

# **Gender Differences in Educational Achievement in Southern and Eastern Africa – Results from SACMEQ III Project**

**Mioko Saito**

(International Institute for Educational Planning, UNESCO)

## **1. Introduction**

This paper is a summary of the presentation which was made during the Research Seminar on “Gender and Equity”, which was organized in Hiroshima, Japan during 12-14 January 2011. More details on the data can be found in Saito (2010a; 2010b; in press) and Hungi et al (2009; 2010).

## **2. SACMEQ background**

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) is an independent non-profit developmental organization of 15 Ministries of Education (Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania-Mainland, Tanzania-Zanzibar, Uganda, Zambia, and Zimbabwe). The mission of SACMEQ is to undertake integrated research and training activities that will expand opportunities for educational planners and researchers to: (a) receive training in the technical skills required to monitor, evaluate, and compare the general conditions of schooling and the quality of basic education; and (b) generate information that can be used by decision-makers to plan the quality of education (Ross & Makuwa, 2009).

SACMEQ has undertaken three large-scale policy research projects to measure learning outcomes. SACMEQ I (1995-1998) was launched with seven Ministries of Education (20,133 Grade 6 pupils and 2,014 Grade 6 teachers in 1,086 primary schools) to assess the Reading literacy of pupils. SACMEQ II (2000-2002) involved 14 Ministries of Education (41,686 Grade 6 pupils and 5,313 Grade 6 teachers in 2,282 primary schools), in which both pupils and their teachers took Reading and Mathematics tests. SACMEQ III (2007-2009) entailed 15 Ministries of Education (61,421 Grade 6 pupils and 8,045 Grade 6 teachers in 2,779 primary schools). In addition to Reading and Mathematics, a test on HIV and AIDS knowledge was administered to pupils and their teachers.

The SACMEQ Reading and Mathematics test items were calibrated during SACMEQ II, which have been also checked for fairness across countries and gender (Andrich et al, in press; Saito, 2008). The test scores have been standardized to have the combined pupil mean of 500 and the standard deviation of 100 during SACMEQ II (see Ross et al, 2004). A subset of these calibrated items were used during SACMEQ III, and therefore scores of SACMEQ III pupils

and teachers have direct comparability with pupils in SACMEQ II.

### **3. Previous gender research within the SACMEQ context**

Nobody can deny the importance of the gender equality issue within the international goal setting as evidenced in the Education for All (EFA) goals and the Millennium Development Goals (MDG). The senior decision makers of the SACMEQ Ministries of Education also considered the gender equality issue as one of the most important priority policy issues since the beginning of the SACMEQ studies.

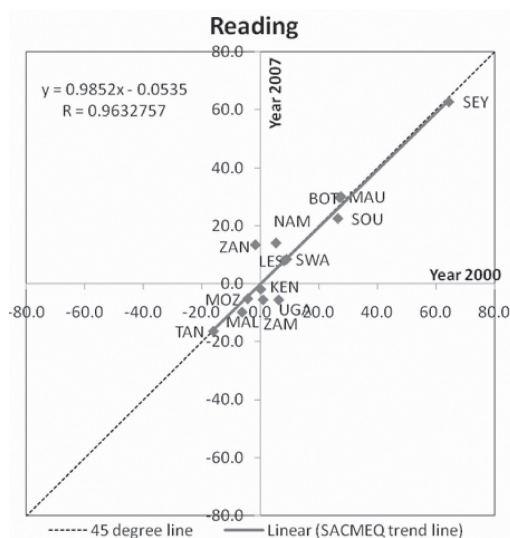
For example, in order to investigate whether gender equality had been attained in the EFA context, some descriptive research studies (Saito, 1998a; Saito, 1998b; Saito & Kuroda, 2000; Saito, 2004a; Saito, 2004b) have been conducted on the gender differences in Grade 6 enrolment, home background, school process, and achievement. These studies revealed that in almost all SACMEQ countries it was the boys who were disadvantaged in terms of school process and home support. In terms of achievement in Reading, girls scored significantly higher than boys in Seychelles, Botswana, South Africa, and Mauritius. Boys scored significantly higher than girls in Tanzania. In the other school systems, the differences were not significant. For Mathematics, only in Seychelles did girls score significantly higher than boys. On the other hand, in Tanzania, Kenya, Mozambique, Zanzibar, and Malawi, boys scored significantly higher than girls, regardless of the boys' disadvantages in school and home. In the other school systems, the differences were not significant. It has been argued that as far as the upper primary level is concerned, girls were equally or more talented at least in Reading. However, in many SACMEQ countries, girls' participation in secondary and tertiary levels was found to be lower than the male participation (UNESCO, 2003). Saito hypothesized that there might be a vast amount of girls' talent that would not be capitalized if their participation in the higher level is not comparable to that of boys.

### **4. Results from the SACMEQ III project data collection**

The gender equality issue touches many facets of data within the SACMEQ III project data, for example teachers and school heads (Hungu, 2010), information and communication technology (van Cappelle & Saito, 2010), and HIV and AIDS (Dolata, 2011). However, this paper will focus on the changes in the magnitude and the direction of gender differences in Reading and Mathematics between 2000 and 2007.

