



Réseau Ouest et Centre Africain de Recherche en Education
Educational Research Network for West And Central Africa

**Synthesis of findings from 10 interdisciplinary research projects
conducted by young researchers on the quality of education in
West and Central Africa**

Prepared in 2003 in Bamako by ERNWACA regional office

ERNWACA Small Grants Program for Education Research mobilizes 30 young researchers, senior researchers as mentors, and national institutions as partners

ERNWACA launched the first edition of its Small Grants Program for Education Research from its regional coordination based in Bamako, Mali, in October 2001 with a Call for Proposals. Over a period of 10 months in 2002, interdisciplinary teams of young researchers and education specialists conducted 10 research projects aimed at finding ways to improve the quality of education. Themes were prioritized by ERNWACA's national coordinators from a dozen countries at their 2002 Dakar Strategy Session. The research was conducted in Benin, Burkina Faso, Cameroon, the Ivory Coast, The Gambia, Ghana, Mali, Nigeria, Senegal, and Togo. It was funded by the International Development Research Center (IDRC).

The objective was to improve national and regional research capacity by creating the opportunity for young researchers, with support from more senior researchers, to produce quality research that responds to the expressed needs of organizations likely to use its results, and to positively impact the evolution of educational policies and practices in West and Central Africa.

Recommendations stemming from the research are reported here under five main headings:

- **How can the quality of science courses be improved?** (p. 2)
- **How can ICTs improve the quality of education?** (p. 4)
- **How can the gender gap in education be reduced?** (p. 6)
- **How can school abandonment rates be lowered?** (p. 7)
- **How to minimize HIV/AIDS impact on the quality of education?** (p. 8)

List of grant recipients and individual research reports may be accessed from:
www.ernwaca.org/biblio/opac_css/index.php?lvl=categ_see&id=30&main=1.

SUMMARY OF RECOMMENDATIONS STEMMING FROM THE RESEARCH FINDINGS¹

How can the quality of science courses be improved?

➤ Reports from: The Gambia/Nigeria, Ghana

The suggested goals are to focus on cost-reducing strategies and increasing student interest in order to increase the quality of education in the sciences. The report from The Gambia/Nigeria looks at methods to improve laboratory management techniques and the suggestion in Ghana is to develop models (e.g. the solar system, the human heart) for teachers to use to stimulate student interest. Teacher training is necessary to implement these changes.

Cost-reduction

Research findings from both reports indicate that improvisation and substitution are beneficial to replacing conventional and expensive chemicals or models. For example, dry cells could be used instead of electricity to model a solar system – a useful suggestion because many primary schools in Africa are in rural areas where there is no electricity. More local products should be utilized for science experiments, as an alternative to importing expensive prepared chemicals and materials, without sacrificing the quality of experiments.

Improvements should be made in terms of the maintenance of lab equipment. School regulations pertaining to willful damage by students would deter this activity and, at the same time, educate all students about the dangers inherent in the materials. Procedures for storage and recycling of chemicals and models would reduce the chance of contamination or damage and therefore minimize replacement purchases.

Activities undertaken in science classes can be connected to the community. Products could be bought and sold in local markets and model materials be mass-produced by local toy manufacturing companies, thereby reducing per capita cost for all schools in the surrounding regions. Once these base suggestions have been developed, possibly as part of a larger project funded by national educational authorities, the knowledge and processes could be adapted by other African countries.

Teacher training

The key step toward change and adopting new strategies, as identified by both research papers, is to train teachers to use the newly developed models and involve them in their development. Many teachers have difficulty improvising because they are not familiar with materials available in their environment and they have only been trained to utilize conventional methods. Teaching models and maintenance regulations can be utilized by teachers of all

¹ Full reports and abstracts are available from ERNWACA.

levels of experience. Of the teachers involved in the Ghana study, 97% reported that the use of the models eased teaching of their topics in biology, chemistry, and physics.

Results from The Gambia suggest in-service training programs and regular workshops based on effective laboratory techniques and safety measures to develop teacher skills. Teachers' guides with background information and cost-reducing hints would be useful to have on hand for each instructor or classroom. The researchers from Ghana suggested incorporating the research of innovative techniques and the production of useful teaching aids into college teacher training courses. This would benefit both the performance of teachers in the field and the education of college graduates.

How can ICTs² improve the quality of education?

