



Teacher attrition in Sub-Saharan Africa:

The neglected dimension of the teacher supply challenge

A review of literature

February 2010

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Preface

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At the World Education Forum in 2000, the international community defined the Education for All (EFA) agenda as relating to six areas: (i) early childhood care and education, (ii) primary education, (iii) youth and adult learning needs, (iv) literacy, (v) gender equality and (vi) quality in education. Three quantifiable goals were set for 2015: halving the number of adult illiterates, ensuring universal primary education and gender equality. The latter two are reiterated in the MDGs. Adequate numbers and quality of teachers are a precondition to the achievement of all these goals.

Only five years from 2015, there are large gaps in the provision of teachers. Projection figures from 2007 (source: UIS) state that 1.9 million additional teacher posts have to be created in order to attain the EFA goals by 2015. On top of that, approximately 1 million teachers have to be replaced every year to balance out the attrition of teachers. Not all countries are prepared and in a position to raise the number of their teachers accordingly, which puts them at risk of not being able to achieve the goals. But the teacher gap is not only an issue of quantity. For all education and for all innovations, for inclusive and sustainable education, for reaching the marginalized, for formal and non-formal education, for all subjects and topics not only enough teachers, but enough qualified and motivated teachers are needed.

It was with a view to these problems that the International Task Force on Teachers for EFA was launched in December 2008 during the 8th High Level Group Meeting on EFA in Oslo, and established in 2009. The International Task Force on Teachers for EFA is a voluntary global alliance of EFA partners working together to enhance efforts to address the global 'teacher gap'. It is committed to coordinate and support efforts to address the lack of teachers worldwide. Its present membership comprises 64 countries and approximately 18 international organizations with a specific interest in teachers.

The Task Force identified 3 major teacher-related gaps which need to be addressed in order to achieve EFA: a policy gap (relating to the need for evidence-based, comprehensive, national teacher policies), a capacity gap (relating to data and information regarding teachers as well as to the capacity to plan, implement and evaluate teacher policies) and a financing gap. The Task Force responds to these gaps through (a) advocacy on teacher issues and particularly for increased resources and innovative funding for the employment of sufficient numbers of teachers, (b) strengthening and creating North-South-South and South-South partnerships with regard to filling the teacher gap, (c) responding to country requests for support to address the teacher gap, (d) supporting informed policy-making for the development or reinforcement of national strategies and plans to fill the teacher gap, and (e) supporting the development of national capacities regarding data and policy making, policy implementation and evaluation.

The present literature review is in the frame of the last two commitments. It is made available to all Members of the Task Force on Teachers for EFA, and beyond. The Task Force hopes for broad and fruitful use of this report.



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Executive Summary



Somalia

Executive Summary

This paper is a review of the literature on the attrition of teachers, particular as it relates to teachers in sub-Saharan Africa. For the purposes of this review, attrition is taken to mean all permanent losses of teachers from the teaching profession, for whatever reason. As teacher attrition results in a requirement for replacement teachers, an understanding of the volume and pattern of teacher attrition is an essential prerequisite to planning for teacher supply. The review provides a number of messages for policy-makers in education.

Improved tracking of teacher attrition is needed in many countries. Effective planning for teacher supply will require timely information on the rate of attrition of different categories of teachers, including primary and secondary teachers, teachers posted to different areas, teachers with different subject specialization and in some cases teachers with different ethnic or linguistic backgrounds, as well as the reasons for departure. In many of the countries in sub-Saharan Africa the collection of data on teacher attrition is poor and does not allow the level of analysis required. As a result some of the responses are based on assumed attrition rates and on anecdotal reports. More details and more reliable data are needed to adequately manage education systems, particularly during periods of rapid expansion. Existing instruments, including annual school surveys and human resource databases, could be exploited to provide more reliable policy-relevant data on the patterns of teacher loss.

Teacher attrition rates vary between countries and are likely to vary over time. In most countries the two main drivers of teacher attrition are retirement and voluntary resignation. Attrition through retirement varies with the age profile of the teaching profession and with retirement policies and is relatively predictable. Voluntary resignation, which accounts for more than half of all attrition in many of the countries where data are available, varies with alternative labor market opportunities and is therefore highly volatile.