Saito (2010a; 2010b) reported that in Seychelles, Botswana, South Africa, and Mauritius, girls performed significantly better than boys with very similar gender gaps between the years 2000 and 2007 for Reading. In Tanzania, boys performed significantly better than girls with the same gender gap for both SACMEQ II and SACMEQ III. In the other countries, the gender differences were very small and in most cases not statistically significant. By observing the scatter diagram of gender differences in years 2000 and 2007 in Figure 1, the tightness of the

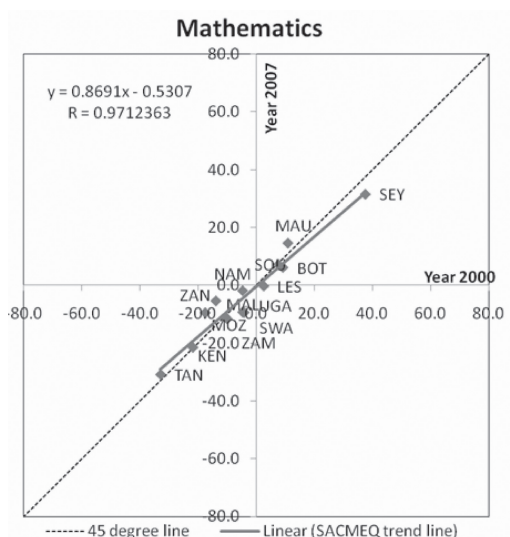
scatter diagram and the slope of the trend line which is almost on a 45 degree line indicate that not only the direction but also the magnitude of gender differences was stable over time.



Source: Saito (in press)

Figure 1: Scatter diagram and the trend line for gender differences (girls score minus boys score) in years 2000 and 2007 for Reading

For the Mathematics achievement, girls performed significantly better only in Seychelles both in years 2000 and 2007 (Saito, 2010a; 2010b). In Tanzania, Kenya, Mozambique, and Malawi, boys performed significantly better than girls both times. Although the slope of the trend line for mathematics was slightly flatter than that for Reading, the direction and the magnitude of gender differences in most of the countries have not changed much between years 2000 and 2007 (see Figure 2).



Source: Saito (in press)

Figure 2: Scatter diagram and the trend line for gender differences (girls score minus boys score) in years 2000 and 2007 for Mathematics

When the unit of analysis is at an aggregated level such as a country, much information is often concealed. It could be possible that the relationship that was observed at the country level may not emerge in different sub-groups of people, such as school location and socio-economic level. For example, there has not been much change in the size and the direction of the gender differences in the rural areas in SACMEQ countries for both subjects. However, in the urban areas, there has been an improvement in the gender differences in learning achievement for both subjects (better equality between boys and girls) in 2007 compared to 2000 (Saito, in press).

Another example is the achievement of boys and girls for different socio-economic levels. Within the low socio-economic group, it seems that the gender differences have become slightly larger in 2007 than in 2000. On the other hand, within the high socio-economic group, there has been quite an improvement in gender equality. The same pattern emerged for both Reading and Mathematics (Saito, in press).

## **5. Discussion**

The above results can be further reflected together with the concerns raised by Saito (2004a; 2004b) on the gender differences in achievement during SACMEQ II.

First of all in Mozambique in 2000, the lower primary education ended at Grade 5, and fewer girls were enrolled than boys in upper primary education including Grade 6. Based on the structural change of its primary education during the early 2000s, the number of Grade 6 pupils have almost tripled between 2000 and 2007 (UNESCO Institute of Statistics, 2009), and the difference in the proportion of enrolment by Grade 6 boys and girls has become much smaller. In fact, the overall Mozambique learning achievement (boys and girls together) has significantly declined in both subjects during SACMEQ III. While the priority concern of the Ministry of Education in Mozambique could be the overall decline in achievement, it may be worthwhile to take stock of the nature of gender-related interventions to see the relation with the persisting gender differences in achievement.

Tanzanian boys continued to outperform girls in both subjects in SACMEQ III. Preliminary analyses have also shown that although there were no gender differences in Socio-economic Status (SES), meals, and distance for traveling, girls seemed to be involved in many more tasks, especially those tasks that were traditionally considered as female tasks such as cooking, cleaning, sweeping, and fetching water. Further investigations into the relationship between the workload at home and the gender differences in achievement may be valuable in Tanzania taking into consideration the important role played by the traditional view and values.

In Seychelles, as was the case during SACMEQ II, girls continued to outperform boys in both subjects. During SACMEQ II, the concern was on the practice of ‘streaming’ which favored girls at an earlier age (Leste et al, 2005). Although SACMEQ II gender differences have triggered the Minister of Education in Seychelles to take on a “de-streaming” project (Leste, 2005), SACMEQ III results still indicated that the proportion of girls in more able classes were still considerably higher than boys. Continuous evaluation and monitoring of classroom

practices at each school seems very important in order to track the progress of the de-streaming project.

