



Southern and Eastern Africa Consortium  
for Monitoring Educational Quality

## Pupil and Teacher Knowledge about HIV and AIDS in Zanzibar

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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 cases of HIV infection in Zanzibar were diagnosed in 1986. Since that time it is estimated that more than 1,000 people have died of AIDS.

Zanzibar is one of two states that form the United Republic of Tanzania and has only recently started to compile separate HIV and AIDS statistics. The HIV prevalence rate for adults in Zanzibar was estimated to be just under 1% in 2008 (Zanzibar, 2010: 1), whereas for Tanzania as a whole the prevalence rate in 2009 was 5.6% (UNAIDS, 2010: 181).

While the HIV prevalence rate in Zanzibar has been relatively low compared to the national prevalence rate, researchers have documented a steady rise in the numbers of HIV-infected women attending Zanzibar's antenatal clinics (Zanzibar, 2010: 2).

In 2011 the Government of Zanzibar launched the "Second Zanzibar National HIV and AIDS Strategic Plan (ZNSP II)" with the two aims of: aligning the investments of all stakeholders and development partners towards common goals, and ensuring a clearer definition of priority areas for the national response to HIV and AIDS (Zanzibar, 2010: 4-5).

### The Education Sector Response

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 Zanzibar Ministry of Education has responded with programmes that aim to ensure that all young people possess the basic knowledge required to make informed decisions about HIV and AIDS.

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.

### 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 Standard 6 pupils (who have average ages of 13.5 years across the SACMEQ countries and 14.1 years in Zanzibar) 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 areas: definitions/terminology; transmission mechanisms; avoidance behaviours; diagnosis/treatment; and myths/misconceptions.

The HAKT was administered in late 2007 to 61,396 Standard 6 pupils and 8,026 teachers in 2,779 schools across the 15 SACMEQ countries. In Zanzibar the HAKT was administered to 2,791 Standard 6 pupils and 679 Standard 6 teachers in 143 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:

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

(b) "**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 Standard 6 pupils and teachers in Zanzibar education regions and 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 third row of figures in **Table 1** indicated that: (a) the average HAKT Scores for pupils and teachers in Zanzibar's Urban West Region were 515 and 657, respectively, and (b) the percentages of pupils and teachers in Urban West Region that reached the minimal level of knowledge on the HAKT were 46% and 90%, respectively.

**Table 2** contains the average HAKT Scores for groups of Zanzibar's Standard 6 pupils defined by four demographic variables: Socioeconomic Status, Geographic 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 (516.0) than pupils from low socioeconomic status families (487.7), and that the difference between these averages (28.3) exceeded two standard errors of sampling (9.6).

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. Note also that in SACMEQ Projects Zanzibar (which forms part of the United Republic of Tanzania) is treated as a separate "country" in SACMEQ data analyses and reports – because it has its own Ministry of Education.

## Pupil Knowledge Levels

### (a) SACMEQ Countries

The average HAKT Scores for Standard 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) Standard 6 pupil averages ranged from a low of 453 in Mauritius to a high of 576 in Tanzania, and (b) the Zanzibar pupil average of 501 was just above the SACMEQ overall average of 500.

The average HAKT Minimal Knowledge Scores for Standard 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 figures in **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 Zanzibar's pupils that reached the minimum knowledge level was a low value of 38%. That is, the percentage of pupils reaching the minimal knowledge level in Zanzibar and all other SACMEQ countries was far below the expected level of 100%.

**The results described above indicated that major alarm bells should be ringing in Zanzibar because in 2007 almost two thirds (62%) of Standard 6 pupils lacked the minimal knowledge about HIV and AIDS that is required for protecting and promoting health. In all other SACMEQ countries the situation was also very serious - with a majority of Standard 6 pupils in most countries lacking minimal knowledge.**

### (b) Zanzibar's Education Regions

The figures for Zanzibar's education regions presented in the first column of **Table 1** showed large regional variations in Standard 6 pupil knowledge about HIV and AIDS. The high average HAKT Score of 515 for Urban West Region placed it just below the two highest scoring SACMEQ countries (Tanzania and Swaziland). In contrast, the average HAKT Score for North Unguja (469) placed it just above the two lowest scoring SACMEQ countries (Mauritius and Lesotho).

