Association for the Development of Education in Africa

ADEA Biennial Meeting 2003
(Grand Baie, Mauritius, December 3-6, 2003)

Analytical and Factual Elements for a Quality Policy for Primary Education in Sub-Saharan Africa in the Context of Education For All

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Working Document
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• Original Version in French •

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Acronyms and abbreviations

ADEA	Association for the Development of Education in Africa
CONFEMEN	Conférence des Ministres de l'Education des pays ayant le Français en partage
MLA	Monitoring Learning Achievement
NESIS	National Education Statistical Information Systems
PASEC	Programme d'Analyse des Systèmes Educatifs des Pays de la CONFEMEN
PRSP	Poverty Reduction Strategy Papers
SACMEQ	Southern Africa Consortium for Monitoring Educational Quality
SAP	Structural Adjustment Programs
UNESCO	United Nations Educational, Scientific and Cultural Organization

ABSTRACT

Based on the meta-analysis of assessments of the learning experiences, the cost effective approach considers the cost of inputs and their effects on the end results of the learning experience. Although the study is admittedly limited since it does not include processes and contexts, it nonetheless provided a framework for thought on investment options when resources are scarce. The following questions are considered: (i) duration of pre-service training for teachers, (ii) increased emphasis on in-service training for teachers, (iii) priority to providing school textbooks, (iv) lack of effectiveness of expensive school construction, (v) limited effect of increasing student enrolment figures up to a certain level, (vi) questions on the effectiveness of inspections, (vii) the importance of development programmes for early childhood, (viii) the positive effects of food programmes for students and literacy programmes for parents, and, (ix) doubtful value of repeating classes.

1. INTRODUCTION

1. If you ask a group of education professionals how quality in education can be defined and how to go about improving it, in the vast majority of cases the answer will focus on the means deployed and their increase as the instrument that will achieve the desired improvement. Contrary to this conventional way of seeing the problem, it is now accepted that it is preferable to define quality by referring first and foremost to the results obtained: a high-quality school is one in which i) the average level of achievement of the pupils is high in relation to the learning targets that have been set, and ii) the disparities between pupils' levels of achievement are small. It is probably true that in order to arrive at good performance in these terms it is necessary for the right means to be deployed, but it is certainly a question of means, that is to say means to an end, results, and it is results that enable us to judge how successful the exercise is.

2. The issue of education policy for quality education begins with the link between the means and methods of organizing schooling on one hand and the results obtained on the other. There are naturally a number of underlying issues to be raised in order to identify this link and to make it as smooth and efficient as possible. It is these issues that we will examine in this chapter.

3. In order to address these issues, it should be noted that contradictory opinions are common in the educational community. For example, on the issue of multigrade classes, some argue that learning in young children is very dependent on the direct involvement of the teacher, and the consequence of this is that if the teacher needs to look after two or three different groups of children in succession, each of those groups will, in the last analysis, have no more than a part-time teacher, the suggestion being that this approach must be harmful to children's learning outcomes. That being said, others will argue that children enrolled in school at the same level have a wide range of abilities and teachers teaching at a single level are tempted to use whole-class teaching methods, an approach poorly suited to the pupils' diversity. Given this, the fact that there are several groups in the same class can allow each child to find the group that best fits his or her personal ability to progress in each of the subjects taught, which reduces the risk of having to repeat the year. In addition, it is said that if classes are less like professorial lectures, pupils will work more, either alone or in small groups (doing more application exercises and research work), and the fact that the pupils work more can only be beneficial in terms of what they actually learn. Confronted with these incompatible normative points of view, each of which nevertheless makes convincing appeal to our sense of logic, it is important to have some objective empirical data to hand in order to decide between them, and it should be said that the difficulty discussed here for multigrade classes is one that may be potentially encountered in all aspects of school organisation. If really persuasive progress is to be made, reference to the facts and judgements as to the relevance of different modes of school organisation on the basis firstly of their impact on learning and, secondly, on their cost, forms a benchmark which is essentially sound. It is the approach adopted in the present text.

4. This document consists of three main sections: the first provides the global framework for education policy and examines how issues concerning the quality of the service offered fit into that framework. The second part specifically deals with factors concerning organization of schooling. It studies their impact on students' achievement and their cost, and also examines the options for implementing and combining these factors. Finally, the third section highlights the fact that, although physical and financial resources are important if quality schooling is to be built, more qualitative, pedagogical and management aspects must certainly not be neglected.

2. THE GLOBAL CONTEXT OF EDUCATION POLICY WITH REFERENCE TO QUALITY ISSUES

5. It is clear that the room for maneuver to build a quality primary education system is partly dependent on the public resources mobilized for this level of education. These resources derive from i) the country's wealth (measured by the Gross Domestic Product and by the GDP per capita), ii) the tax-raising powers of the State to levy resources to ensure the overall operation of its services and financing of its collective functions, iii) the budgetary priority allocated by the government to the public funding of its school sector, and iv) the degree of priority allocated to primary education among the different levels of teaching within the education sector.

6. Observing the situation in different African countries reveals that there are significant variations between them for each of the four aspects mentioned above. The tax-raising powers of low-income African countries varied between 8 and 26% in 2000[1], with a tendency for the poorest countries to encounter greater difficulties in collecting taxes (smaller tax base and more limited administrative capacities). Similarly, the priority given to the education sector varies greatly from one country to the next, with the proportion of public revenues allocated to education varying from 10 to 33%. Finally, the countries do not all make identical trade-offs in favor of primary education, with figures between 35 and 66% for six years of schooling. All these variations together mean that the volume of public resources mobilized by the countries for primary education (measured as 6 years of studies) varies significantly between the different countries in sub-Saharan Africa, as shown by the data in table 1 below.

Table 1 Public current expenditure on primary education (% of GDP) in low income, African countries (2000)

Country	% GDP for primary education	Country	% GDP for primary education	Country	% GDP for primary education
Democratic Republic of Congo	0.2	Tanzania	1.1	Uganda	1.7
Central African Republic	0.6	Chad	1.1	Malawi	1.8
Guinea-Bissau	0.7	Ethiopia	1.2	Mauritania	1.8
Republic of Congo	0.8	Burundi	1.3	Niger	1.8
Guinea	0.8	Ghana	1.4	Sierra Leone	1.8
Sudan	0.9	Rwanda	1.4	Togo	1.8
Angola	1.0	Eritrea	1.5	Nigeria	1.9
Mali	1.0	Senegal	1.5	Kenya	2.8
Mozambique	1.0	Benin	1.6	Lesotho	3.2
Zambia	1.0	Burkina Faso	1.6	Zimbabwe	3.3
Cameroon	1.1	Gambia	1.6	**Average**	**1.44**
Madagascar	1.1	Côte d'Ivoire	1.7		

[1] Bruns, B, Mingat, A and R. Rakotomalala: Achieving Universal Primary Education by 2015: A chance for Every Child; World Bank, 2003

7. This table calls for two types of commentary:

- We can clearly see that mobilization of financial resources varies widely from one country to another, with some figures three times others, even if we exclude countries in the most extreme situations. It is therefore clear that the choices in terms of the quality of the services offered are fundamentally linked to the financial contexts, which are very different from one country to the next.
- If we now look at the figures themselves and not the differences between countries, it is useful to reconcile the figures in table 1 with the reference to the order of magnitude of 2% assessed as desirable in the analyses carried out within the framework of preparation of the "Fast-Track" initiative. Even if this reference can be considered as indicative only, it does nonetheless suggest that the majority of the countries in question are in a situation where primary education is more or less severely under-funded. This situation has known consequences in terms of coverage of education systems in the sense that the average achievement rate for primary education for the group of countries in question was 46% only in 2000. It also places many countries in a delicate situation as far as quality is concerned, since the resources are often globally inadequate, whereas the pressure for coverage is obviously high.

8. Once the global public resources for primary education have been determined on the basis of the elements examined above, education policy must identify the way in which they are to be employed. At this stage, the issue of the quality of the services provided becomes explicit. Two sequential structural trade-offs are taken into consideration[2]: i) the first trade-off to be made is of a global nature, and determines the balance between the number of children in school and the volume of resources allocated to each of them on average; ii) the second trade-off to be made is more specific, and relates to determining actual methods of organization of schooling (grouping of children, teacher training, etc.) to use the previously determined volume of resources per pupil. This section deals with the first of these decisions, and the second section of this text is devoted more specifically to the second.

9. Concerning the first point, there are certainly trade-offs, because on the one hand it is desirable for the greatest number of children to be able to benefit from education, but on the other hand that the average resources allocated per child should be generous so that as favorable a context for learning as possible is created. In a situation where resources are scarce, these two objectives cannot be perfectly reconciled, and it is the search for a balance between the two goals that is at the core of decisions concerning education policy at this level of analysis. We illustrate this aspect with a numerical example.

10. Let us assume that the population of school age in the country totals 240,000 children, and additionally, let us assume that there are two options for the budget allocated (in advance) to primary education: MU60 million or MU100 million (MU being the monetary unit for the hypothetical country).