Many countries in sub-Saharan Africa are currently reporting teacher attrition rates which are very low, and unlikely to be sustained. If there were no voluntary resignation, an education system should expect an attrition rate of between 3% and 4% annually arising simply from retirement, illness and death. Given the large proportion of

voluntary resignation, it may be more realistic for planners to consider 5% attrition as the lowest sustainable rate. Many of the countries in SSA report attrition rates that are lower than this, reflecting both very young teacher populations and limited alternative employment options. It seems likely these attrition rates will rise in the medium term.

Teacher attrition is selective. In the countries where data are available, the rate of attrition varies between different categories of teachers. Attrition is generally higher among teachers with higher academic qualifications. There are some indications of higher attrition of teachers specialized in mathematics and science. Attrition is also higher among those in the least desired schools, typically in rural areas. This selective pattern of attrition tends to result in the loss of the most needed teachers from education systems, including the best qualified and those with qualifications in mathematics and science.

The negative impact of teacher attrition tends to fall disproportionately on the poorest and most vulnerable students. Attrition results in a loss of experienced teachers, and a selective loss of the teachers with the highest academic qualifications, and those with expertise in mathematics and science. As a result of deployment patterns and inter-school transfers, the impact of teacher shortages tends to fall disproportionately in schools in the least desired locations. Remote rural schools and schools serving the poorest children suffer greater teacher shortages, longer delays in replacing teachers, and a greater proportion of unqualified teachers and inexperienced teachers.

At least part of attrition is potentially responsive to policy changes. Voluntary resignation of teachers is in part a function of the labor market, and the relative attractiveness of alternative employment opportunities. In addition, teacher attrition is in some cases a response to unhappiness with deployment, poor management and factors such as unreliable delivery of pay. In addition committed teachers are motivated by the success of their students and de-motivated by conditions which make success impossible. A variety of policy measures are likely to have an impact on attrition, including: better deployment policies, greater use of local recruitment, improved teacher conditions of work, improved reliability of payment, and improved management at school level.

Teacher attrition forms part of a complex of teacher policy issues which need to be considered by policy-makers. Many of these issues are interconnected and can have perverse effects. For example, attempts to improve quality of education which involve raising the standard of certification of teachers, may have the unintended effect of increasing attrition resulting in greater use of unqualified teachers. Given the complexity of teacher policy, it is important that data on teacher attrition be collected in a systematic and reliable manner for inclusion in policy development.

1

Introduction



Indonesia/I. Voss-Lengnik

Introduction

While the central importance of teachers in ensuring quality education is widely acknowledged, even the most developed and stable education systems experience periods of shortages and over-supply of teachers. An OECD review of teacher workforce policy (2002) noted teacher shortages in a number of countries. In Australia the number of new teachers qualifying was sufficient to meet only 70% of the projected demand (Preston 2000). In Finland there were difficulties in meeting the enrolment targets for teachers of specific subjects, most notably mathematics, chemistry, computer science and physics (National Board of Education Finland 2000). In the United States, the projected output of newly qualified teachers fell 8% short of the 2.5 million new teachers expected to be needed over the following decade (Education Committee of United States 2001). These teacher shortages were reflected in lowering of entry requirements to teacher training courses, increasing student/teacher ratios, and increasing numbers of "difficult to fill" positions, and use of unqualified teachers. In Portugal, New Zealand, Luxembourg and Mexico however, less than 80% of full-time secondary teachers are reported as fully qualified (OECD PISA database 2001). There were also invisible effects of teacher shortages, such as teachers teaching subjects in which they were not qualified. While some OECD countries experienced teacher shortages, others, including Japan and France, were experiencing an oversupply of teachers, resulting in large numbers of unemployed teachers.

The challenges of teacher supply are greater in sub-Saharan Africa. Rapid expansion of enrolment has generated an accelerated increase in teacher requirements. In the Gambia, it is estimated that meeting the global targets for education will mean more than doubling of the number of teachers by 2015 (VSO 2007). Along with the expansion, there have been a series of changes in established patterns. The rapid expansion in enrollment has been accompanied by a changing geographical requirement, with more teachers in remote rural schools. Education reforms required to allow this expansion have changed the balance of subjects taught in secondary schools, with consequences for teacher requirements. In the absence of the long established stable patterns of the developed countries, the fast-growing education systems of sub-Saharan Africa have experienced dramatic imbalance of teacher supply and requirements. The consequences of these imbalances are easily visible. In Lesotho a 2007 study found that 40% of primary teachers were unqualified (Education International 2007). In the same year there were 40,000 qualified teachers unemployed in Kenya, and a further 15,000 unemployed in Zambia (Education International 2007).