## 6. Conclusion

While gender equality in Grade 6 participation has improved in some SACMEQ countries, gender disparity in achievement is an area which shows very slow progress. The above results have particular significance for those international organizations and donors that have expended enormous resources and efforts on a wide spectrum of educational programmes that have aimed to reduce gender differences in education. These results seem to suggest that there is a need to move the focus of the gender-related interventions beyond “access” and “participation” and concentrate more on “achievement”, especially in less advantaged settings. Moreover, reasons for absence and/or presence of gender disparity in achievement need to be further examined together with the traditional context which may influence pupil attitudes towards subjects, school practices, and family support. Ministries of Education in SACMEQ countries are facing many challenges in this area.

## References

- Andrich, D., Luo G., Ross, K., Saito, M., Dolata, S. (in press) *Analysis of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) data*. Paris: UNESCO/IIEP.
- Dolata, S. (2011). *Qualité de l'éducation au VIH et SIDA dans les écoles primaires : Expériences tirées du SACMEQ*. Unpublished presentation made during the Second réunion internationale d'échange entre le SACMEQ et le PASEC (24 January 2011).
- Hungi, N. (2010). *Is there gender equity in school managerial positions?* SACMEQ III Policy Issues Series No. 8.
- Hungi, N., Makuwa, D., Ross, K., Saito, M., Dolata, S., van Cappelle, F., Paviot, L., & Vellien, J. (2009). *Some preliminary results from the SACMEQ III Project*. Confidential SACMEQ Working Document.
- Hungi, N., Makuwa, D., Ross, K., Saito, M., Dolata, S., van Cappelle, F., Paviot, L., & Vellien, J. (2010). *SACMEQ III project results: Pupil achievement levels in reading and mathematics*. SACMEQ Working Document No. 1.
- Leste, A. (2005). *Streaming in Seychelles: From SACMEQ research to policy reform*. Paper presented at the SACMEQ Research Conference. Paris: SACMEQ.
- Leste, A., Valentin, J., & Hoareau, F. (2005). *The SACMEQ II project in Seychelles: A study of the conditions of schooling and the quality of education*. Harare: SACMEQ.
- Ross, K., Saito, M., Dolata, S., Ikeda, M., & Zuze, L. (2004). *Data archive for the SACMEQ I and SACMEQ II projects*. Paris: IIEP-UNESCO.
- Ross, K. N., & Makuwa, D. (2009). *What is SACMEQ?* Paris: UNESCO-IIEP.

- Saito, M. (1998a). Gender vs. socio-economic status and school location differences in Grade 6 Reading Literacy in five African countries. *Studies in educational evaluation*, 24(3), pp. 249-261.
- Saito, M. (1998b). The impact of gender, social background, and school location on reading levels in Southern Africa. *IIEP newsletter* 16(4). Paris: UNESCO/IIEP.
- Saito, M. (2004a). *Gender Equality and Education for All: Message from SACMEQ Countries*. A paper presented at the SACMEQ Data Archive Dissemination Workshop (Nairobi, Kenya & Pretoria, South Africa, 28 June – 2 July 2004).
- Saito, M. (2004b). Gender equality in reading and mathematics achievement: Reflecting on EFA goal 5. *IIEP Newsletter* 22(2). Paris: UNESCO/IIEP.
- Saito, M. (2008). *Differential item functioning (DIF) analysis of test items from the SACMEQ-II pupil Mathematics test across gender*. A paper presented at the Third International Conference in Rasch Measurement (Perth, Australia, 22-24 January, 2008).
- Saito, M. (2010a). *Has gender equality in reading and mathematics achievement improved?* SACMEQ III Policy Issues Series No. 4.
- Saito, M. (2010b). The gender gap in learning – Back to square one. *IIEP Newsletter Vol. XXVIII*. No. 3 September-December 2010.
- Saito, M. (in press). SACMEQ III Project International Report: The Condition of Schooling and the Quality of Education in Southern and Eastern Africa (2000-2007). Chapter 8: “Magnitude and Direction of Gender Differences in Learning Outcomes”
- Saito, M., & Kuroda, K. (2000). アフリカ7カ国における初等教育就学児童の読解力の男女間格差に関する統計的考察—教育の質調査のための南アフリカ諸国連合 (SACMEQ) の調査結果から。 [Investigation on gender differences in primary school pupils' reading literacy in seven African countries: Results from SACMEQ]. *Journal of International Cooperation in Education*, 3(1), pp. 25-39.
- UNESCO. (2003). *EFA Global Monitoring Report 2003/2004: Gender and education for all: The leap to equality*. Paris: UNESCO.
- UNESCO Institute of Statistics (2009). *Custom Tables on Education for Mozambique*. Retrieved on 31 July 2009 from <http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx>. UIS: Montreal.
- van Cappelle, F., & Saito, M. (2010). *How are Grade 6 girls in Southern and Eastern African countries using ICT?* Unpublished presentation made during the UNESCO Expert group meeting on Gender, Science and Technology (29 September 2010).