[2] These trade-offs are naturally the same for each of the different levels of education

11. Table 2 below looks at the school enrolment (SE) numbers (and school coverage expressed as gross enrolment ratio or GER) as a function of the level of expenditure per pupil (EPP), according to whether the budget (B) for primary education is set at MU60 million or at MU100 million. The relationship means that the more one spends on average for each pupil, the smaller the number of children one can put in school. Since the budget is automatically equal to the product of the two figures, the relationship between coverage and expenditure per pupil is hyperbolic in character:

$$B = SE \times EPP$$

where $$SE = B / EPP$$

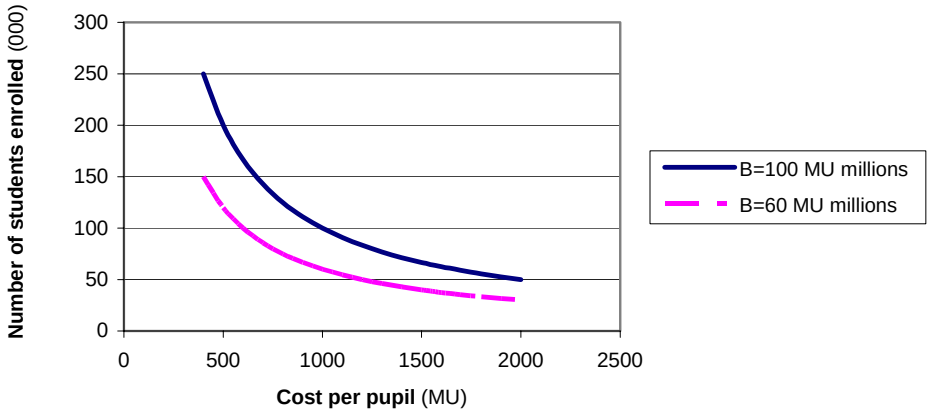
12. In the case of the MU100 million budget, if MU400 is allocated per pupil, 250,000 children can be enrolled, and we obtain a GER of 104 %. If we wish to raise expenditure per pupil to MU600, we have to accept that school enrolment falls to 167,000 children (a GER of 69 %). We also have an option to raise expenditure per pupil to MU1,000, which obviously creates a more comfortable situation for the running of schools and for the children with access to them, but in this case, only 100,000 will be enrolled (GER of 42 %), which leads just as obviously to a situation which penalises a large number of children, who will be deprived of schooling.

Table 2 Numbers of children in school and expenditure per pupil as a function of budget constraints

Population of school age (thousands)	240,0														
Primary education budget (MU millions)	100,0														
Expenditure per pupil (MU)	400	500	600	700	800	900	1 000	1 100	1 200	1 300	1 400	1 500	1 600	1 800	2 000
School enrolment (thousands)t	250,0	200,0	166,7	142,9	125,0	111,1	100,0	90,9	83,3	76,9	71,4	66,7	62,5	55,6	50,0
Gross Enrolment Ratio (%)	104,2	83,3	69,4	59,5	52,1	46,3	41,7	37,9	34,7	32,1	29,8	27,8	26,0	23,1	20,8
Primary education budget (MU millions)	60,0														
Expenditure per pupil (MU)	400	500	600	700	800	900	1 000	1 100	1 200	1 300	1 400	1 500	1 600	1 800	2 000
School enrolment (thousands)	150,0	120,0	100,0	85,7	75,0	66,7	60,0	54,5	50,0	46,2	42,9	40,0	37,5	33,3	30,0
Gross Enrolment Ratio (%)	62,5	50,0	41,7	35,7	31,3	27,8	25,0	22,7	20,8	19,2	17,9	16,7	15,6	13,9	12,5

13. The figures in table 2 are expressed visually in graph 1, in which it is easy to see the inversely proportional relationship between the two parameters. The graph also includes information on the two levels of budget constraint, MU60 million and MU100 million. Of course, if the budget is MU100 million it will be possible to enrol more children in school at the same level of expenditure per pupil, or the same number can be enrolled in better conditions.

Graph 1 Number of students enrolled and cost per pupil according to budget



14. In reality, we observe that different African countries do not make the same trade-offs between the coverage of the services offered to their young populations and the resources that they mobilize on average for each child in school. This is true for all levels of education. It is true for the primary sector, where there are extremely large differences in expenditure per pupil (between 6 and 35% of GDP per capita) between countries, and we observe that it is indeed the countries with the highest expenditure per pupil that also have the lowest quantitative coverage on average for their system. This is also the case, however, for higher education, where many African countries, subject to budgetary constraints, allowed objectives to increase significantly during the 1990s by lowering the quality of the services offered in parallel.

15. Once the global trade-off between the coverage of the system and the resources per pupil has been determined, the question is to determine how these unit resources will actually be used.

3. ORGANIZATIONAL FACTORS: IMPACTS, PRIORITIES AND OPTIMUM COMBINATIONS

3.1. Identifying the choices to be made

16. A basic observation, at this level of analysis, is that for a given level of expenditure per pupil, there are a number of possible breakdowns between the various factors that characterize the actual organization of the education services offered. To illustrate this point, we will continue with the figures from the previous example.

17. If we provisionally select an expenditure level per pupil, of 500 MU, for example, we can demonstrate that within this unit expenditure, we can organize the educational services in many very different ways by combing the use of more or less well-trained teachers, bigger or smaller class sizes and a larger or smaller amount reserved for costs other than teachers' compensation. The table below suggests a small number of these possible combinations. The factors analyzed here are the teachers [3 categories, A, B and C with respective annual compensation of 12,000, 16,000 and 24,000 MU], the expenses other than teachers' compensation varying between 50 and 300 MU; the class size is determined once the two other parameters are defined and the unit expenditure has been set.

Table 3 Teacher category, current resources excluding teacher compensation and class size for expenditure per pupil of 500 MU (hypothetical country)

Average expenditure per pupil (MU)		500		
Teacher category		A	B	C
Teacher's annual salary (MU)		12 000	16 000	24 000
Expenditure per pupil other than for teachers' compensation (MU)	50	26,7 **(1)**	35,.6	53,3 **(2)**
	100	30,0	40,0	60,0
	200	40,0	53,3 **(4)**	80,00 **(3)**
	300	60,0	80,0	120,0

18. We see how these choices can vary: in case (1), the class size is at an attractive level (26.7 pupils) but the teachers used are from the least-qualified category (A) and the current costs excluding the teacher's salary are minimal; we may thus wish to use well-qualified teachers (category C) but in that case we must accept (situation 2 in the table) that class sizes increase to 53 pupils; at this point, we will probably regret that expenditure outside of the teachers' salaries remains so low (50 MU per pupil); we will then consider situation (3), where the teachers are well-qualified and the operational resources are adequate, but in that case we need an average of 80 pupils per class. If we decide that this figure is too high, we have the option of using category B rather than category C teachers, which brings us to case (4), where class size is reduced to 53 pupils.

19. It should be stressed that the possible options do not stop there, as the “other expenses” item also has to be broken down into several components: text books, pedagogical material, ongoing training for teachers, assessment of pupils, pedagogical

support for teachers and administration. If we assume we plan to assign 100 MU to the global "other expenses" heading; we can reach this figure by allocating very little to text books and pedagogical support, none to ongoing training or assessment of pupils and a lot to administration; but we can also distribute this amount in a completely different way. All these options are available; they are equivalent in terms of expenditure per pupil, but they are probably not so from the point of view of the actual quality of the services provided. The main task is thus to identify the most efficient combinations in the sense that they enable us to obtain the highest level of pupil achievement for the same level of expenditure per pupil.

20. This presupposes that we have at our disposal what the economists call a school production function, i.e. a function that links the way the different aspects of school are organized with the level of pupils' achievement. Work has been carried out to estimate this function in a significant number of African countries, either within the framework of international measures (in particular the PASEC-Confemen for the French-speaking countries, the SACMEQ for Southern African countries and Unesco's MLA for a certain number of developing countries[3]), or within the framework of specific projects carried out autonomously in a given country. Before dealing with this point in detail, let us examine how the different African countries are positioned based on the results obtained by pupils.

3.2. The levels of quality of African education systems based on their results

21. The results obtained by education systems can be approached on one hand using direct measurements of pupils' achievement while they are still within the school framework, and on the other via measurements of the reading abilities of adults who benefited from schooling when they were young. Let us rapidly examine the information available on these two aspects of the results.

22. Concerning the measurement of pupils' achievement, empirical measurements have been performed in several contexts (MLA, PASEC and SACMEQ), but they are not directly comparable; nonetheless, since there are some countries for which we have both an MLA assessment and either a PASEC or SACMEQ assessment, we can readjust all the existing measurements to fit them onto a single scale (that of the MLA) thus ensuring a reasonable comparison between the average scores of pupils in a fairly large number of countries. Table 4 below presents the estimations carried out using this procedure.

[3] PASEC: Programme d'Analyse des Systèmes Educatif de la Confemen (CONFEMEN Education Systems Analysis Program); SACMEQ: Southern African Consortium for Monitoring Educational Quality; MLA: Monitoring Learning Achievement. All these calculations were carried out after 1995.