In sub-Saharan Africa, the impact of teacher shortages is felt disproportionately by the poorest and most marginalized in society. Shortage of teachers tends to result in an inability to deploy teachers to the most remote schools. Where unqualified teachers are used to fill the gaps, these tend to be unevenly deployed, with more of the unqualified teachers in the least desired locations. Where class sizes increase, this too has a disproportionate effect on the most marginalized, with less access to educational support at home or through extra tuition.

Adequate planning for teacher supply requires an understanding of teacher attrition. While responses to teacher supply difficulties have often been seen in terms of changing the output of new trained teachers, it is equally important to monitor and understand the losses of teachers. It is clear that some teacher attrition results from retirement of teachers who have reached the prescribed retirement age, but that there is also a discretionary component to teacher attrition, as a large proportion of attrition is the result of voluntary resignation. This voluntary attrition, often to take up other occupations, is not random and may be greater in the teachers with alternative labor market opportunities, or those with the least favorable experiences of teaching. Voluntary attrition may also be responsive to changes in policy, and hence an understanding of the patterns and causes may assist in addressing the challenges of teacher provision.

It is therefore important that attrition be monitored in a manner which takes into account variables such as: gender, age, qualifications, ethnicity, location, specializations, re-entry, economic climate, and mobility within teaching (Forojalla 1993).

Limited data

Despite the importance of monitoring teacher attrition, existing data is limited in scope and reliability. As Macdonald (1999) concluded; greater tracking of teacher attrition is required, as *"parameters of what is understood by attrition are infrequently articulated and statistics are considered as approximate"*. In the US, Guarino et al (2004) also noted the paucity of reliable data on teacher retention and attrition, and the importance of longitudinal data tracking teachers' employment. Macdonald (1999) pointed to a series of difficulties with teacher attrition data. First, the definition of teachers is unclear, and the inclusion of part time and unqualified teachers can significantly alter the observed patterns. Second, inter-school teacher mobility is sometimes confused with attrition. Third, the data is often not sufficiently detailed to allow analysis of the important differentials which may be associated with age, gender, qualifications, subject area and

geographical location. Fourth, the data frequently do not allow tracking of re-entry of teachers who have left the profession.

The data collection difficulties are even greater in sub-Saharan Africa, where the capacity to collect and verify data is more limited. There are two primary data sources for teacher attrition. The first is the statistical returns from schools usually collected through an annual written survey, as part of an education management information system (EMIS). These instruments are completed at school level, and suffer from incomplete coverage. The response rate is often particularly low in private schools and community schools where there is less incentive to provide information for use at Ministry level. School census instruments do not always collect data on teacher attrition. Even if they do, schools are often poorly equipped to determine the reason for departure, the destination of the departing teacher, or to distinguish between inter-school movement and movement out of the profession. Further, this avenue of data collection provides no opportunity to monitor the return of teachers to the profession, and often does not contain sufficient detail to monitor attrition of particular subject-teachers, or teachers with particular levels of qualification. Two examples of the question related to teacher attrition from the annual school survey instruments in Tanzania and Malawi are shown below. While both record the number of teachers and gender, neither records the age of the departing teachers, or their subject specialization.

Tanzania: Extract from the secondary school annual census form (2009)

3.5. Teacher Attrition

3.5.1: Retired teachers by reason and qualification

Reason	Degree			Diploma			Grade A			Others			TOTAL		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Long-term illness															
Short-term illness															
No reason stated															
Retirement age															
Others															
TOTAL															

3.5.2: Teachers dead by reason and qualifications

Reason	Degree			Diploma			Grade A			Others			TOTAL		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Long-term illness															
Short-term illness															
Accident															
Others															
TOTAL															

3.5.3: Teachers leaving/terminated by reason and qualifications

Reason	Degree			Diploma			Grade A			Others			TOTAL		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Long-term illness															
Misbehaviour															
Truancy															
No reason stated															
Others															
TOTAL															

Malawi: Extract from primary and secondary school census form 2006

F.2. Teaching Staff - Reason for Leaving this School (<i>last year</i>)						
Reason for leaving	Number of Teachers					
	Male		Female		Total	
Died						
Transferred to a non-teaching post						
Resigned						
Retired						
Prolonged Illness						
Dismissed						
Transferred to another teaching post						
Reason not known /Other						
TOTAL						

Human resource records provide a second possible source of data. In almost every country there is a human resource function, such as a teacher service commission, or a personnel department, which maintains records of teachers at the point of recruitment and at the point of departure from the payroll. In some countries, such as Lesotho, these records include information about the reason for leaving. Such records allow the possibility of analysis of the typical career path of teachers, and the extent of early retirement. However human resource records do not always include information on the location of posting or the subject specialization of teachers, and in some cases do not even include information on whether they were teaching at primary or secondary level.