➤ Reports from: Benin, Senegal, Nigeria

The lack of didactic materials in Africa, such as, textbooks, libraries, and museums means that ICTs provide access to otherwise inaccessible information. Learning how to use information technology offers more career opportunities for students and reduces dropout rates. Students in Benin, Senegal, and Nigeria are interested in ICTs but unfortunately lack guidance on using them effectively to obtain and produce information; instead they are mainly attracted to e-mail, chat rooms, and game sites. Many institutions in Nigeria have provided Internet access only to teachers and most students from all three countries cannot afford to pay for online time. Education administrators and governments should develop programs to train teachers to use ICTs in teaching and take measures to increase access to this technology without applying prohibitive costs.

Teacher Training

Recommendations from the three reports suggest that teachers should integrate computer programs and Internet use for information acquisition into their lesson plans, but they lack the training and often the motivation to do so. Communication with teachers worldwide via the Internet offers opportunities to exchange ideas, broaden perspectives, share resources, and learn new methods of teaching. The more familiar teachers are with various technologies, the more capable they will be in guiding students to utilize ICTs for individual and group projects. Education administrators should initiate seminars for teachers to learn more about available programs.

Policy and Infrastructure Development - Education administrators

The survey completed in Senegal reported that most teachers think ICTs are useful tools, but that policy needs to be improved. When school directors are informed of the advantages of ICTs, they are more likely to seek the means for their integration (according to the Benin report). Administration should identify ICT benefits and uses specific to the national and cultural context (emphasized in both Senegal and Benin), review teaching practices, ensure there is sufficient bandwidth to meet all user needs, and make data processing a mandatory part of the curriculum and of student testing/evaluation. In addition, they should expand the electronic publication of locally appropriate materials, which could then be accessed by a larger number of people. Increased use, determined at a minimum of two hours per week per student, requires more infrastructure and risks raising the price of utilization. There is already a low student/computer ratio and teachers are forced to teach more theoretically than practically. The recommendation from Nigeria is to set various pricing programs, for example, offering reduced rates at different times of the day. The extra time is necessary for students to learn and retain information.

² Information and Communication Technologies (computer, Internet, etc.)

Policy and Infrastructure Development - Government

A lack of defined policy objectives to incorporate ICTs into teaching and into the curriculum is an issue at national levels. Senegal researchers place responsibility at a national level for introducing new programs. Recommendations to the governments of both Senegal and Benin include developing partnerships that would ensure that needs are met and finances secured. Benin researchers suggest connecting the State to the private sector to fund teacher training. Reduced Internet connection rates should be instituted for schools exemplifying high utilization of ICTs. In cases where the services at a school are less than adequate and students are frequenting cyber cafés, teacher training aimed at aiding students to use the computer for academic purposes could be extended to café personnel.

How can the gender gap in education be reduced?

➤ Reports from: Mali, Cameroon, (Togo, Burkina Faso)

Education for women was an issue raised by many of the reports, as there is a gender discrepancy in science course enrolment, rates of abandonment, and participation in the technology sector. In Mali, there is a 14% gender gap between enrollment of boys in primary education and enrollment of girls.³ Research focused on this issue was conducted in Cameroon (a study of intrinsic motivation) and Mali (analysis of textbook content), and reports from Togo and Burkina Faso considered gender differences. The results suggest that parental support and strong role models in the community would most affect an improvement in education for females. Favourable legal environments for female learners is also a prerequisite.

Parental support

Children are encouraged a great deal by the examples set by their elders, especially their parents. In many countries, parents are more likely to provide education for a boy instead of a girl, as daughters often play important traditional roles in the family home. In both Togo and Burkina Faso, dropout rates for girls were higher due to pressures of marriage, which is a method of providing income for the family. Although female students often reported internal problems such as feelings of anxiety, depression, irritability and guilt, the causes of their low education rate seem to be external. In both Cameroon and Togo, paying school fees was either financially difficult or not the priority for the parents.

Both of the main gender reports stress communication among parents, teachers and students as important in meeting the specific needs of female students. Dialogue provides an opportunity for both parents and children to communicate their aspirations. However, the girls are needed to help out at home, so education planners must consider this factor. As suggested by the Mali report, it would be beneficial to continue studies of the affects of socio-economic status on the education of women.

Role models

One way that girls enter into professions of their interest is by following examples set by individuals to whom they can relate. However, there is a lack of female role models in scientific, technical and technological fields, as discovered in Mali, and a lack of literature portraying women in active and leadership roles. It is important to note that the Nigeria study of ICTs in education revealed that an equal percentage of girls to boys were interested in utilizing technology. The Mali report suggests that training is necessary for the authors and editors of textbooks, as well as for teachers, so they may portray a greater variety of opportunities available to young women. Otherwise, say the Cameroon researchers, a lack of visibility of the positive impact of education on women may psychologically limit female students as to the importance of education in overall life.

