

Conference on Transformation and Development: Social Service Delivery

Background Note on Educational Quantity and Quality

Sierra Leone has a long history of very high quality education, at least for a few, including for example the oldest University in West Africa situated in Freetown. Access to education, however, has been limited historically leading to very substantial inequality in education outcomes. It still remains the case that the majority of rural adults had zero years of schooling as children. The Government has been making concerted efforts to expand access to primary schooling and has set itself the target of achieving universal primary education, a particular challenge given the significant rebuilding required after the civil war. Very considerable improvements in access to education have been made since the war but there is a long way to go if the country wishes to reap the rewards of an educated population. This note draws on research both in Sierra Leone and elsewhere to suggest some potential steps forward, focusing particularly on primary education and organized around the issue of access to education and quality of education.

Sierra Leone Education

The World Development Indicators estimate literacy in Sierra Leone to be around 41%, with only 30% of adult females able to read. This is improving over the generations with a youth (15-24) literacy rate of around 58%.

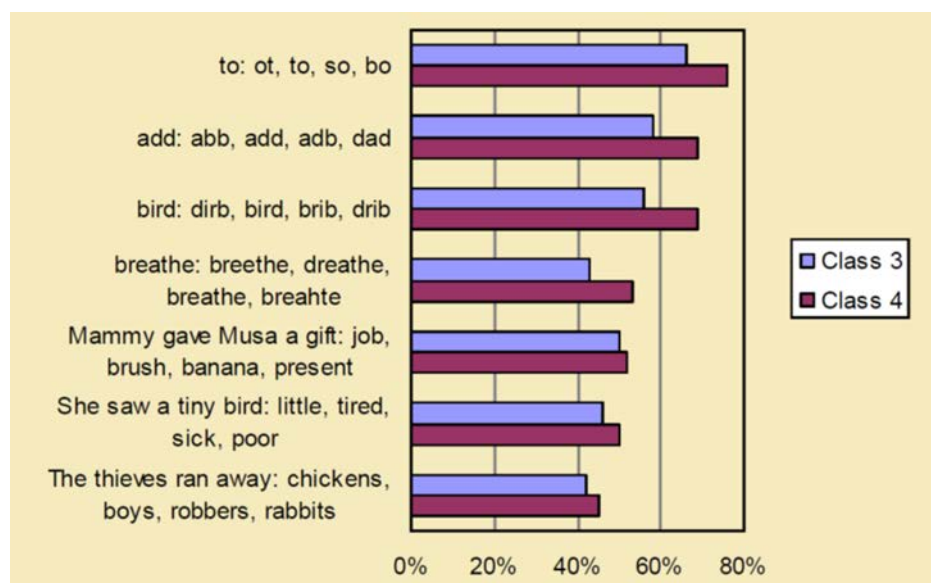
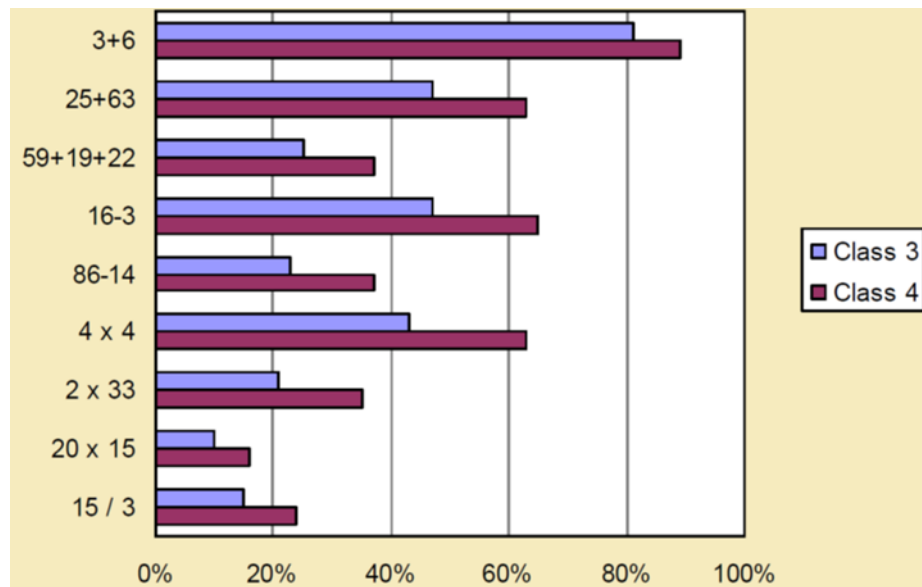
The improvement in access to primary education is documented by the Decentralization Secretariat's nationally representative household survey conducted in 2007 which shows that an estimated 85% of children were enrolled in school, with 77% attending regularly. Only 10% of children in the sample received no education, with the most common stated reason lack of money. Sixty five percent of households nationally had access to a primary school within 15 minutes and 74 percent within half an hour (up from 68% just two years earlier). Access to education beyond primary was far more limited with only 28% of respondents nationally living within 30 minutes walking time of a secondary school and only 20% within 30 minutes of a technical or vocational institute.