Even where data on teacher attrition is collected, either through school census or human resource records, it is unclear how much this information is used to inform planning for teacher supply and development of teacher policy. The paucity of published data on teacher attrition suggests that in many cases, the data are not analyzed and reported in a routine manner.

2

Teacher Attrition Rates



Yemen/I. Voss-Lengnik

Teacher Attrition Rates

Recorded teacher attrition rates vary widely between countries. In OECD countries, the teacher attrition rates vary from 2% to 14% per annum, with the lowest rates in Korea and the highest in the US. Attrition rates for individual countries also vary over time. In New Zealand the rate of attrition of primary teachers rose from 8.5% in 1996-97 to 10.4% in 2000-01, while in the US the rate of attrition of public school teachers rose from 5.6% in 1988-89 to 8.4% in 2004-05. These variations may reflect changes in the age profile of teachers, or changes in the labor market.

Summary of available OECD teacher attrition rates (from OECD 2002, p75, unless stated)

Location	Annual attrition rate	Notes
England	9%	All schools, 1999-2000
The Netherlands	7%	Primary schools, 2000
Australia	5% secondary 4% primary	1999
Germany	5%	1999/2000
Canada	2.4%	All schools, average 1988 and 1998
Japan	2-3%	1997
Korea	2%	2001
US	8.4 public schools 13.6 private schools	2004-05 Source NCES 2007

Teacher attrition in New Zealand 1996-97 (OECD 2002, p74)

	Primary teachers	Secondary teachers
1996-1997	8.5	9.3
1997-1998	9.6	9.0
1998-1999	9.4	9.3
1999-2000	10.0	9.4
2000-2001	10.4	9.9

Teacher attrition in the US 1988-2005 (NCES 2007, p7)

	Public schools	Private schools
1988-1998	5.6	12.7
1991-1992	5.1	12.3
1994-1995	6.6	11.9
2000-2001	7.4	12.5
2004-2005	8.4	13.6

The available data suggest that there is often high attrition of teachers in the early years of their careers (Bobbitt et al., 1994; Boe et al.; Stinebrickner, 1998, 1999, 2001; Theobald, 1990, Quartz 2008). A study in Texas (Kirby et al 1999) characterized this as a U-shaped pattern of attrition with high attrition in the early years, followed by lower attrition of mid-career teachers, and rising attrition in late career as teachers approach retirement age. They found that the attrition rate of young teachers was about 11-13%; for those aged 40-54, the attrition rate was only 5% and for those aged 55 and older attrition rose sharply because of retirement. Similar patterns of high attrition in the early years have been found for the US as a whole, with 11% of teachers leaving after the first year, but only 6% leaving after the fifth year.

Teacher attrition and experience in the US 1994-95 (Ingersoll 2002, in OECD 2002, p74)

	Percentage	Cumulative percentage
After 1 year	11	11
After 2 years	10	21
After 3 years	8	29
After 4 years	4	33
After 5 years	6	39

In sub-Saharan Africa reported attrition rates are broadly consistent with those reported in OECD countries. Reliable data on teacher attrition is difficult to find, and many of the published figures are derived from estimates. A study by Education International (2007) of teacher issues in The Gambia, Kenya, Lesotho, Tanzania, Uganda and Zambia reported an average rate of teacher attrition in the six countries of 4%. In Namibia, Kubberund (1999) reported a total teacher attrition rate of 11.7%. Studies conducted by the World Bank between 2006 and 2007 found attrition rates ranging from 2% to 10% (Mulkeen 2010). Even higher teacher attrition rates are experienced in countries experiencing conflict although this is rarely well recorded (UNESCO 2007).