Table 4 Estimated average score of pupils' achievement in a sample of African countries[4]

Country	MLA Equivalent level of achievement	Country	MLA Equivalent level of achievement
South Africa	49,6	Mauritius	64,1
Botswana	51,7	Namibia	48,1
Burkina Faso	52,7	Niger	40,8
Cameroon	60,0	Uganda	58,0
Côte-d'Ivoire	51,3	Senegal	42,5
Gambia	40,4	Togo	52,1
Guinea	51,6	Zanzibar	41,7
Kenya	68,8	Zambia	43,3
Madagascar	58,4	Zimbabwe	57,7
Malawi	48,5	**Average**	**51,6**
Mali	50,8		

23. The data in this table once more highlights the huge variations between the countries in sub-Saharan Africa, with the average success rate varying from 40 to 69%. The best scores within this sample of countries were recorded in Kenya, Mauritius and Cameroon, and the lowest scores were recorded in Senegal, Zambia, Gambia and Niger. The average figure of 51.6% indicates that pupils acquire on average only approximately half of the target content. We do not possess comparative data that is both recent and wide-ranging that would enable us to situate the achievement of pupils in sub-Saharan Africa in a global context. Recently, we know that, on the same scale, Morocco scores 63 and Tunisia scores 71. This suggests that the performance of African countries is likely to be relatively modest in comparative terms.

24. Using a broader range of comparative data, which is older (71 countries worldwide around 1990), Mingat and Suchaut (2000) noted that the African countries had much lower scores than OECD and Eastern European countries, and also lower scores, though with less of a gap, than Asian and Latin American countries. However, when the level of economic development was taken into account in the analysis, we drew the conclusion that African countries' performances were comparable to those of Latin American and Asian countries in this area. There is therefore no cause for particular pessimism concerning the average situation of pupils' achievement on the continent. In fact, the fact that the performances of African countries are so different from one country to the next gives us reason to be optimistic concerning the possibilities for improvements in the situation in many countries.

25. Another way of assessing school results is to target the literacy levels of adults who attended school when they were young. We should expect a primary education cycle to enable those who attended to at least be literate in the long-term. There is not abundant data available, but what there is is worth examining. Table 5 and graph 2 associated with it summarize the available observations[5].

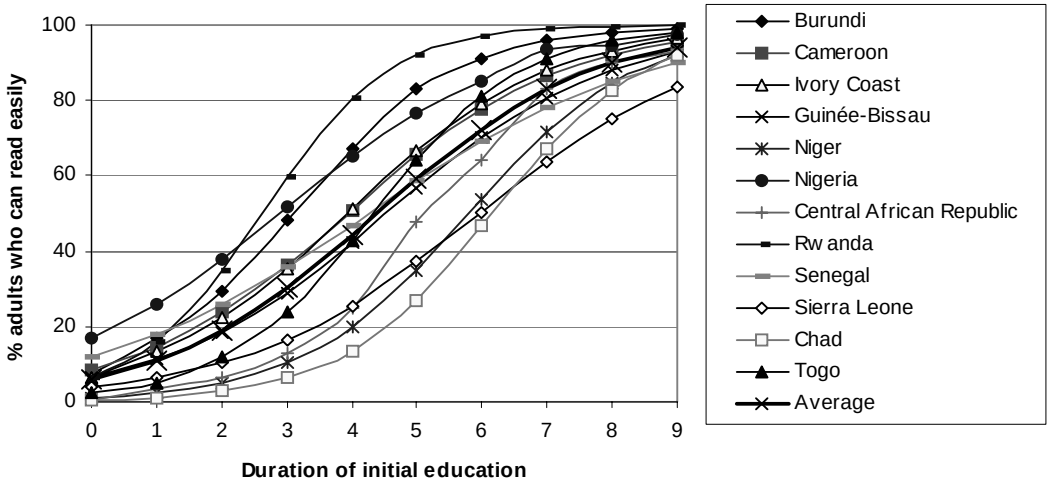
[4] The sample also includes Nigeria (MLA survey); the score has not been included in the table due to doubts as to the validity of the figure for this country.

[5] A. Mingat: How many years of schooling to ensure retention of literacy in the countries of sub-Saharan Africa? PSAST/AFTHD, to be published, 2003. The data is taken from Unicef's various MICS surveys.

Table 5 % of adults (22-44 ans) who can read easily according to the duration of their initial education

Country	Duration of initial education						
	No school	2 years	3 years	4 years	5 years	6 years	8 years
Burundi	7,5	29,4	48,1	67,2	83,1	91,1	98,2
Cameroon	8,5	23,7	36,2	50,9	65,5	77,7	92,1
Côte-d'Ivoire	6,5	22,4	35,5	51,2	66,6	79,2	93,2
Guinea-Bissau	6,6	18,5	28,8	42,4	56,6	70,3	87,9
Niger	1,1	5,0	10,2	19,7	34,8	53,6	84,5
Nigeria	16,7	37,9	51,5	65.0	76,4	84,9	94,5
Central African Republic	0,5	6,5	13,0	25,0	48,0	64,0	90,0
Rwanda	6,3	34,7	59,9	80,6	92,0	97,0	99,6
Senegal	12,1	25,9	35,8	46,9	58,5	69,1	84,9
Sierra Leone	3,8	10,4	16,6	25,5	37,1	50,3	75,0
Chad	0,5	2,8	6,3	13,6	27,1	46,6	82,8
Togo	2,4	12,0	24,0	43,0	64,0	81,0	96,0
Average	**6,0**	**19,1**	**30,5**	**44,3**	**59,1**	**72,1**	**89,9**

Graph 2 % of adults who can read easily according to the duration of their initial education



26. The data presented above concerns those who attended primary school as it operated in the 1980s in that the data covers literacy in adults whose average age is a little over 30. There are both notable similarities between the different countries and quite substantial differences:

- Similarities include the general shape of the curve which is globally logistic with i) very low proportions (approximately 6%) of adults able to read easily without ever having attended school, ii) numbers that increase as the number of years of education completed increase (on average 30% after three years, 59% after 5 years then iii) a

progressive saturation and an extremely high proportion of adults who can read easily if they benefited from 8 or more years of education in their youth.

- As far as the disparities between countries are concerned, the figures are very different from one country to the next when it comes to the proportion of adults able to read easily after initial education of similar lengths of time. For example, with 5 years of education completed, 92% of adults can read easily in Rwanda, 83% in Burundi, approximately 65% in Cameroon, Côte-d'Ivoire and Togo, compared with only 35% in Niger and 27% in Chad. These are considerable differences. It is also interesting to note that this proportion of adults who are able to read easily after 5 years of education completed (observed in 2000, but a result of how primary schools functioned in the 1980s) shows a positive correlation (ñ=+0.66) with the achievement score of pupils in primary school in around 2000. It does therefore seem that retention of literacy in adulthood is related to the quality of the education they received.

27. In sum, by grouping together these two observations, we can clearly see that, although time spent in school is a fundamental ingredient for learning (which should encourage some countries to increase this time), we can also see that the productivity of the time spent can vary greatly depending on how efficiently it is used. These two elements are, for the most part, controlled by the country's education policies.

28. After these general observations concerning the quality of primary schools in sub-Saharan Africa, let us examine which factors related to the organization of studies have an impact on the results obtained.

3.3. Identification of factors related to the organization of schooling that influence pupils' achievement and elements to identify priorities for action

29. This section covers two related topics: i) the first objective of this section consists of mobilizing the results of studies assessing pupils' achievement, not for the measurements themselves, but to identify the impact that organizational factors have on these measurements. It is through explicit and empirical references to the results obtained that we can make a useful contribution to the methods of organizing schooling; ii) the second objective of this section is to determine how far the impacts observed of each of these organizational methods are commensurate with the resources they involve. In a context of scarcity of resources, the fact that an element has a positive impact is not enough for it to be selected; the impact has to be sufficient taking into account the resources that it mobilizes. In a way, the starting point is not the impact of different factors, it is the resources, with reasoning as follows: taking into account the volume of resources per pupil identified, what breakdown of the different factors leads to maximum pupil achievement?

