of instruction (age 3-14), on selected variables

Subject	Outcomes	[1]	[2]	[3]	Average yearly growth	Gender difference as a share of average yearly growth
Maths	Uwezo level (standardized)	-0.44***	-0.21***	-0.23***	0.19***	-150%
		(0.07)	(0.06)	(0.03)	(0.01)	
	Can do basic subtraction exercises	-0.21***	-0.10***	-0.12***	0.08***	-174%
		(0.03)	(0.03)	(0.02)	(0.00)	
	Observations	11035	8945	8945	12521	
English	Uwezo level (standardized)	-0.63***	-0.32***	-0.31***	0.17***	-242%
		(0.07)	(0.06)	(0.03)	(0.01)	
	Can read short words in English	-0.27***	-0.14***	-0.12***	0.08***	-222%
		(0.03)	(0.03)	(0.02)	(0.01)	
	Observations	11057	8963	8963	12574	
Local language	Uwezo level (standardized)	-0.53***	-0.28***	-0.25***	0.16***	-218%
		(0.08)	(0.10)	(0.09)	(0.01)	
	Can read short words in local language	-0.22***	-0.12***	-0.09**	0.08***	-193%
		(0.01)	(0.04)	(0.04)	(0.01)	
	Observations	4312	3494	3494	4838	
Aggregate outcomes	Can read short words in English and do simple subtraction exercises	-0.23***	-0.11***	-0.12***	0.07***	-216%
		(0.03)	(0.03)	(0.02)	(0.00)	
	Observations	10860	8816	8816	12318	
	Can read short words in English/local language and do simple subtraction exercises	-0.19***	-0.08	-0.07	0.06***	-148%
		(0.04)	(0.06)	(0.06)	(0.01)	
	Observations	4194	3408	3408	3980	
	Controls	N	Y	Y	N	
	Enumeration area fixed-effects	N	N	Y	N	

Notes: each point estimate comes from regressing the outcome of interest on a binary variable equal to 1 if the pupil reports attending a school that uses a local language for instruction fully or partially, and 0 otherwise. The list of controls include variables for the age and gender of the pupil, years of preschool attended, indicators for different types of disability, an indicator for whether their mother went to school, an indicator for whether the pupil is displaying appropriate grade progression if in school, and indicators for the type of school attended (public/private/community). All regressions use weights following the methodology outlined in the Uwezo 2021 report, where estimations with maths and English outcomes use weights at the sub-region level, and estimations that include outcomes for local languages use weights at the district level. Standard errors clusters at the level of the enumeration area, consistent with the sampling approach. Statistical significance as follows: ***p<0.01, **p<0.05, *p<0.10.

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