Annual Teacher Attrition Rates in selected countries in sub-Saharan Africa (Mulkeen 2010, data collected from 2005-2007)

Eritrea	2%
Gambia, The	3%
Lesotho	3% primary, up to 10% for secondary
Liberia	Estimated at 1.6%
Malawi	5% primary, 10% for secondary
Uganda	5% primary, 6% secondary
Zambia	9%, though may be overestimated by inter-school movement
Zanzibar	5% primary, 6-7% secondary

In sub-Saharan Africa attrition rates of less than 5% are unlikely to be sustained in the medium term. There is an inverse relationship between the average length of service of a teacher and the attrition rate. In a stable system, an average duration of service of 50 years would result in retirement of one fiftieth of teachers each year, and an attrition rate of 2%. Similarly an average duration of service of 25 years would result in an average attrition rate of 4%. As typical teachers are over the age of 20 (and many much older) when recruited, and retirement ages are between 55 and 60, retirement alone would be expected to account for losses of almost 3% annually. Given that retirement typically accounts for less than half of total attrition, and there is reported to be high attrition in the early years, and at least some voluntary (pre-retirement) attrition throughout the teaching career, it seems unlikely that any country can sustain attrition rates much lower than 5% (Note that a 5% attrition rate implies that the average teacher recruited remains in service for 20 years before leaving).

Where countries record attrition rates much lower than 5%, these may arise from exceptional policies, or unusual teacher age profiles. In Eritrea in 2006, the government had temporarily stopped almost teacher retirement because of a concern about a shortage of teachers. More commonly, low attrition rates are associated with unusually young teacher age profiles resulting from recent expansion. In Zanzibar, for example, only 12 percent of teachers were over the age of 50 in 2006 (Mulkeen 2010). However, low attrition resulting from the demographic of the teaching force is a temporary phenomenon, and some of the countries in sub-Saharan Africa are already experiencing increasing teacher attrition. In Zambia, for example, the rate of attrition of teachers from basic schools rose from 3% in 2002, 5% in 2004 and 12% in 2008.

Zambia: Teacher attrition from basic schools 2002-2008 (data from EMIS statistical bulletin 2008)

Teacher attrition	2002	2003	2004	2008
Male	665	811	1,259	3,918
Female	467	632	936	2,827
Total	1,132	1,443	2,195	6,745
Attrition rate				
Male	3.4	3.9	5.8	13.3
Female	2.6	2.2	4.7	10.3
Total	3.0	3.6	5.3	11.9

3

Causes of Attrition



Malawi/I. Voss-Lengnik

Causes of Attrition

The causes of teacher attrition are varied, and for each individual teacher the decision to leave the profession may be influenced by a variety of factors. From a policy perspective, the causes of attrition may be grouped into four main categories. First, a part of attrition is a result of retirement and is driven largely by the age profile of the teaching force and the retirement policies in place. Second, some of teacher attrition is a result of personal or family factors, including teachers leaving because of marriage, child care responsibilities or ill health. Third, teacher attrition may result from the pull of alternative employment opportunities. Finally, attrition may result from push factors arising from dissatisfaction with teaching.

Classification of causes of attrition

Category	Possible Factors
Demographics	Retirement age and policies Age profile of teaching force
Personal factors	Marriage Family responsibilities Illness
Pull factors - alternative employment	Labor market conditions Relative pay of teachers Relative pay progression of teachers
Push factors - dissatisfaction with teaching	Conditions of schools. Living conditions at post. Management within school. Management within education sector. Poor school climate. Low job satisfaction

The categories used to record the reasons for teacher departure vary, and the data collection methods are of questionable reliability. In some cases data is derived from a survey of teachers who have left the profession. In sub-Saharan Africa, the data is often collected through the head teachers, as they complete the annual school census, resulting in the possibility of some subjective judgments. In addition, low response rates and large numbers of teachers leaving for unknown reasons reduce the value of the available data. Nevertheless the available data present some revealing patterns:

1. In sub-Saharan Africa, voluntary resignation was often the single greatest reason for attrition, and retirement accounted for a smaller proportion than in other regions. In the African countries where data was available, retirement accounted for a relatively small proportion of teacher attrition. In Zanzibar, retirement amounted to 9.8% of attrition; in Uganda the figure was 6%, and in Malawi 11.5%. These suggest that a small proportion of teachers are retained to retirement age in some countries in sub-Saharan Africa, and may also reflect the younger age profile of teachers in African schools.
2. Death accounted for a significant proportion of attrition in SSA, although smaller than resignation or retirement. In some African countries, teacher death was one of the major contributors to attrition. In Malawi death accounted for almost 30% of attrition of primary teachers, with figures of 15% in Zambia and 11% in Uganda.
3. In some countries there was significant movement to non teaching posts, particularly by secondary teachers. In Zanzibar 9% of teacher attrition was recorded as "transfer to other government post". In Uganda transfer to a non teaching post accounted for 8% of primary teacher attrition and 16% of secondary teacher attrition. In Malawi the figures were 6.5% and 15% of primary and secondary attrition.