30. In this context, it is the effectiveness of an additional monetary unit invested in a factor, compared with that of its alternative use for another factor, which is the rule that defines the priorities and enables optimum organization of schooling to be achieved in a given environment. Without wanting to go into unnecessarily complex issues of methodology, two essential aspects are worthy of mention:

a) The first aspect is that it is not relevant to seek global generic impacts; **a marginalist perspective should be adopted** when examining the issues of the impact and use of resources for a given factor. For example, the question is not whether or not teachers need training to do their jobs satisfactorily; we already know this is case. We know that recruiting illiterate teachers is not an option; but this does not mean we should

assume that recruiting the teachers with the most qualifications is the best solution. Indeed, it is probable that, although teachers are globally more effective in terms of student achievement if they themselves have a higher level of education, there may be a point where pupils at a given level of education will not particularly benefit from having better qualified teachers, whereas the budgetary costs will rise rapidly. There is therefore an optimum level of education for teachers, taking into account the impacts and marginal costs. The definition of this optimum level is essentially determined by the fact that there is a point where the additional resources, instead of being allocated to a given factor (here the recruitment of better qualified teachers) would be better employed (would have a greater impact on pupil achievement) if they were allocated to the additional funding of other factors (text books, pupil assessment, pedagogical support for teachers, etc.).

b) The second aspect its that, of course, an empirical stance must be adopted, and decisions based on fact rather than unfounded or unverified opinion, but we must **remain lucid** concerning such opinions. In fact, in a study that measures the impact of factor X on pupil achievement, we are assessing both the validity of the concept on which factor X is based and the particular way in which the concept was implemented in the specific case being examined. If we take the generic concept of ongoing teacher training, we know that it can be applied in very different ways (depending on content and methods), while it is possible that some of these methods are satisfactory (cost-effective) and others are not. In these conditions it would not be prudent to conclude, for a given country, that the concept of ongoing teacher training is unnecessary because an empirical study showed that the formula implied substantial costs for little or no impact on student achievement. Examining the results of various empirical studies involving different implementation methods (possibly conducted by different countries) is thus a desirable practice.

31. Let us now look at an important element of this chapter, i.e. identifying the factors (and the conditions of their implementation) that should be given priority to maximize the quality of educational services for primary education in a situation of financial constraints.

32. This is a vast topic, and it will obviously not be possible to do it justice, with all possible details from all the literature and lessons learned from international experience on this point. We will therefore be selective and attempt to highlight the essential elements without resorting to caricature. To facilitate their presentation, we have separated on the one hand the factors that directly concern the classroom context and on the other hand those related to the surrounding environment. We will examine these two groups of factors successively, limiting ourselves to the aspects we consider are essential.

3.3.1. The factors characterizing the classroom context

33. We will cover the following five points: i) the teachers (education and training, gender and compensation); ii) the groups of pupils (class size, double shift system and multiple-level classes); iii) text books and pedagogical material; iv) the physical environment (buildings and equipment); and the time spent in school (scheduled and actual time, flexibility).

The teachers

34. Concerning the quality of the service offered, there are four complementary aspects related to the teachers that appear important to take into consideration: academic level, vocational training, gender and compensation.

- **Academic training**. As noted above, it is important for teachers to have good academic training that enables them to fully master the content of the teaching they are to transmit to the pupils. The results of numerous empirical studies on this point, including the most recent ones, converge to identify a minimum desirable level of education of around 10-11 years of general education for primary school teachers (observations from Cameroon, Côte-d'Ivoire, Senegal, Togo, Mozambique, etc.). Above this level, the gains for the pupils are small or non-existent. We may of course think that it should not be a problem to employ teachers with better qualifications, reasoning that it is preferable to have teachers with a good academic level rather than those with just the minimum requirements ("Who can do a big thing can do a lesser one"). If we looked at the impact only, this would evidently not pose a problem. Whereas 10 years of general education corresponds approximately to the certificate of the first cycle of secondary education, we could, for example, as a certain number of countries do, use primary school teachers with 13 years of general education, which corresponds to the certificate of the second cycle of secondary education (high school leaving certificate)[6]. Observations carried out in African countries suggest that the difference in compensation between teachers who have completed 10 or 13 years of education is between 25 and 40% (sometimes more, in certain cases such as Mozambique, for example). We thus see the considerable cost for the system if recruitment targets teachers with a higher level than that which is functionally necessary[7], because there are of course alternative uses for these funds whose impact on achievement is proven and whose funding is limited. Clearly, going beyond that which is functionally necessary would correspond to a non cost-effective use of public resources.
- **Professional teacher training**. Two complementary aspects are generally considered, pre-service training (just before and at the start of the teacher's career), and ongoing training during their career.
    - When we observe ***the initial training of primary school teachers*** we also see that extremely varied situations exist between the different countries on the continent and even within countries where different formulas often coexist. We also observe clear variations in terms of duration, content and methods. For example, the length of training varies from very short periods, particularly for new categories of teacher (temporary teachers, contract teachers, voluntary teachers, "parent teachers") to pre-service training of up to three years; in addition, the training may offer, in varying proportions, content of a pedagogical nature (but there is general content and more directly professional content concerning handling a class) and general content related to the discipline to be taught. All these different activities fall under the generic header of "pre-service teacher training". A certain number of empirical studies have been performed that offer assessments of the impact of pre-service teacher training on pupils' achievement, but it is regretful that they are inadequately placed in context to enable separation of

[6] For French-speaking countries, 10 years of general education typically corresponds to the category of "assistant primary school teacher" whereas 13 years of general education corresponds to the category of "primary school teacher".

[7] This observation determines the category of teachers it would be desirable to recruit and the associated level of compensation. We thus set the minimum academic level for recruitment without preventing more qualified people from applying.

the concept of pre-service training from the particular way in which the actual activities are implemented. Appraisal of these results suggests that long training periods are probably not necessary if the training proposed is truly focused on the actual act of teaching, handling a class and organizing the teachers' work (preparing lessons, diversified planning of time and learning activities, organization of pupil assessment to adjust the way the class is run, etc.) The recent assessments conducted by the PASEC in Togo and Guinea back up this appraisal by underlining i) that an absence of pre-service professional training is not a good option, and ii) that professional training of a few months (probably 4 to 6 months) accompanied by support for the teacher during the year they begin is as good an option as a long pre-service training period[8] (2 years or more). Since short training is characterized by lower costs and a better capacity to produce the number of teachers necessary for EFA, it is quite clearly more cost-effective to operate this way.

- ***Ongoing teacher training*** is strongly supported by education experts. It is underlined that teachers become trained, to a large degree, by teaching and building their professional skills through the conscientized and instrumented performance of their tasks. This task is not, however, spontaneous; it is greatly facilitated if the teacher is not left alone in this exercise. This is true in particular because outside technical contributions can provide precious help, because it is important for teachers to share experiences and also because it is not easy for an individual to mobilize their energy alone to conscientize their practices.

35. Once again, what is developed under the heading “ongoing training” for primary school teachers may correspond to activities that differ considerably: at one end of the scale, this may mean standard subject-based training enabling primary school teachers to prepare for the competitive examination to teach in secondary schools; at the other end of the scale, we may find teachers who work together with an inspector or a pedagogical advisor to structure their teaching in a concrete manner and deal with difficulties encountered in the class room (we will classify this pedagogical support for teachers as an aspect of their ongoing training). In between the extremes, training may aim to introduce new curriculum content or new textbooks. In these conditions, and in particular due to the fact that empirical assessments of ongoing teacher training are not generally placed in context, it is not surprising that it is difficult to reach an unambiguous conclusion concerning their impact, and in the same way, to identify the most relevant formulas. It does not, however, appear imprudent to suggest that i) ongoing training can have an impact, probably a significant impact, on the quality of education services offered and ii) that, again, the targeting of how classes function and the actual activities the teachers are exposed to is what should be targeted.[9]

36. The issue of ***the balance between initial and ongoing training*** in the overall teacher training strategy is also worthy of examination. Taking into account the observations made above, it appears that a formula combining a short pre-service training period targeting how to handle a class with support organized during the first year of teaching and regular and structured ongoing training concerning actual class management issues could be a relevant formula with a view to the quality of education services. For many countries, this could bring a new balance, where the resources for initial training would be reduced but those for ongoing training increased. This formula could also lead

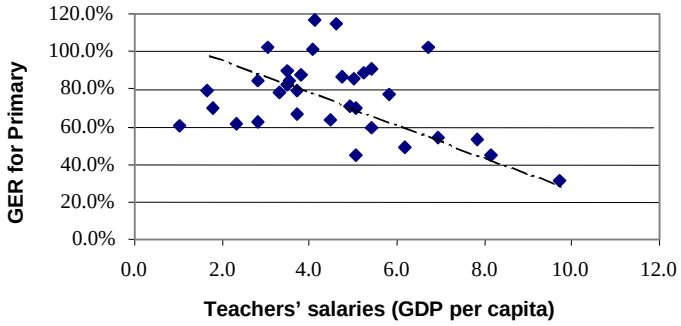
[8] This result was not, however, foreseen by the pedagogical milieu in Guinea, which had predicted that the new FIMG low-cost training would lower the quality of schooling.

[9] The empirical observations are not of particular help in supporting this appraisal.

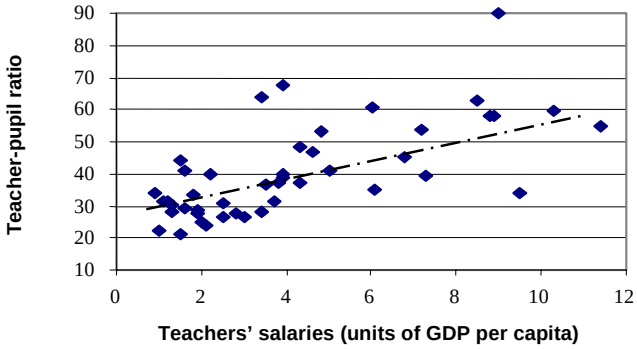
to positive cost-related aspects. Indeed, we note that salary grids are often indexed on the initial training received, although long initial training periods are probably not very efficient. Recruiting teachers in a "lesser" category gives greater financial room for maneuver to improve quality elsewhere, in particular by facilitating the funding of ongoing training and creating the space for a positive incentive structure for career development.

