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Southern and Eastern Africa Consortium for Monitoring Educational Quality

Pupil and Teacher Knowledge about HIV and AIDS in Mozambique

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Introduction

The HIV and AIDS pandemic presents a major challenge for the social and economic development of nations located in Sub-Saharan Africa. The Joint United Nations Programme on HIV and AIDS (UNAIDS, 2010: 180) has estimated that in this region there are more than 20 million people living with HIV, and that around 10 percent of these people are below the age of 15 years.

In 2009 governments and international donors together provided US$ 15.9 billion for the global AIDS response (UNAIDS, 2010: 146). At this point of time there is no known cure for AIDS, and a vaccine for HIV still appears to be in a development phase.

The first case of HIV infection in Mozambique was diagnosed in 1986. In 2009 around 1.4 million Mozambicans were living with HIV, and around 200,000 of them were children under the age of 15 years (UNAIDS, 2010: 180).

AIDS is widely accepted as being one of the main causes of a dramatic increase in the number of orphans. The estimated number of orphans aged 0-17 years due to AIDS in Mozambique rose from 220,000 in 2001 to 670,000 in 2009 (UNAIDS, 2010: 186).

The UNAIDS organization has reported that the HIV prevalence rate in Mozambique for adults aged 15-49 years in 2009 was 11.5%. This represented an increase from 9.4% since 2001. However, it must be remembered that this change in rates may have been influenced by changes in the methodology for estimating HIV infection rates that occurred during 2007 (UNAIDS, 2007: 3).

The United Nations has recognized that the education sector has a critical role to play in terms of the delivery of effective HIV and AIDS prevention education programmes.

The Education Sector Response

The Mozambique Ministry of Education has responded to challenges in this area by implementing education initiatives that aim to ensure that all young people possess the basic knowledge that is required to make informed decisions about behaviours related to HIV and AIDS that will protect and promote their health.

The primary school level has been identified as a crucial access point for HIV and AIDS prevention education programmes because most children attend these schools, and because of the importance of improving the knowledge of children about HIV and AIDS before they become sexually active and/or involved in high-risk behaviours.

The SACMEQ Research Programme

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) is a network of 15 Ministries of Education: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia, and Zimbabwe.

SACMEQ's main mission is to undertake integrated research and training activities that: (a) provide educational planners with the technical skills required to monitor and evaluate the quality of their own education systems, and (b) generate information that can be used to plan the quality of education.

The SACMEQ Consortium has undertaken three large-scale cross-national studies of the quality of education in Southern and Eastern Africa: the SACMEQ I Project (1995-1999), the SACMEQ II Project (2000-2004), and the SACMEQ III project (2007-2011).

The SACMEQ III Project included an additional data collection concerned with a detailed assessment of pupil and teacher knowledge about HIV and AIDS.

A New HIV and AIDS Knowledge Indicator

In 2006 SACMEQ's Governing Body (the SACMEQ Assembly of Ministers of Education) expressed concern about the need for a well-designed indicator that could be used to guide informed debate about the effectiveness of HIV and AIDS prevention education programmes. The one indicator that has been widely used to judge these programmes (known as the "United Nations General Assembly (UNGASS) HIV-AIDS Knowledge Indicator for Young People") was considered to lack validity because it was based on a short list of five test questions that were problematic in terms of wording complexity, content coverage, and reliability.

The SACMEQ Ministers asked the SACMEQ III Project Research Teams to address information needs in this area by developing a valid SACMEQ HIV-AIDS Knowledge Test that would be suitable for administration to Grade 6 pupils (who have average ages of 13.5 years across the SACMEQ countries and 14.2 years in Mozambique) and their teachers.

The SACMEQ HIV-AIDS Knowledge Test (HAKT)

The SACMEQ HIV-AIDS Knowledge Test (HAKT) was designed to provide a valid assessment of pupil and teacher knowledge about HIV and AIDS with respect to the topics specified in official school curriculum frameworks, textbooks, and teaching materials used by the SACMEQ countries.

The 86 HAKT test items covered 43 curriculum topics, and they were focused on an assessment of "the basic knowledge about HIV and AIDS that is required for protecting and promoting health". These topics were grouped into five main areas: definitions and terminology; transmission mechanisms; avoidance behaviours; diagnosis and treatment; and myths and misconceptions.

The HAKT was administered in late 2007 to 61,396 Grade 6 pupils and 8,026 teachers in 2,779 schools across the 15 SACMEQ countries. In Mozambique the HAKT was administered to 3,360 Grade 6 pupils and 865 Grade 6 teachers in 183 schools.

The advanced psychometric analyses applied to these data indicated that the HAKT had a high level of reliability, and that it was suitable for placing pupils and their teachers on a common scale of knowledge about HIV and AIDS.

The performance of pupils and teachers on the HAKT was assessed by applying two complementary scoring procedures:

"**HAKT Scores**" – these were Rasch-scaled scores on the HAKT that were transformed to a Grade 6 pupil average of 500 and standard deviation of 100.