Percentage of teacher attrition attributed to retirement, death and resignation in selected African countries

	Retirement	Death	Resignation
Malawi Primary 2006	12	30	11
Malawi Secondary 2006	6	15	29
Uganda Primary 2005	8	11	30 (includes dismissal)
Uganda Secondary 2005	6	10	34 (includes dismissal)
Zambia Government schools	23	15	3.5
Zambia community schools	1	4.5	51
Zanzibar	10	8	25

Voluntary resignation as a contributor to teacher attrition

Voluntary resignation was the single greatest cause of attrition in most African countries where data were available. In South Africa, it was reported that voluntary resignations accounted for about half of all teacher attrition (The National Policy Framework for Teacher Education and Development in South Africa 2006). In Lesotho in 2004, resignations accounted for 55% of all teacher attrition, whereas involuntary causes of

attrition, including death, illness and retirement, accounted for less than half of the teacher departures. Similarly in Zambia in 2007 (reported in 2008 statistics) resignation accounted for almost one third of all departures. Retirement, illness and death accounted for only 24% of teacher losses. As much as teacher resignation is likely to be for the purposes of taking up other employment, resignation rates are likely to be related to the alternative opportunities available to teachers in the labor market.

Lesotho: Teacher Attrition by reason 2004

Reason for leaving	Number	% of total
Resigned	362	55
Retired	140	21
Deaths	131	20
Desertion	17	3
Medical retirement	4	1
Total	654	100

Source: Teaching Service Commission records.

Zambia: Teacher attrition by reason 2007 (EMIS statistical bulletin 2008)

Reason for leaving	Number	% of total
Resigned	2,191	32.5
Other / unknown	1,626	24.1
Retired	851	12.6
Contract expired	692	10.3
Death	502	7.4
Dismissed	454	6.7
Illness	242	3.6
Assigned to non-teaching duties	187	2.8
Total	6,745	100

Retirement as a cause of attrition - the demographics of the teaching force

Many OECD countries express concern about the "graying workforce" in teaching, with a large proportion of teachers in the older age groups. In 2000, around 50% of teachers in German and Italian lower-secondary schools and 40% of teachers in Swedish and German Primary schools were over 50 years old. This ageing workforce is likely to result

in increased retirement rates. In France in 2001, 78% of secondary school teachers were expected to leave within the 2000-2009 period due to retirement (OECD 2002).

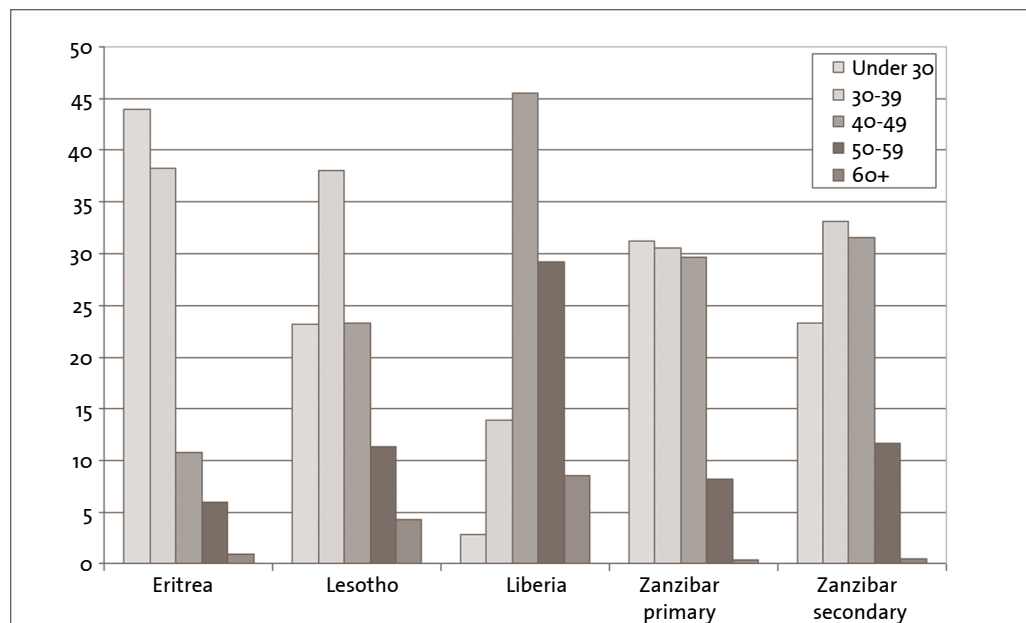
In African countries where data were available, there were varied age patterns, but more young teachers than normal in OCED countries, reflecting the recent expansion of enrolment. In Eritrea, almost 50% of elementary school teachers were under 30, and in Lesotho and Zanzibar half were under 40. In Liberia the teacher profile included a greater proportion of teachers over 40, reflecting the lack of recruitment during the period of conflict.