- **The teacher's gender**. Teachers can, of course, be men or women. We observe that the proportion of women in primary education varies greatly from one country to another within sub-Saharan Africa (between 7% and 60%); we also observe that this proportion is significantly higher in English-speaking countries (approximately 45%) than in French-speaking countries (29%), whereas more than half of teachers are women in low-income countries in Asia and more than three-quarters in Latin America. The departments that manage teaching staff sometimes complain of the difficulties they encounter with women teachers (difficulties assigning them to rural areas, difficult to replace them during maternity leave). And yet, the results of empirical studies, both international comparisons including large numbers of countries and national studies on individual data (analysis performed on a sample of 9 African countries), demonstrate two things with no ambiguity whatsoever: i) the first is that there are no systematic differences according to whether the teacher is a man or a woman; and ii) the second is that retention during the primary education cycle is significantly higher for girls when the teacher is a woman rather than a man (or the proportion of women among the teaching staff is higher, as far as the international comparisons are concerned). We are thus led to believe that despite possible "logistical management" difficulties that have to be dealt with, the recruitment of teaching staff with a gender balance is probably a desirable policy, as it does not imply any notable costs and offers proven advantages.
- **The issue of teachers' compensation**. This issue is delicate and difficult; and yet it has to be dealt with if we are to look at the quality of the educational services actually offered. What are the principles and what are the empirical observations? The principles are doubtless quite simple (without necessarily being easy to implement): they should be sufficiently well paid to make it possible to recruit and retain adequately qualified teachers who will be happy with their profession; the conditions of the local employment market are an important reference in this respect. If the teachers are too poorly paid, a number of disadvantages are noted: i) it can be difficult to recruit the people needed in terms of quality and quantity; ii) high staff turnover may result, which is not desirable as a stable teaching body consisting of individuals who build their professional capacities over time is required; iii) in addition, teachers who are underpaid may be led to perform another activity and allocate less time to their teaching job; iv) finally, teachers who are underpaid may impose (illegally or in a disguised fashion) school fees on the parents of children in their charge. There are also major disadvantages inherent in setting pay levels too high. Indeed, setting salaries too high compared with the equilibrium wage of the national employment market, although it facilitates recruitment and retention of teachers, has the consequence either that the government budget will not permit recruitment of the number of teachers needed to develop the system (graph 3) or will lead the ministry to let the teaching conditions deteriorate, either in terms of upward pressure on class sizes (graph 4) or making non-wage resources, useful in ensuring quality of service, scarcer.

Graph 3 Relationship between teachers' salaries and the gross enrollment rate



Graph 4 Teachers' salaries and pupil/teacher ratio in primary schools



37. Based on this discussion, we can see that it is not easy to identify the balance point between compensation that is too low and that which is too high. This issue must obviously be dealt with according to the national context (Lesotho is not in the same situation as Benin, for example). It can however be useful to note some international benchmarks. In 2000, the average salary of primary school teachers in low-income African countries varied between 1.5 and 9.6 times the GDP per capita (the average was 4.4 times the GDP per capita). The countries that performed best in terms of primary school achievement had average teacher salary values of 3.6. Eleven of the 33 low-income African countries have an average level of teacher compensation below this value, and 22 countries have a value higher than this reference. The figure of 3.5 times per capita GDP has been chosen as the benchmark value for the remuneration of teachers in primary education in the indicative framework for the "Fast-Track" initiative.

Grouping of students

38. There are three factors taken into consideration for grouping of children: class sizes, double shift organization, and multiple level organization.

- **Class sizes**. In the course of the first few years of school, there is a very broad consensus in favor of having the children taught by a generalist teacher who covers all of the subject matter in the program. This is justified by the fact that i) the content of the disciplines is simple and can be reasonably managed by an individual teacher, and ii) that the environment is more favorable for the students when there is a single teacher who knows them well and takes care of all of their needs. There is also agreement that, for higher education, the teachers should be specialized due to the specific nature of instruction and to the need for student autonomy. The question concerns the most suitable moment for switching from one to the other, and how gradual a transition should be planned. It appears that for the first six or seven years of education, the single generalist teacher is the most appropriate, due to i) the often significantly higher cost of specialized teachers who frequently belong to a category with higher pay levels and more limited working hours, and ii) the unconfirmed benefits of this formula in terms student achievement. Furthermore, the use of specialized teachers means that schools have to be big, which imposes its own set of problems at the primary level in rural areas.

  More specifically, regarding class sizes, the question is also loaded and often highly polemical. First of all, it should be pointed out that it is an important question, because the average unit cost is directly dependent on the numeric value for the average class size. A formula with a class size of 60 students per class costs barely more than half of one with only 30 students per class. So there are considerable savings to be found in organizing schools into classes that include more students (and therefore leave plenty of room for maneuver concerning expenses other than those related to teacher compensation, or even for increasing this compensation[10]) or, symmetrically, very high additional costs for reducing the average number of students per class. Teachers always emphasize the fact that it is easier and better for the students to have smaller class sizes (the argument being that discipline is easier to manage and that the teachers can do a better job of diversifying their lessons according to the diverse capacities of their students). Empirical analyses based on student evaluation surveys (standardized testing) or on the success rates at national exams, for the African context, show surprising convergence in demonstrating that the impact of class size for a range, say from 30 to 60 students (there are probably no plans for classes of 15 students – financially unfeasible – or for classes of 100 students – hard to manage and often physically incompatible with the existing classroom sizes) is relatively modest. In view of these conditions, it no doubt seems preferable not to reduce the average size of classes below 45 to 50 students[11] unless the other factors in operating the school are considered as satisfactory. For many countries (though not all), reducing the average class size is probably not a first priority.

[10] We note that Korea, like other Asian countries that have extremely high-performance education systems, has opted (even today although their level of development is much higher than 30 years ago) for a formula characterized by quite large class sizes (50-55 pupils) and relatively high teacher salaries.

[11] Above and beyond the management of class sizes, countries have to manage possible dispersion. We know that in the current situation this is often not satisfactory (disparities between allocation of personnel to the different regions or provinces, between urban and rural areas and ultimately between schools) and progress has to be achieved in this area in the great majority of countries in sub-Saharan Africa.

- **Double shift organization**. The purpose of this organization is to get around the limited number of places available in densely populated urban areas. In order to avoid either classes that would contain 120 students (beyond the physical capacities of the existing structures and the concrete possibilities of running a class in a satisfactory way) or refusing to enroll a certain proportion of children, classes were organized to take in one group of students in the morning and another in the afternoon, with an attempt to maintain an acceptable number in each shift. A variety of measures were taken in order to put this formula into actual practice, with recourse to one or two teachers and with more or less reduction of classroom times in comparison with the standard organization.

  Assessment of results in terms of quality generally show a loss in the students' learning levels due to the reduced amount of time in school (effective school time is often reduced by about one-third); this loss does not seem to have very significant consequences during the first two or three years of school, but may become substantial thereafter. Evaluations in terms of gains in educational coverage are also not very good; indeed, if the formula uses two teachers (effectively creating two schools in one building) there is no gain in operating expenses and only an improvement in the use of capital. If the formula uses just one teacher for both shifts, the gain is often illusory because the class size of each shift is then reduced (which reduces the quantitative impact of the formula) while the bonus paid to the teachers for handling two shifts (obviously well-deserved) often ends up eating into the benefits of the formula as far as plans for reducing unit costs go, and therefore into the plan's capacity for leading to the largest number of students enrolled within a fixed budget. On the whole, with losses (small or substantial, depending on the class where the formula is used) in student learning and few or no gains in terms of qualitative coverage, the plan should no doubt be used with discernment. It should be closely analyzed for its advantages (especially the optimized use of infrastructures) and disadvantages before any commitment is made, with the understanding that rigorous assessment will be needed after the fact if the formula is implemented, in order to verify the balance of its advantages and disadvantages.

- **Multiple level organization**. This formula consists of combining, under the same roof and under the authority of the same teacher, the students belonging to several (two or more) classes of the primary cycle. While the preceding formula was devised for the densely populated urban setting, this one is aimed at rural settings with a low population density. In this context, the number of children who need to be enrolled locally is low, and unless one combines all of the children from a very large geographical area (imposing on some a distance to school that constitutes a deterrent to enrollment, especially for girls), the schools can have a very low enrollment. According to standard pedagogical organization, the number of students per class would then be very low, resulting in very high unit costs. In practice, it has often been observed, and not always just anecdotally, that all of the classes of a cycle are not offered (Mauritania, Mozambique, Benin, and Burkina Faso) and that this of course has very negative consequences on retention of the students until the end of the primary cycle (although it is known that this is essential for literacy to be retained later on). If the educational cycle is six years, grouping the students into two or three levels within three or two classrooms (headed by two or three teachers for the school) is a formula that makes it possible to provide complete enrollment at reasonable cost in schools that are nearby for the children.