"**HAKT Minimal Knowledge Scores**" – these were dichotomous scores that indicated whether pupils or teachers reached (score=1) or did not reach (score=0) SACMEQ's "minimal" HIV and AIDS knowledge benchmark (defined as mastery of half of the official curriculum that was assessed by the HAKT).

Table 1 contains summarized information about these two scores for Grade 6 pupils and teachers in Mozambique's 11 education regions and the SACMEQ countries. Two sets of figures have been presented in the table for these groups of respondents: (a) the Average HAKT Scores, and (b) the Average HAKT Minimal Knowledge Scores (these proportions were expressed as percentages in the table).

For example, the first row of figures in **Table 1** indicated that: (a) the average HAKT Scores for pupils and teachers in Mozambique's Cidade de Maputo Region were 580 and 755, respectively, and (b) the percentages of pupils and teachers in Cidade de Maputo Region that reached the minimal level of knowledge on the HAKT were 59% and 100%, respectively.

Table 2 contains the average HAKT Scores for groups of Mozambique's Grade 6 pupils defined by four demographic variables: Socioeconomic Status, Location, Gender, and Age.

For example, the first row of figures in **Table 2** indicated that pupils from high socioeconomic status families had a higher average HAKT Score (525.8) than pupils from low socioeconomic status families (485.6), and that the difference between these two averages (40.2) exceeded two standard errors of sampling (19.8).

Note that SACMEQ Projects use pupils as the units of analysis. Therefore, teacher statistics such as means refer to teacher characteristics associated with the average pupil.

Pupil Knowledge Levels

(a) SACMEQ Countries

The average HAKT Scores for Grade 6 pupils provided a means of making **relative comparisons** of knowledge levels among SACMEQ countries.

The results presented for countries in the first column of **Table 1** showed that: (a) Grade 6 pupil averages ranged from a low of 453 in Mauritius to a high of 576 in Tanzania, and (b) the Mozambique pupil average of 507 was just above the SACMEQ average of 500.

These **average HAKT Scores** for SACMEQ countries were dangerously deceptive. For example, they suggested that Mozambican Grade 6 pupil knowledge levels about HIV-AIDS were "satisfactory" because the average for Mozambique was slightly higher than the SACMEQ overall average. However, an examination of **average HAKT Minimal Knowledge Scores** suggested the need for a different conclusion!

The average HAKT Minimal Knowledge Scores for Grade 6 pupils provided a means of making **normative comparisons** of knowledge levels among SACMEQ countries. (***NOTE****: It was expected that* ***100%*** *of pupils in* ***all*** *SACMEQ countries should reach the minimal knowledge level.*)

The results presented for countries in the second column of **Table 1** showed that: (a) the percentages of pupils with minimal knowledge ranged from 17% in Mauritius to 70% in Tanzania, and (b) the percentage of Mozambique's pupils that reached the minimum knowledge level was a low value of 40%. That is, the percentages of Grade 6 pupils reaching the minimal knowledge level in Mozambique and all other SACMEQ countries were far below the expected level of 100%.

The results described above indicated that major alarm bells should be ringing in Mozambique because in 2007 a majority of the Grade 6 pupils (60%) lacked the minimal knowledge about HIV and AIDS that is required for protecting and promoting their health. In all other SACMEQ countries the situation was also very serious - with a majority of Grade 6 pupils in most countries lacking minimal knowledge.

(b) Mozambique's Education Regions

The figures for Mozambique's education regions presented in the first column of **Table 1** showed very large regional variations in average Grade 6 pupil knowledge about HIV and AIDS.

The relatively high average HAKT Score of 580 for Cidade de Maputo Region placed it above the highest scoring SACMEQ country (Tanzania). In contrast, the average HAKT Scores for Cabo Delgado Region (452) and Tete Region (448) Region placed them below the lowest scoring SACMEQ country (Mauritius). The difference between these extremes was around 130 score points.

The average HAKT Minimal Knowledge Scores for Mozambique's education regions in the second column of **Table 1** also illustrated regional variations in Grade 6 pupil knowledge about HIV and AIDS. The percentage of pupils in Cidade de Maputo (59%) that reached SACMEQ's minimal knowledge benchmark was almost three times larger than the percentage observed for Tete Region (20%).

Teacher Knowledge Levels

In the third and fourth columns of figures in **Table 1** the average HAKT Scores and average HAKT Minimal Knowledge Scores have been presented for teachers in the SACMEQ countries and Mozambique's education regions. The figures showed that the average HAKT Score for teachers exceeded 700 for most SACMEQ countries, and for SACMEQ overall it reached 746 – almost 250 score points above the Grade 6 pupil average of 500.

In Mozambique, the average HAKT Score for teachers was 741 at the national level, and was in the range of around 700 to 790 for all education regions. The percentages of teachers that reached SACMEQ's minimal knowledge benchmark of mastering at least one half of the official school curriculum were around 100% for all SACMEQ countries and all Mozambique education regions.

The major contrast between the high knowledge levels of teachers and the low knowledge levels of their Grade 6 pupils came as a surprise to Mozambique's SACMEQ Research Team. They had assumed that teachers with high levels of knowledge about HIV and AIDS should be able to transmit this important information to their pupils.