Inputs were still a significant problem in many areas with an average of 1 book between every 1.5 pupils (note that the number of books per pupil for any given subject will be far lower). In Koidu it was estimated that individual classes had one book per 16.8 children. Six percent of schools nationwide reported having no textbooks while 16 % of schools had no source of water and for 21% the only source was a stream or river.

While improving access to education is the first step to improving education, the next major challenge is improving learning for those in school. As in other low and middle income countries there is a major issue with the level of learning in schools in Sierra Leone. For example, a survey carried out by the World Bank and the Ministry of Education in 350 disadvantaged schools in 5 randomly chosen districts found that only 65% of those in grade 3 could spell "to" and only 20% of those in grade 3 could calculate 2×33 .

Numeracy and Literacy Levels in 350 Disadvantaged Schools in Five Randomly Chosen Districts in Sierra Leone

(Source: Dapaah et al 2008)



Evidence on Strategies to Improve Access to Primary Education

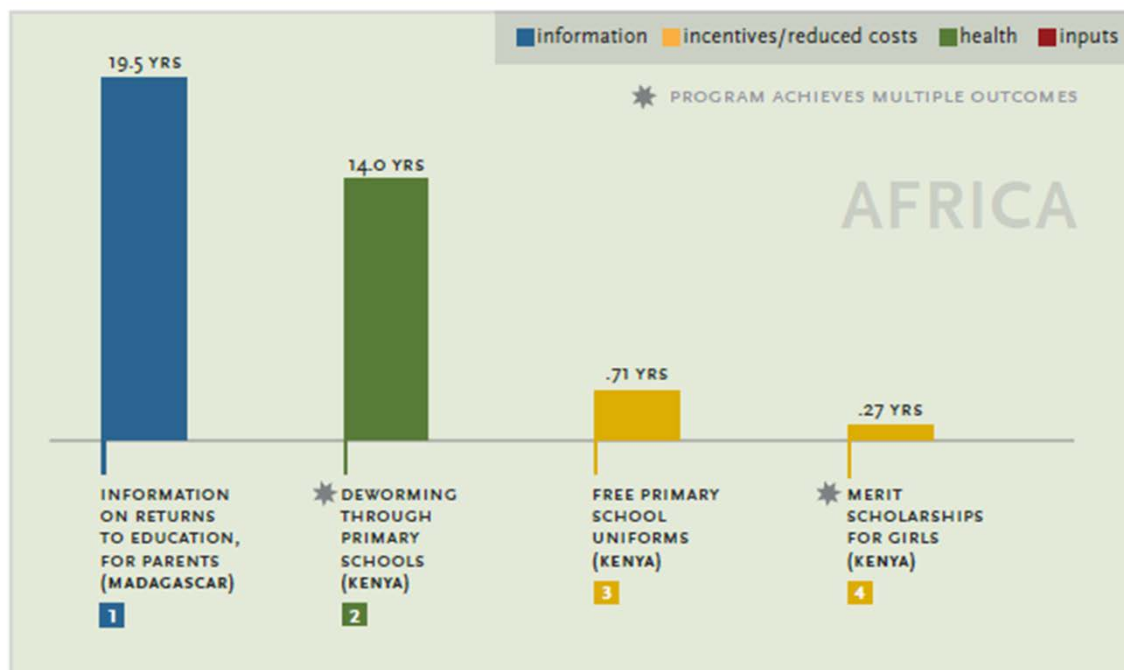
There is now considerable evidence from randomized evaluations on the effectiveness of differing strategies to increase student participation worldwide. It is clear from this work that the cost of education is an important barrier to education and that even small fees can reduce participation of children from poor families. This issue is discussed in more detail in the background note on user fees. Similarly, incentives are an effective way to increase attendance. Conditional cash transfer programs are a very popular strategy for providing incentives to encourage attendance, as well as a way to get cash to poor families (Behrman, Sengupta, and Todd, 2005, Schultz, 2004). If the goal is simply to increase school attendance, conditional cash

transfers are an expensive way to achieve this goal with high administration costs as well as the high budgetary costs of the transfers themselves (World Bank, 2009). Another popular way to incentivize attendance is to provide free school meals. The evidence on the cost effectiveness of this as a strategy for increasing attendance is less strong. A randomized evaluation in Kenya found that school meals did increase attendance in preschools (Kremer and Vermeersch, 2004). In Sierra Leone the World Food Program’s school feeding programme has reached around 300,000 children and is likely to have had an impact increasing attendance.