As a result of these relatively young teacher populations, attrition from retirement on age grounds is likely to be unusually low, but will tend to rise as the teacher age profile normalizes.

Age distribution of teachers in selected African countries

	Eritrea Elementary 2005	Eritrea Middle 2005	Eritrea Secondary 2005	Eritrea all 2005	Lesotho 2005	Liberia 2007	Zanzibar primary 2006	Zanzibar Secondary 2006
Under 30	49.5	27.8	40.5	43.9	23.2	2.9	31.2	23.3
30-39	36.5	49.6	30.8	38.3	38.0	13.9	30.5	33.1
40-49	9.9	11.6	14.0	10.8	23.3	45.5	29.7	31.6
50-59	3.5	9.7	12.6	6.0	11.3	29.2	8.2	11.7
60+	0.6	1.3	2.3	1.0	4.3	8.6	0.4	0.5

Age distribution of teachers in Eritrea, Lesotho, Liberia and Zanzibar



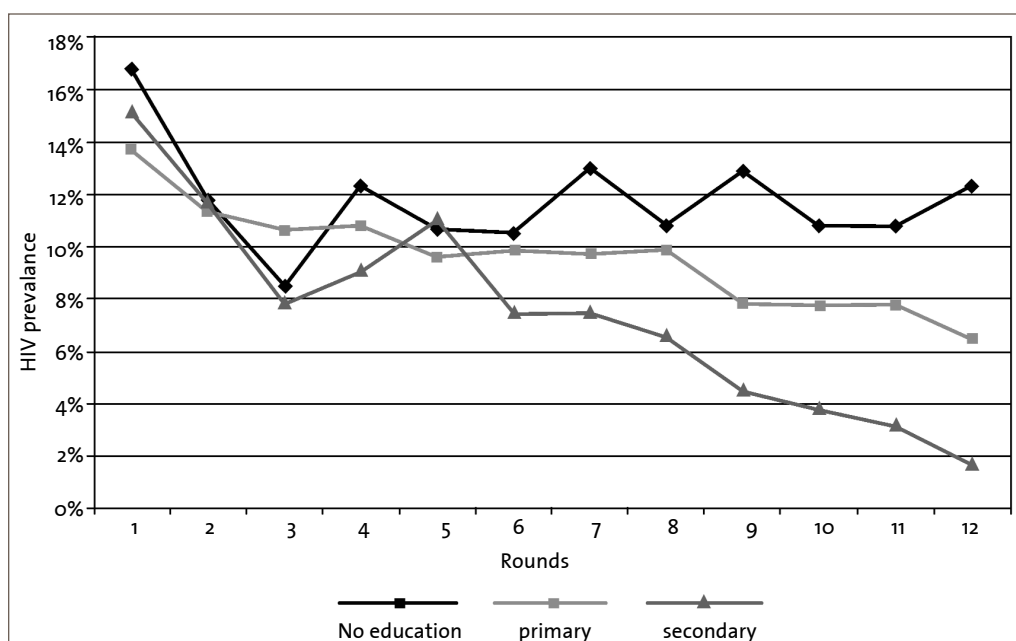
The impact of HIV/AIDS on attrition

Early studies predicted extremely high teacher attrition in Africa as a result of the HIV/AIDS pandemic. In 1999 it was predicted that the African region as a whole could lose 9.4 per cent of the total teachers employed within a decade, with Kenya, Nigeria, South Africa and Uganda accounting for nearly two-thirds of AIDS related deaths among teachers (Bennell 2003). There certainly have been large numbers of teacher deaths resulting from the pandemic. In Uganda, teacher mortality represented up to 25 per cent of attrition when AIDS-related deaths among teachers peaked in the mid-late 1990s.