  The question then becomes one of quality of service. Assessments of this point show rather varied results, with the formula showing up as very negative in one place, while it turns out to be very positive in another. The reason is that it can be implemented in very different ways. At one extreme, there is the case of countries like Nepal or Madagascar, where the formula used is that of sequential organization

of teaching; a teacher in charge of the students for the first three years takes the first year students, for example, from 8 a.m. to 10 a.m., those of the second year from 10 a.m. to noon, and those of the third year from 3 p.m. to 5 p.m. (when they are not with the teacher, the children are sent home). This formula produces very negative results because it effectively amounts to a drastic reduction in classroom time, which is known to be very important for learning. At the other extreme, the formula can be implemented in a very organized way. While the teacher works with one group of students, the students of another group work, alone or in teams, on practical exercises or research. Then they are rotated and the teacher works directly with the group that was doing exercises before, having given work to the other group of students that he or she has just finished teaching directly. Some teaching sequences may be followed by both groups. The teacher has been trained to manage this formula and has a set of practical exercises and work to assign to the students who, in turn, have special notebooks for these activities. Under these circumstances, the evaluation results show that the formula is superior to the standard formula (the students work more, and more didactic variability is observed).

We therefore have a case of a good concept but conditions of application12 that may be highly varied, and it is those conditions that are the key to success or failure of the formula from a qualitative standpoint. To the extent that the road that remains to be traveled by the countries aiming towards universal primary education is very much a "country road" (a large majority of the children who currently do not have a complete primary education is rural), the multiple level classroom formula should no doubt be subject to i) a decision on the part of a large number of education ministers in sub-Saharan Africa regarding its suitability, and ii) setting up the formula in ways that render it positive in practice for the students.

Textbooks and pedagogical materials

39. In general, empirical studies concur in highlighting textbooks as the element with the best cost-effectiveness ratio for improving learning. Beyond this general observation, there are nevertheless some qualifying remarks to be made. These concern the number of titles that should be involved, the role of student workbooks and teachers' manuals, the proportion of students who should have textbooks and the issue of textbook prices.

40. School programs always cover a relatively large number of disciplines or subjects, and there is still a tendency to hope that all of the subjects will be covered by the textbook policy. In this case, the cost of textbooks risks running into proportions that may not be readily manageable. Under the circumstances, it is usually necessary to define priorities. Regarding the number of publications, it appears that the number should be different depending on whether one is considering the first years of school (where the reading primer is the book with the strongest impact and the impact of textbooks for other subject matter is questionable) or the more advanced classes (where three or four textbooks are probably justified, but probably not eight). Empirical observations suggest that a student math textbook has little impact, but a workbook is probably crucial; on the other hand, the teacher's manual is very important. For the sciences, the textbook for students appears to be important, particularly since the teacher cannot usually illustrate the teaching content in any other way (illustrations, diagrams, etc.). More generally speaking, the teacher's manual is considered to have a substantial positive impact, because it provides a simple, instrumental way of clearly and unambiguously showing them the content of the program that they have to transmit to the students, and it ensures a minimum of homogeneity in the teaching dispensed by teachers with varying characteristics and training backgrounds.

[12] There are of course intermediate situations in between these two extremes.

41. The question regarding the proportion of students who should have textbooks has often been debated. Around 15 years ago it was thought that in situations with scant resources, one textbook for two students would be a reasonable compromise. More recent empirical studies suggest that it is important for all students to have these textbooks. It has been observed that if there are not enough textbooks for all of the students, the teachers tend to use a pedagogical approach in which their own words become the main source of knowledge; in this case, the textbooks only play a complementary role and the benefits are limited to those who possess them. However, when all of the students have the textbooks, the teaching approach can change and the teacher can use the book as support material, both for the lessons and for the students' individual work.

42. As for the price of textbooks, first of all for the students, it has sometimes been claimed that it is important for the parents to purchase the textbook, even at subsidized prices (but we have seen the nefarious effects of this formula) because it is a costly object that must be treated carefully by the students. The limits of this policy have been that all of the students (and particularly those from deprived backgrounds) do not obtain textbooks. Today it is seen as preferable that these textbooks be supplied to the students at no cost. However, the books do cost money, and we have seen that the price of a textbook with given characteristics may vary depending on the formula chosen by the buyer. A generous policy (and it is probably desirable to take this approach) probably requires a lot of vigilance to identify the most economical way to meet the objectives (see in particular Diop, 2002).

School buildings

- There are two basic observations **concerning school buildings** that are important to make: i) we generally observe substantial variability in the types of construction used for classrooms, both between countries and within many of them, from classrooms built with local materials and having a very short lifespan to solid buildings built according to demanding specifications although using traditional materials for all or part of their construction; ii) we also observe different procedures used, from direct implementation by some aid organizations to municipal construction projects, and including formulas where the construction is done by jobbers under the supervision of government technical staff. It is worth noting that while the quality and durability of these formulas is not always comparable, they also correspond to extremely different unit costs for classroom construction (more than 1 to 10), knowing that it is often pointed out that it is more the type of institutional package involved than the type of construction that accounts for these cost differences (see in particular Theunnck, 2002).

  To the extent that, on the one hand, the investment budgets for classroom construction are heavy (and this is so independently of who provides the financing) and where, on the other hand there is so much variability in the unit construction costs, it becomes clearly worthwhile to examine whether there is a differential impact on the results obtained that would be associated with these different methods of building and of commissioning buildings. In the dimension of quality of educational services, as they may be appreciated either by the students' achievements according to standardized tests or by the results obtained at national exams, the characteristics of the classroom (as soon as there is one to receive the students), all of the results tend to show, do not have a significant impact. It is what goes on in the classroom that counts, more than the physical packaging in which the educational services are provided. Under the circumstances, the arguments in terms of priority actions is clearly in favor of a degree of frugality in construction methods and simplification in the methods of implementation. The argument for durability does not necessarily lean towards the choice of the simplest formulas but towards compromises that ensure

acceptable durability and cleanliness with contained costs. Recourse to community type formulas with technical support and essential materials should obviously be considered.13

- Apart from the school building itself, the **furnishings** are important to consider. In the African context, there are notable differences on this point from one country to another, as there are often large differences from one school to another within the same country. The empirical results concerning this aspect are also mitigated. They sometimes suggest a lack of impact (Togo, Ivory Coast) but also sometimes a positive impact of these material conditions for the students in their classrooms (Cameroon). On the whole, one can probably not expect a considerable impact on learning from these furnishings (the students in the BRAC schools in Bangladesh are seated on the ground – albeit in a clean room – and achieve acceptable academic results). It is still true that the cost of these furnishings can be relatively low (in particular by using locally produced items that have at least a ten-year lifespan) and that an equipped room that is clean and orderly helps create a favorable environment for discipline and for learning.

Classroom time

- **The time provided**. We have seen in the analysis of literacy retention that classroom time is unquestionably a crucial factor in learning. This is confirmed by the numerous studies on effective schooling conducted in the developed countries. In the African context, the theoretical teaching time in the course of a year is variable from one country to another, but what probably makes the most difference is the extent of the difference between the theoretical time and the actual time (the latter may be significantly lower than the former). There are many reasons for this: one may consider i) the effective shortening of the school year at both ends and ii) the shortened school hours during the school year.

  Regarding the first point, it is not unusual for the actual beginning of classes for a number of students to be delayed by one or two months because of the late assignment of teachers and the poor monitoring of the actual taking up of their duties; in addition, it is also not rare that classes are effectively suspended a month before the official end of the school year. As a result, the school year may average only seven months out of the nine months it is officially scheduled to last. On the second point, we also observe that the teaching time in the course of the school year may be shortened because of the difficulty in finding replacement teachers, the absence of sanctions for the unjustified absences of some teachers, and the time taken by some teachers simply to go and collect their pay; in some countries, at least 20% of the classroom time is lost in these ways. If one combines the possibility of losing two months at the ends of the school year and that of losing 20% of the time during normal operation, one can arrive at a situation where the effective learning time provided amounts to barely more than 60% of the theoretical time allotted. In terms of quality, the drawbacks are obvious; yet improvements in these problems (undoubtedly occurring in the majority of sub-Saharan African countries, but probably to a varying extent, depending on the country) are more a matter of organization than of cost. Precise evaluations should be conducted in each country on these aspects of school operation in order to i) identify the extent of the problem and ii) identify the measures to be taken to make improvements and then verify that progress in this area has actually been achieved.

[13] Taking into account the high level of involvement of technical and financial partners in construction activities, the message in this paragraph is naturally aimed at them in priority.