³ UNICEF, 1997

How can school abandonment rates be lowered?

➤ Reports from: Ivory Coast, Burkina Faso, (Togo)

Burkina Faso demonstrates, at 40%, one of the weakest rates of schooling in the world. In spite of government efforts to keep children in school until the age of 16 and to supply the materials and infrastructure necessary for the education system, the average dropout rate is 12 years old (as is the case in Togo and the Ivory Coast). The study in the Ivory Coast examined course structure, such as multi-grade classes, and discovered a “bottleneck” in teaching that could be reversed. One issue, financial difficulties, seemed to span the results from all of the projects concerning abandonment.

Financial considerations within the family

Why did up to 80% of children in both the Burkina Faso and Togo reports regret their abandonment? Initially, many do not want to leave school but feel an obligation to do so to help meet the socio-economic needs of their family. Ivory Coast research of several course types concluded that schedules did not affect the dropout and repetition rates so much as did the financial situation of each pupil and the professions of their relatives. Vulnerable groups from Burkina Faso were identified as those not being able to afford school fees or housing costs (if attending from rural areas), lacking funds to purchase school supplies, and having to drop out in favour of earning money for the family. Results from Togo reflected the same concerns and included other factors, such as time away from school extended by early pregnancies, resorting to prostitution for income, and early work among boys. The 5% difference in the dropout rate between rural and urban areas is a result of the different financial difficulties faced in each region. For example, rural women have a high risk of abandonment due to pressures towards early marriage as a source of income for the family.

Provision of social services and improving communication and partnership

In 2002, the government of Togo initiated a plan to distribute free school materials in hopes of reducing high dropout rates resulting from family financial difficulties. Recommendations from Burkina Faso reiterate a strategy that includes the distribution of schoolbooks and elimination of school fees. Their data also stresses the symbiosis of family, community, and the school system as an influential factor. Cooperation could improve the educational climate by securing the role of the school system in the community and promoting literacy among parents (for their benefit and that of their children). The provision of social services such as cafeterias and medical and sanitation facilities is essential to include students who would otherwise not attend school due to lack of food, extended illness, etc. Ivory Coast researchers recommend that a national socio-economic study be carried out, in order to determine the best changes to secondary school systems to reduce redoubling and abandonment rates.

How to minimize HIV/AIDS impact on the quality of education?

➤ *Report from: Togo*

Despite the unanimous desire among teachers to include HIV/AIDS issues in the curriculum, the necessary content and training is not yet available or sufficiently adapted to the context, which often leads to incomprehension, misinformation and confusion, especially among the youngest students and the least trained teachers. Researchers suggest that students, teachers, parents and church representatives be involved in the development of appropriate messages and communication techniques. Poorly planned and uncoordinated awareness campaigns are launched in primary and secondary schools by various partners, pointing to the need for a more concerted national strategy.

Integrating HIV/AIDS awareness into the school system

Of paramount importance is to provide education about the disease in a manner appropriate to local concerns. For example, as the topic of sex is a cultural taboo, “safe sex” demonstrations to 12-year-olds were deemed culturally inappropriate. However, lack of knowledge about the disease has led to feelings of guilt and shame, seen through isolation and social rejection of the children who are infected or are related to someone who is infected. In the classroom the student is often sad, violent, inward, depressed and/or isolated, which correlates to a high risk of abandonment. Discussion promoted through awareness education helps to reduce feelings of shame.

HIV/AIDS education could be incorporated on a regular basis into the school system. The Togo report recommends a partnership between schools, hospitals, national and international organizations as the best means of information exchange within the community. Biology professors should teach about modes of transmission and prevention of the disease while hospitals provide contraceptives and information brochures. National and international organizations may be the most proficient at sensitizing the community to the disease through various awareness-raising methods such as theatrical presentations and the formation of clubs.

Alleviating financial obstacles

HIV/AIDS treatments, which have decreased the death rate by 90%, are expensive, so parents must often choose between paying for medicine or for school fees. In addition, siblings often drop out of school to earn money for their financially burdened family. Therefore, appealing to governments to find ways to reduce the cost of treatments would improve each child's chances of continuing his or her education.

Assessing impact

The culture of silence around HIV/AIDS and insufficient survey techniques make it difficult to identify persons infected with HIV/AIDS and related deaths (of teachers, students, parents) and thus difficult to assess impact. West and Central African researchers need to develop appropriate survey techniques.