

Can education policy offer solutions to Africa's AIDS epidemic? Harvard University's **Michael Kremer**, who visited CEP this past summer, reports on the evidence from four primary school-based interventions in Western Kenya.

HIV/AIDS prevention: the potential of primary education



The future course of the AIDS epidemic in Africa depends on the behaviour of the next generation. Children aged 5-14 have been referred to as a 'window of hope' because they have low HIV infection rates and because their sexual behaviours are not yet established. In Africa, the majority of these children now attend some primary school, which makes school a natural forum for targeted education on HIV prevention.

Many countries, including Kenya, have incorporated HIV/AIDS education into the curriculum. Evidence on the effectiveness of these policies is beginning to emerge, but many key questions remain: can teachers deliver the curriculum? Will the curriculum affect knowledge, attitudes or behaviour? What should the content emphasise? And are the policies cost-effective relative to alternatives, notably

subsidising school attendance, thereby reducing the cost of education for families?

The Kenyan government's primary school AIDS prevention program, established in 1999, is an example of a policy intervention aimed at reducing risky behaviour among adolescents. At the heart of the program is a curriculum covering basic medical facts about AIDS, HIV transmission, prevention and care for people living with AIDS. It has a strong focus on abstinence and life skills as effective means to prevent pregnancies and infection with sexually transmitted diseases. Although teachers are not trained to promote condoms, they are given a lot of discretion in answering pupils' questions.

Esther Duflo, Pascaline Dupas, Samuel Sinei and I examined the impact of four school-based interventions on 70,000 pupils from 328 primary schools in Western Kenya. Some of these schools only participated in the national AIDS education

program while the others participated in at least one of four other programs:

1. The *Teacher Training Program*, which provided in-service training for primary school teachers to enhance the delivery of the national HIV/AIDS education curriculum.
2. The *Active Learning Reinforcement Program*, which promoted school debates on the role of condoms and essay competitions on how pupils can protect themselves from HIV.
3. The *Relative Risk Information Program*, which provided adolescents with information about variation in HIV prevalence (risk) by age and sex. This aimed to reduce cross-generational sex, which exposes girls to higher HIV risk.
4. The *Reducing the Cost of Education Program*, which provided free school uniforms, with the aim of making education less costly for families and keeping teenagers in school longer.

Table 1:

Effects of Teacher Training and Active Learning Reinforcement on knowledge, attitudes and self-reported behaviours of pupils in grades 6-8 (12 to 16 years old) in 2005

	Girls			Boys		
	National AIDS Program only	Teacher Training	Teacher Training + Active Learning	National AIDS Program only	Teacher Training	Teacher Training + Active Learning
Knowledge						
Mentions abstinence as a way to protect from HIV	37%	n.s	n.s	37%	+6	+4
Mentions condoms as a way to protect against HIV	32%	n.s	+9	45%	n.s	+5
Used properly, condoms can prevent HIV transmission	52%	n.s	+7	64%	n.s	n.s
Attitudes						
People should buy food from shopkeeper who has HIV	38%	+3	+3	47%	n.s	n.s
It's OK to use a condom before marriage if one cannot abstain	43%	n.s	+5	59%	n.s	n.s
It's OK to remain a virgin while one is a teenager	24%	n.s	n.s	28%	n.s	n.s
Behaviour						
Has ever had sex	18%	n.s	n.s	42%	n.s	n.s
Has ever used a condom, if ever had sex	23%	n.s	n.s	33%	+3	+4
Used a condom last time had sex, if ever had sex	21%	n.s	n.s	28%	n.s	+5

Note: 'n.s.' means that the difference from 'National AIDS Program only' is not statistically significant.

Random selection of schools for participation in a particular program meant that, on average, schools participating and not participating in that program had comparable characteristics before the program was implemented. This made it possible to conduct a rigorous evaluation of the isolated impact of each program by comparing the outcomes of participating schools with those of schools that did not participate.

In the absence of data on HIV status, the main outcome of interest was childbearing: in Kenya, where contraceptive use (other than condoms) is very rare among teenagers, the incidence of childbearing is a good proxy for the incidence of unprotected sex.