- **The time demanded**. A second aspect of classroom time also deserves examination. This is the same question, but from the students' perspective. While it is important for the classroom time to be offered, it is also important that there be a demand for this classroom time so that the students' actual presence at the school will result in the learning intended. But the scheduling in the course of the year and the hours in the school day are not necessarily in line with the ideal, considering the domestic chores expected of the children (participation in farming throughout the year, fetching water throughout the day). Opportunity costs could sometimes be reduced by granting more flexibility for the calendar and the hours (in an organized manner, of course) without changing the theoretical volume of teaching, but increasing the actual volume and consequently the amount of learning and the quality of the school.

3.3.2. Characteristic factors in the educational environment

43. We will examine the three following points: i) the issue of repeated classes (quality, use and retention of resources); ii) acting on the demand (free schooling, school cafeterias); and iii) the role of pre-school education.

The issue of repeated classes

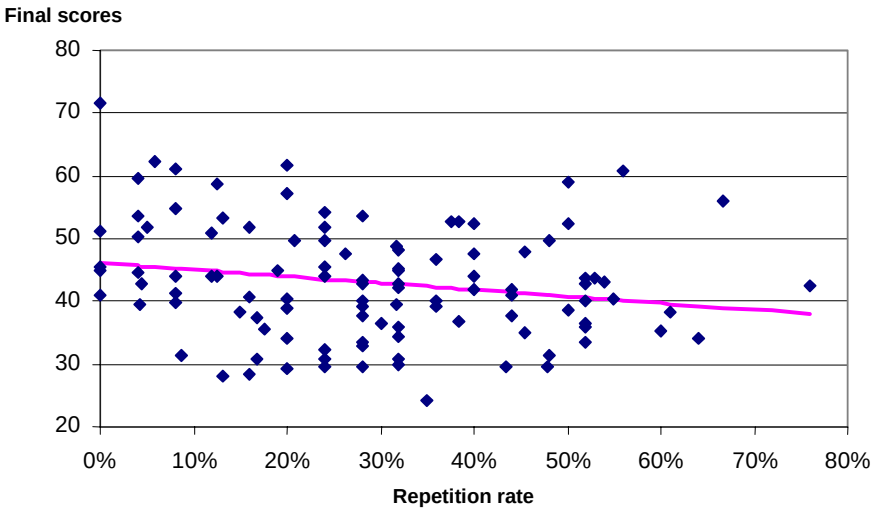
44. The practice of having students repeat classes is highly variable among the sub-Saharan African countries, since the frequency of repetition among enrolled students ranges from 1 to 36%. We also observed that i) on average, it is much more frequent in French-speaking and Portuguese-speaking countries (an average of around 25%) than in the English-speaking countries (an average of around 10%), ii) that the national figures have remained stable over time. There is no question that repetitions incur costs that, all other things being equal, create a burden on budgetary expenditures for primary school of more than 20% in the French-speaking countries. Considering the magnitude of these costs, it is important to examine the extent to which the possible benefits attributed to repetition are commensurate. The argument for maintaining the practice of repetition is that these costs are outweighed by the positive aspects of ensuring the quality of the educational services provided. Let's examine the significance of this claim from three angles: an international comparison, a comparison between the schools within a given country, and between individual students:

- **In an international comparison**, we have figures for several countries on the frequency of repetition (it is highly variable from one country to another) and that of students' average acquisitions (this also varies significantly; see table 4 above). If repetition were actually a means of ensuring quality education, one should expect to see that the average level of student achievement in the countries that are rigorous in this practice (where repetition is frequent) would be better than in the countries that take a more lax approach (low level of repetition). This is not what has been observed; in fact, no correlation has been shown between these two figures. In contrast, the same analyses show that there is a very strong and significant negative relationship between the frequency of repetition and the levels of retention in primary cycle classes: one additional point in repetition implied an average decrease of 0.80 points in the rate of retention.[14] When separate analyses are done for boys and girls, we see that girls are more at risk for the negative consequences of repetition, since the coefficient was 1.05 for girls and 0.55 for boys.

[14] This means that if a country has a 25% repeat rate and a retention rate of 65%, the retention rate could reach 77% [65 + 0.8 (25-15)] if the repeat rate was reduced from 25 to 10%. The reason for this is that, for a family, repeats lead to increased costs (direct and opportunity costs) by one (or several) additional years of study while indicating that the child is not adapted to school and will perhaps not benefit from schooling as expected.

- **At the level of comparison between schools** in a given country, if it is assumed that repetition is a guarantee of quality, one should once again expect the rates of repetition to be lower where the students' average levels are higher. But this is not what we observed, as the data in graph 5 show:

Graph 5 PASEC test results by school, as a function of repeat rates in the class



- **At the individual student level**, we start with the implicit idea that if some students are made to repeat, it is for their own good. It is said that these students who are asked to repeat have not acquired the necessary foundations and that it would be a disservice to them to move them up to the higher class level. To test the empirical significance of this assertion, several studies have conducted longitudinal surveys of students, evaluating i) their levels at the time that the decision is made whether to repeat or move up to the higher class level, and ii) how they progressed later on in their education and learning, depending on whether they actually repeated or not. The results show that repeating does not usually enable students to progress more than they would have if they had been promoted.

45. On the whole, repeating is often seen as a method for managing the diversity among students, but it is twice as costly (due to the fact that two years must be paid for in place of one and to the fact that repetition is often the motive for quitting school early, particularly among girls) without actually delivering any benefits in terms of educational quality. It therefore does not seem that large-scale recourse to repetition constitutes a valid practice from a quality standpoint, either for the system or for the individual students. To continue the argument developed earlier in this text, it is even very harmful, since the method consumes resources that could be more usefully invested in other activities for improving the system in either quantity or quality. This does not mean that one should necessarily aim for reducing repetition rates to zero and promoting automatic passing. But for a number of countries, there is room for a substantial reduction in the repetition rates, which are clearly excessive.[15]

[15] Here we will not cover the possible methods, but among these, it is probably relevant to mention the organization in sub-cycles without repeats within each, as well as support for teachers to better evaluate the progress of their pupils and set up positive management of their diversity.

Taking action on demand

46. To a large extent, the ideas expressed up to this point (with the exception of the point concerning classroom time) have been essentially concerned with the educational offer. We know that this is mainly the domain of educational policies, particularly those targeting the quality aspects of the system. But in order to talk about quality, the students have to be present, since classroom time (both offer and demand), as we have already stressed several times, is an important ingredient of learning. We know that school systems have a natural tendency to grow quantitatively, beginning with the populations that are easiest to enroll (populations in which the demand for schooling is high, in urban settings), then extending their actions into populations that are less easy to include, finally encompassing the most difficult and most vulnerable at a later stage. In the current situation, we observe that those who do not have a complete primary school education are disproportionately the poor, the rural and, to a lesser extent, girls. If the objective of a primary school education for all is to be achieved, it means that these populations must be included. In order to do so, the standard actions for increasing the educational offer are not sufficient[16]; actions targeted on the demand will probably be necessary. Numerous measures and methods of action can be envisaged to meet this end; here, we will only focus on two measures: free schooling and school cafeterias.

- **Free educational services**. In many African countries, parents are expected to contribute to equipping their children with various materials (textbooks, writing instruments, uniforms, etc.) required by the schools for their enrollment, and/or for contributing directly to various types of school expenses, whether legal or not. Surveys of households reveal that these contributions can be substantial (even for public schools) and a large share of them is in monetary form. Even if there is some flexibility at the local level, it is still true that for poor families, the direct costs of educating their children often constitute a difficult obstacle that is resolved by either non-enrollment or by intermittent enrollment, or by leaving school early before the end of primary school, thereby contributing to maintaining the cycle of poverty because these children later become illiterate adults. The point is empirically supported by analyses of the household surveys, but above all it is demonstrated by the countries that have developed a non-paying policy (at least partially) for their educational services. In particular, this was the case in Malawi, Uganda and Cameroon in recent years. So it has been empirically verified that the elasticity of demand for education compared to the price to be paid for the service is significantly negative, especially for the most vulnerable segments of the population. It is probably not fully consistent from one country to another, and it may be useful in many of them to conduct specific analyses to identify the extent of the constraints on achieving universal primary education that may exist on the demand side, and in the area of the costs in particular, then eventually to identify a strategy for targeted action for the populations concerned.
- **School cafeterias**. These exist in a number of countries, particularly (but not only) in connection with the very positive campaigns by the World Food Program. They offer two types of advantage: the first is that they help fight malnutrition. It is a known fact that nearly 30% of children under the age of five, in sub-Saharan Africa as a whole, are significantly underweight. From the point of view of schooling, the fact that the children do not suffer from malnutrition can only be beneficial for their attention and learning capacity, but this is probably not how the schools benefit the most from the cafeterias. They mainly benefit from the fact that when the children receive food at school the parents send them more regularly; this has a positive effect on the amount that the children have achieved by the end of the school year. This being said, the

[16] Targeted actions to ensure that reasonably qualified teachers are maintained in difficult areas are among the actions that could be useful, even indispensable.

school cafeterias can turn out to be a relatively costly item (generally for the States which develop them out of their own budgets). There are two complementary lines of thinking that can be developed from this point: i) the first of these is a search for low-cost methods, and many of these undoubtedly call for implementation that involves working with the parents and the communities, since they are responsible for implementation although the State contributes to the operation, and ii) the second of these is to have a strategy for targeting the most vulnerable populations and areas[17] in order to maximize the impact of this help and the efficiency of the resources mobilized for this purpose. These two avenues should probably be pursued in a complementary manner.