One of the most cost effective interventions to promote school attendance is to provide parents and children with information on the returns to education. It was found in Madagascar that parents frequently underestimate the potential returns of their children’s education and when presented with information on the higher wages earned by those who had completed primary school, student attendance rose 3.5 percentage points, at a cost of only 80c per pupil. An increase in school attendance was also noted by Jenson (2010), who in a similar study on the Dominican Republic, found that students in class eight underestimated the earnings difference between primary and secondary school graduates by 75%. Providing information on the benefits of staying on is school is a simple, cheap, and easy intervention although implementing it in Sierra Leone would need to be preceded by work assessing exactly what the returns to completing primary school were.

The second most cost effective way to increase school attendance is treating children for intestinal worms. In Kenya a mass school based deworming program decreased absenteeism by 25%. Follow up work shows that these children worked longer hours and earned higher wages 10 years later. Similarly, a program to eliminate hookworm in the southern United States in the early 1900s reduced school absenteeism, improved test scores, and led to higher wages for those who had benefited from the program (Bleakley, ...). Intestinal worms are a major issue in Sierra Leone and recently, Helen Keller has worked with the Government of Sierra Leone to introduce deworming in schools.

COST-EFFECTIVENESS: ADDITIONAL YEARS OF EDUCATION PER \$100 SPENT



Scholarships have also both been found effective at incentivising school attendance, and as we will see also reduced teacher absenteeism and increased test scores. By providing female students merit based scholarships in Busia, Kenya, student absenteeism was reduced by around one-quarter.

Research has shown that distance is an impediment to school enrolment, and this appears to be even more important for female schooling (Burde and Linden, 2008). Duflo (2001) showed that large scale construction of schools in Indonesia led to increases in educational attainment.

The Quality of Education

The results of research assessing strategies to address poor quality of learning from around the world point to two clear conclusions: addressing teacher absenteeism is key; and any strategy must make sure that teaching is pitched at the appropriate level. There is surprisingly little evidence that providing additional inputs, such as more teachers or textbooks has much impact on the quality of learning. There is also evidence that the motivation of students is important for learning: for example if students feel they are more likely to benefit from education they work harder and effort is a key part of learning.

Virtually all the approaches to increasing learning in school that have been successful have had two common elements: teachers and/or schools have been made accountable; and instruction has been more effectively targeted at the level of the child. The results on improvements in teacher accountability are discussed the note on public sector accountability. Here we discuss the results on appropriate instruction level.

Irregular attendance, poor nutrition, and poor instruction mean that many children in Sierra Leone schools are far below grade standard (as demonstrated by the charts earlier in this note). This is true in most poor and middle income countries. Unfortunately the curricula often fails to take this into account and children fall further and further behind as they are unable to follow what is being taught at school. In Kenya, for example, an evaluation of a program to increase the number of textbooks found that only children who performed well in the baseline test benefitted from the distribution of textbooks. The textbooks were in English, the third language for most children and the authors argue that the textbooks were simply over the heads of most of the children in the class (.....).

In India a very successful strategy was developed to address the issue of children falling behind. In 122 public primary schools in Vadodara and 77 schools in Mumbai (India) a tutor, usually a young woman recruited from the local community and paid a fraction of the cost of civil-service teachers, worked with children in the grades 2, 3 and 4 who were identified as falling behind their peers. This tutor met with 15-20 students, taken out of the regular classroom into a separate class, for two hours of the four hour school day. Teaching focused on core competencies that the children should have learned in the first and second grades, especially basic numeracy and literacy skills. The program had substantial positive impacts on the children's academic achievement, with the number of students in the bottom third of program classes passing basic competency tests increasing by nearly 8%, whilst those in the top third increased by 4%. At the start of the intervention only 2-3% of children in the bottom third could do long division, by the end of the year 40% could in program classes compared to 28% in non-treatment classes.

The approach has since been repeated in rural India using local unpaid volunteers and using government teachers during intensive summer reading camps. In all cases the results have been very successful. The approach is now being adapted to the Ghanaian context and being tested there. If the results are positive it could be a very promising strategy to try in Sierra Leone.

Similar to the approach of providing special remedial instruction to those falling behind, a program in Kenya experimented with creating different classes according to the initial learning level of children—allowing teachers to more effectively pitch their teaching to the appropriate level. One concern with this approach is that children in lower streams might miss out from the positive spillovers from more advanced children. However, in a study in the Western Province of Kenya Duflo et al (2010) find that overall both low performing and high performing children benefit from streaming by initial ability with the benefits of positive spillovers offset by the fact that teachers are better able to tailor their teaching to an appropriate level and the net impact on test scores was highly positive for both groups.

A program in India took advantage of a government initiative to dramatically increase the number of computers in schools to introduce software to teach basic math which automatically adjusted to how well the child was doing in the program. In the first year, math scores increased approximately 0.36 standard deviations as a result of this programme—an improvement which is very high compared to other successful education programs.

As with education quantity, simple health interventions can improve learning. Providing eyeglasses to children with vision problems in China increased test scores. It was found that 12.8% of children age 5-15 had vision problems but only 21% of those had glasses. Providing these children with glasses increased educational performance, however take-up was very low due to opposition of both household heads and the children themselves.