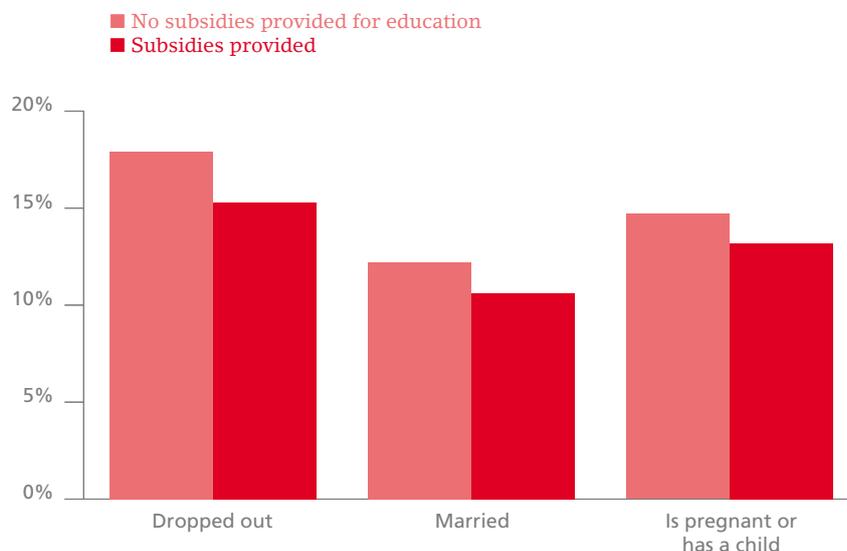
Teachers at schools that received training reinforcement are more likely to teach about HIV/AIDS on a weekly basis, to use a wider variety of methods to integrate HIV/AIDS education and to devote more time to HIV/AIDS education. They are also more likely to have started a functional health club, and to have mentioned HIV and condoms.

But as Table 1 shows, the *Teacher Training Program* has had no discernible impact on knowledge, aside from increasing the likelihood of boys mentioning abstinence as a means to prevent HIV infection. Nor has it had a discernible effect on self-reported sexual activity: the likelihood of boys reporting having ever used a condom has increased, but not the likelihood of them reporting having used one in their last sexual encounter.

For girls, there is no evidence that the program has had an effect on common measures of the skills needed to resist peer pressure. After two years, the Teacher Training Program had had no impact on teenage childbearing. But girls in schools that received extra training were more likely to be married if they had started childbearing. The impact in terms of HIV transmission is thus unclear: on the one

Free school uniforms make pupils more likely to stay in school and reduce teenage pregnancy

Figure 1:
The impact of Reducing the Cost of Education on girls enrolled in grade 6 in January 2003 (outcomes in October 2005)



Providing information on HIV risk associated with cross-generational sex reduces the number of girls having unprotected sex with older partners

hand, early marriage means a lower lifetime number of partners; on the other hand, early marriage is often associated with important age gaps between spouses. This could increase the risk of HIV infection among teenage girls since adult men have a high rate of HIV infection.

The *Active Learning Reinforcement Program* seems to have had a little more impact on attitudes and self-reported behaviour. Participation in debates and essays has increased knowledge about condoms among both girls and boys. Girls in schools that held a debate and an essay competition are more likely to mention condom use as a way to protect oneself from HIV infection, and more likely to say condoms can prevent HIV transmission. Boys are more likely to mention condoms as a way to protect oneself from HIV and more likely to report having used a condom in their last sexual encounter. Follow-up data on childbearing is not yet available for this program.

Related research by Pascaline Dupas (2006) on the *Relative Risk Information Program* finds that providing children with information on variation in HIV rates by age and sex led to a reduction in the number of girls engaging in

cross-generational partnerships. A year after the program, girls exposed to the information were 65% less likely to become pregnant by adult partners. Self-reported sexual activity with same-age partners has increased, but childbearing by teenage couples has not increased. Overall, teenage childbearing was reduced by 32% in the year following the program.

Finally, as Figure 1 shows, the *Reduced Cost of Education Program* has had a positive effect on the likelihood of pupils staying in school longer. Two years after the program inception, those who got free uniforms were 15% less likely to have dropped out. Girls from schools where free uniforms were provided were 10% less likely to have started childbearing and 12% less likely to be married.

This article summarises 'Primary School Education and HIV/AIDS Prevention: Evidence from Four School-based Interventions in Western Kenya' by Esther Duflo, Pascaline Dupas, Michael Kremer and Samuel Sinei (May 2006). The study by Pascaline Dupas is 'Relative Risks and the Market for Sex: Teenagers, Sugar Daddies and HIV in Kenya'.