This assumption was obviously faulty and certainly requires further research in order to provide an explanation for the substantial "knowledge gap" between pupils and teachers.

Demographic Differences in Knowledge

In **Table 2** some research results have been presented in order to examine demographic differences in the HIV and AIDS knowledge of Mozambique's Grade 6 pupils. Four variables were used to generate groups of pupils for making comparisons of average HAKT Scores. Differences in group averages were greater than two standard errors (**) for the Socioeconomic Status and Location variables - with pupils from wealthier homes and pupils from urban locations demonstrating much higher knowledge about HIV and AIDS.

Four Research-Based Conclusions

1. Low Knowledge Levels

Knowledge levels about HIV and AIDS among a majority (60%) of Mozambique's Grade 6 pupils in 2007 were below SACMEQ's "minimal" knowledge benchmark (which was defined as mastery of at least half of the official school curriculum). The Ministry of Education should acknowledge that HIV and AIDS prevention education programmes need to be monitored and evaluated in order to ensure that they are working effectively.

2. Large Regional Differences in Knowledge

There were substantial differences in average Grade 6 pupil HIV and AIDS knowledge levels among education regions in Mozambique. The Ministry of Education should: (a) investigate the reasons for these differences, and (b) find out why knowledge levels were so low in Cabo Delgado Region and Tete Region.

3. A Pupil-Teacher "Knowledge Gap"

There was a large HIV and AIDS "knowledge gap" between Mozambique's Grade 6 pupils and their teachers. The Ministry Education should investigate why well-informed teachers were not able to transmit this important knowledge to most of their pupils.

4. Demographic Differences in Knowledge

There were significant differences in knowledge levels about HIV and AIDS within groups of Mozambique's Grade 6 pupils defined by Socioeconomic Status and Location. The Ministry of Education should expand and intensify the delivery of HIV and AIDS prevention education programmes in poor communities and rural communities.

A Concluding Comment

It is clear from the SACMEQ III Project research results that the time has come to take stock of the impact of current HIV and AIDS prevention education programmes for young people in Mozambique. The SACMEQ results showed that during 2007 a majority of Grade 6 pupils in Mozambique did not have the minimal level of knowledge about HIV and AIDS that was required to preserve and promote their health.

This was indeed alarming because Grade 6 pupils in Mozambique's primary schools (with an average age of 14.2 years) are entering a stage of mental and physical development where they may become sexually active, and/or may choose to become involved in high-risk behaviours.

The Ministry of Education should therefore take immediate action to: (a) address the research-based conclusions presented above, and (b) facilitate the development and implementation of more effective HIV and AIDS prevention education programmes that focus on the upper grades of primary school.

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References

UNAIDS (2007). AIDS Epidemic Update: December 2007. New York: Joint UN Programme on HIV-AIDS.

UNAIDS (2010). Global Report. New York: Joint UN Programme on HIV-AIDS.

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Table 1

Pupil and Teacher Average Scores on the SACMEQ HIV-AIDS Knowledge Test (HAKT)

	PUPILS		TEACHERS	
	HAKT Score	Reached Minimal Level (%)	HAKT Score	Reached Minimal Level (%)
Mozambique: Cidade de Maputo	580	59	755	100
TANZANIA	576	70	724	99
Mozambique: Maputo Province	537	50	755	98
SWAZILAND	531	52	759	100
Mozambique: Inhambane	522	46	725	100
MALAWI	512	43	714	99
KENYA	509	39	793	100
Mozambique: Nampula	509	42	708	94
Mozambique: Manica	507	41	796	100
MOZAMBIQUE	**507**	**40**	**741**	**99**
Mozambique: Zambesia	506	42	721	100
Mozambique: Gaza	503	39	744	100
SOUTH AFRICA	503	35	781	100
NAMIBIA	502	36	764	99
ZANZIBAR	501	38	657	94
BOTSWANA	499	32	782	100
UGANDA	489	33	708	98
ZAMBIA	488	35	744	98
SEYCHELLES	488	25	789	99
Mozambique: Sofala	487	37	790	100
ZIMBABWE	477	30	785	99
Mozambique: Niassa	473	27	735	100
LESOTHO	465	19	751	98
MAURITIUS	453	17	698	98
Mozambique: Cabo Delgado	452	22	704	100
Mozambique: Tete	448	20	736	100
SACMEQ	**500**	**36**	**746**	**99**

Table 2

Average HAKT Scores for Mozambique Pupils across Four Demographic Variables

DEMOGRAPHIC VARIABLE	1st Group	2nd Group	Diff (SE)
Socioeconomic Status (Low/High)	485.6	525.8	40.2 (9.9)**
Location (Isolated-Rural-Town/City)	491.2	534.2	43.0 (13.3)**
Gender (Males/Females)	514.4	498.1	-16.3 (9.0)
Age (Younger/Older)	509.2	504.9	-4.3 (9.3)

Diff = Difference

Figure 1

Variation in pupil knowledge about HIV and AIDS among SACMEQ school systems and among regions in Mozambique