The average HAKT Minimal Knowledge Scores for Zanzibar's education regions in the second column of **Table 1** also highlighted substantial regional variations

in Standard 6 pupil knowledge about HIV and AIDS. The percentage of pupils in Urban West Region (46%) that reached SACMEQ's minimal knowledge benchmark was more than two times higher than the lowest region of North Unguja (21%).

## 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 Zanzibar'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 points above the SACMEQ pupil average.

In Zanzibar, the average HAKT Score for teachers was 657, and ranged from around 640 to 680 for all education regions. In addition the percentages of teachers that reached SACMEQ's minimal knowledge benchmark of mastering at least one half of the official school curriculum were around 90% to 100% for all SACMEQ countries and for Zanzibar's regions.

Given that the HAKT covered only a limited number of the most basic knowledge topics in school curricula, this contrast between the higher knowledge levels of teachers and the lower knowledge levels of their Standard 6 pupils came as a surprise to Zanzibar's SACMEQ Research Team. They had assumed that teachers with high levels of basic 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 Zanzibar's Standard 6 pupils. Four variables were used to generate groups of students for making comparisons of average HAKT Scores. Differences in group averages were greater than two standard errors (\*\*) for Socioeconomic Status and Location groups – with pupils from wealthier backgrounds and pupils in city locations demonstrating much higher knowledge about HIV and AIDS. No significant differences were observed for pupil groups defined by Gender and Age.

## Four Research-Based Conclusions

### 1. Low Pupil Knowledge Levels

Knowledge levels about HIV and AIDS among 62% of Zanzibar's Standard 6 pupils in 2007 were below SACMEQ's "minimal" 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 Provincial Differences in Knowledge

There were large differences in Standard 6 pupil knowledge levels about HIV and AIDS among education regions in Zanzibar.

The Ministry of Education should: (a) investigate the reasons for these differences, and (b) find out why knowledge levels were so low in North Unguja.

### 3. A Pupil-Teacher "Knowledge Gap"

There was a large HIV and AIDS "knowledge gap" between Zanzibar's Standard 6 pupils and their teachers.

The Ministry of Education should:

(a) investigate why well-informed teachers were not able to transmit this important knowledge to most of their pupils, and

(b) review pre-service and in-service training programmes to ensure that teachers are trained in both subject matter knowledge ("what to teach about HIV and AIDS"), and pedagogy ("how to teach about HIV and AIDS").

### 4. Demographic Differences in Knowledge

There were significant differences in knowledge about HIV and AIDS within groups of Zanzibar Standard 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 particularly in poor communities and rural communities.

## A Concluding Comment

All children need to have the basic knowledge about HIV and AIDS that is required to protect and promote health. However, it was clear from the SACMEQ III Project research results that around two-thirds of Standard 6 pupils in Zanzibar during 2007 did not have this minimal level of knowledge.

This was indeed alarming because Standard 6 pupils in Zanzibar (average age 14.1 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 standards of primary school.