The role of pre-school education

47. The development of activities for very young children, and particularly pre-school education for children in the 4 to 5 year-old category, for the benefit of the most vulnerable populations, is the first objective covered in the Dakar Forum declaration on Education For All. There are a number of studies that highlight the benefits for the operation and quality of primary education (improved learning, reduced frequency of repetition and improved retention by students in the course of their primary education). For example, Jaramillo and Mingat (2003) estimated that 50% coverage for two years of pre-school in a typical African country could reduce the frequency of repeated classes by 20 to 14% and increase the retention rate by 65 to 80%. However, the fact that benefits can be expected is not sufficient justification for mobilizing the public resources for this purpose when budgets are tight or where there are equally ambitious alternative objectives (access to secondary education, adult literacy programs, etc.) that are potential clients for resource appropriation. Pre-school education, as it is currently organized, is expensive (the estimated unit cost for traditional pre-school education, on average in African countries, is 40% higher than that of primary education). The calculations show that this pre-school teaching, if one only measures the benefits of improvement at the primary level, is not cost-effective, and therefore cannot be recommended for public financing within the scope of a sector-based educational policy in many countries of sub-Saharan Africa.

48. On the other hand, one should not be too quick to reject a concept on the grounds that a given application has not been recognized as cost-effective. In fact it is possible to seek out a community-based form of organization to develop such activities for young children, Comparative evaluations of the effects of formal and community-based pre-schooling conducted in Cape Verde and in Guinea showed that the benefits for children in terms of preparation for primary school were comparable (and even somewhat better for the community formula), but that the public costs for the community formula were significantly lower than those for traditional nursery school. Under the circumstances, the preceding conclusion that pre-school education as a strategy for improving the quality of primary education was not cost-effective should be revised. One then arrives at the conclusion that the benefits are probably much greater than the costs, making the development of community pre-school education (which must of course be defined in operational terms) a useful element of the overall strategy for the sector.

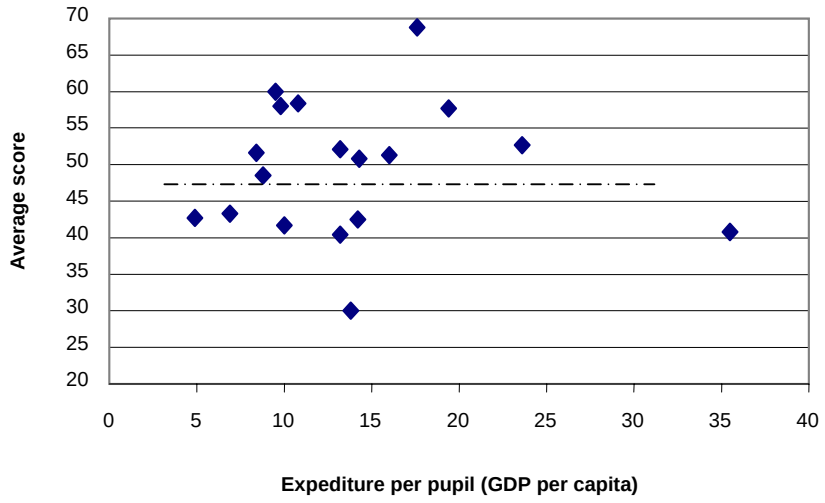
[17] Work carried out in almost all countries, based on analyses of household surveys, within the framework of preparing follow-up for the strategy for the fight against poverty could be used for this type of targeting.

4. QUALITATIVE, PEDAGOGICAL AND MANAGEMENT FACTORS ARE ALSO IMPORTANT TO CONSIDER

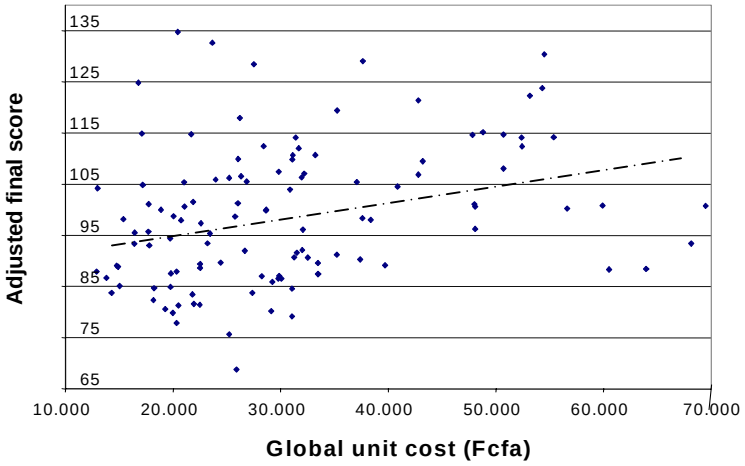
49. Up to this point in this document, we have placed the emphasis on education policies that correspond to tangible factors that are logistical in a certain sense. It is obviously reasonable to adopt such an approach because it is these major factors that "make the budget" and that is where the scarcity of resources is most acutely perceived. Nevertheless, one must stay aware of the limitations of a school quality policy that consists merely of mobilizing additional resources even if this is done with a strategy that is empirically well-justified, more or less following lines that are comparable to those previously laid out. The resources are only means that create a context that is more or less favorable for learning. They are not the learning itself. The latter is what matters and policies do not have direct access to this. The transformation of resources into results (the teaching of students) is an essential step. Of course it implies education policies, but they are of a different type, since this concerns actions involving pedagogical practices and management-type procedures.

50. From an empirical standpoint, once again, we observe in the present situation in African countries that **this capacity of systems to transform the resources that are actually mobilized into results that are actually obtained is not good**. This is evident as much at the comparative international level as at the comparative level among schools within a given country (not mentioned here because it is illustrative of the general picture). The two graphs 6 and 7, below, illustrate the problem.

Graph 6 Average achievement level and unit costs in 15 African countries



Graph 7 Pupils' progress and global unit cost (CM1)



51. From the comparative international perspective, we see that there is simultaneously a significant variability between the different countries both in terms of the levels of students' average scores (from 30 to 70) and of that of unit costs (from 5 to 35% of GDP per capita), but there is no relationship between these two measures, with the countries featuring higher expenditures per student, on average, showing no higher levels of student achievement. In graph 7, each point represents a class. On the vertical axis appear the achievement levels at the end of the school year of similar pupils in terms of their level of achievement at the beginning of the year and in terms of their personal and social characteristics. On the horizontal axis is the unit cost of each of the classes in the sample. Once again, there is very broad dispersion and very little relationship between level and unit cost of the class and the progress of students in this class in the course of the school year. At each level of unit cost, students' progress may be high in one class and low in another. This is a question of pedagogical practices as well as a management problem. This is suggested by the fact that there are schools with very few resources while others have plenty but also, and especially, that there are many schools with seemingly adequate resources (above average, in any case) that show modest achievement results. The problem here is that these "delinquent" schools are not known to the institution (because there is no information mechanism regarding this point), which consequently does nothing to remedy the situation. Pedagogical management is clearly inadequate.

52. When the question is viewed from the perspective of quality of educational services offered, we see that resources are not sufficient to characterize this quality. When seeking to describe the diversity of student learning, measured by standardized testing, within a given country[18], we observe that the way in which resources are transformed into learning has an impact that is three to five times greater than the volume and distribution of the resources per se. This clearly underlines the fact that any strategy aimed at improving the quality of services that are effectively offered should consider substantial improvements in the management of this transformation of resources into results at the school level. It will probably be necessary to i) actually measure the students' results, and ii) see that the systems set up the appropriate response mechanisms (incentives,

[18] This work was carried out in over 10 countries in sub-Saharan Africa. The results presented here give a global overview. Although these figures do indeed differ from one country to the next, the orders of magnitude are very similar.

pedagogical support, sanctions, etc.) for schools that show poor performance levels. This will naturally require analyses in order to identify the relevant measurements, followed by resources for their implementation as well as for follow-up and evaluation of the results. But there is no doubt that this approach is necessary first as the only course for improving the quality of services and for justifying the mobilization of additional resources.

5. IN CONCLUSION

53. It is not easy to formulate a conclusion following this review of the numerous aspects that contribute to producing an education system that offers quality services to its users. What emerges most clearly is that there is no magical solution or remedy to certain specific points for resolving the question of school quality. All factors in education policy interact and intersect to form a system that offers good quality services to its users. We can observe that the presence of these interactions in education systems is such that if a country deviates substantially from the appropriate approach to a particular point, there is a risk of ruining the entire mechanism, and this is all the more important when there are serious financial limitations, as is the case (and will continue to be the case for the next twenty years) in sub-Saharan Africa.

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