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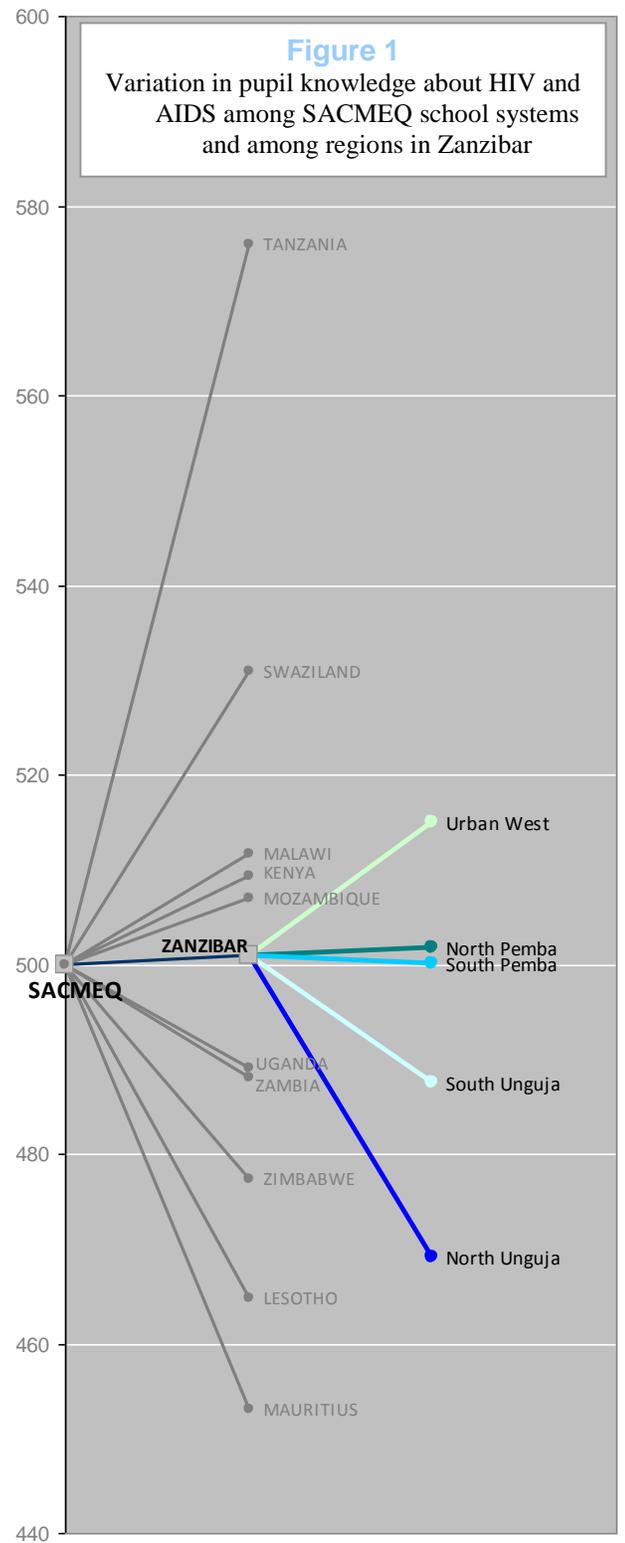
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**Table 1**  
Pupil and Teacher Scores on the  
SACMEQ HIV-AIDS Knowledge Test (HAKT)

	PUPILS		TEACHERS	
	HAKT Score	Reached Minimal Level (%)	HAKT Score	Reached Minimal Level (%)
TANZANIA	576	70	724	99
SWAZILAND	531	52	759	100
Zanzibar: Urban West	515	46	657	90
MALAWI	512	43	714	99
KENYA	509	39	793	100
MOZAMBIQUE	507	40	741	99
SOUTH AFRICA	503	35	781	100
NAMIBIA	502	36	764	99
Zanzibar: North Pemba	502	40	637	91
<b>ZANZIBAR</b>	<b>501</b>	<b>38</b>	<b>657</b>	<b>94</b>
Zanzibar: South Pemba	500	37	644	100
BOTSWANA	499	32	782	100
UGANDA	489	33	708	98
ZAMBIA	488	35	744	98
SEYCHELLES	488	25	789	99
Zanzibar: South Unguja	488	33	676	100
ZIMBABWE	477	30	785	99
Zanzibar: North Unguja	469	21	684	97
LESOTHO	465	19	751	98
MAURITIUS	453	17	698	98
<b>SACMEQ</b>	<b>500</b>	<b>36</b>	<b>746</b>	<b>99</b>

**Figure 1**  
Variation in pupil knowledge about HIV and  
AIDS among SACMEQ school systems  
and among regions in Zanzibar



**Table 2**  
Average HAKT Scores for Zanzibar Pupils  
across Four Demographic Variables

DEMOGRAPHIC VARIABLE	1st Group	2nd Group	Diff (SE)
<b>Socioeconomic Status</b> (Low/High)	487.7	516.0	28.3 (4.8)**
<b>Location</b> (Isolated-Rural-Town/City)	497.1	514.2	17.1 (6.1)**
<b>Gender</b> (Males/Females)	502.8	499.4	-3.4 (4.8)
<b>Age</b> (Younger/Older)	502.7	498.4	-4.3 (5.0)

Diff = Difference