However teacher mortality in recent years has been lower than initially predicted, as a result of reduced prevalence and the impact of anti-retroviral treatments (ARTs) on survival. Gregson et al (2006) report a decline in HIV prevalence in eastern Zimbabwe between 1998 and 2003 associated with sexual behavior change in four distinct socioeconomic strata, including more educated groups. Similarly a survey of 29 primary and 9 secondary schools located in a major urban district in Malawi (Blantyre) and a nearby predominantly rural district (Chiradzulu) found that mortality rates have also begun to decline among teachers (Bennell and Kadzamira, 2003).

Some research suggests that better educated people are more receptive to sexual health messages, and are less at risk than the general population (Hargreaves and Glynn, 2000). De Walque et al (2005) have shown that HIV infection rates in Uganda declined more rapidly for the better educated groups. Bennell (2003) notes the lower mortality rates among academics than among support staff in African educational establishments, which may be attributable to the higher educational and social status of teaching staff.

HIV infection rates and level of education in Uganda (de Walque et al 2005)



While teacher mortality remains high, and a significant cause of attrition, it is not the main reason for attrition. A study of teachers in 8 African countries between 2006 and 2008 found that teacher deaths (from all causes) accounted for loss of between 0.66 and 3 percent of the teacher workforce annually (Mulkeen; 2010). In Tanzania, the 2009 EMIS data record the deaths of 0.36% of secondary teachers. Bennell (2003) noted that teacher death accounted for 4% of teacher losses in Rwanda and Botswana.

The contribution of teachers' death and illness to attrition (Mulkeen 2010)

	Cause of attrition	Number	Total teachers	% of teacher workforce	Death and illness as % of teacher workforce
Lesotho, primary and secondary 2004	Died	131	13,500	0.97	
	Prolonged illness	4	13,500	0.03	1.00
Malawi Primary 2006	Died	618	43,197	1.43	
	Prolonged illness	149	43,197	0.34	1.78
Malawi Secondary 2006	Died	157	10,386	1.51	
	Prolonged illness	173	10,386	1.67	3.18
Uganda Primary 2005	Died	721	144,832	0.50	
	Prolonged illness	443	144,832	0.31	0.80
Uganda Secondary 2005	Died	191	42,673	0.45	
	Prolonged illness	91	42,673	0.21	0.66
Zambia Government schools 2005	Died	607	48,125	1.26	
	Prolonged illness	121	48,125	0.25	1.51

Tanzania: Secondary teacher deaths by gender and cause (Data from 2009 EMIS survey; refers to deaths in 2008).

	Male	Female	Total
Accident	15	7	22
Long Illness	22	5	27
Short Illness	30	12	42
Others	25	7	32
Total	92	31	123
Number of sec teachers	22,972	10,982	33,954
Death rate	0.40	0.28	0.36

Although mortality may be lower than predicted, the impact of the pandemic is far greater than mortality. HIV has resulted in large numbers of ill teachers, some of whom form an invisible attrition, as they have ceased to work, but remain in employment, often with the support of their colleagues. The pandemic also results in greater attrition of senior people, as qualified personnel leave the education sector for positions that AIDS deaths have rendered vacant in other areas of the economy (Kelly 2005).

Gender and family responsibilities

Data from the US suggest that the attrition of female teachers is higher than that of male teachers (Guarino et al 2004). This may be due to female teachers being more likely to leave their posts because of pregnancy and child care (almost 25% of teacher attrition in the US is influenced by pregnancy and child care responsibilities (NCES 2007)). Second, there are indications that men remain more likely to be promoted than women, which may contribute to lower retention of female teachers (Quartz et al 2008).

In sub-Saharan Africa the picture is varied. There are some suggestions that attrition of female teachers may be higher than that of males. Female teachers are often reluctant to take up posts in remote areas, which may lead to greater attrition early in their careers. In some areas of the Gambia, communities may resist the arrival of an unmarried female teacher, making it difficult for female teachers to accept rural postings (World Bank 2007). In addition, female teachers may be more likely to leave their jobs if unable to find a post near their husbands' place of work, or to migrate to another school (Boe et al., 1997; Henke, Chen, & Geis, 2000). On the other hand, in some communities there are fewer alternative labor market opportunities for women, which may result in lower attrition of female teachers (Mulkeen 2010).

Pull factors - alternative labor market opportunities

Remuneration and labor market opportunities

There is clear evidence that the relationship between teacher remuneration and the alternatives available in the labor market has an important influence on attrition. Studies in the US have demonstrated that higher salaries are associated with lower teacher attrition (Guarino et al 2004). A longitudinal study showed that a significant pay rise for teachers (relative to local pay scales) was associated with an increase of more than four years in the median teaching spell duration (Murnane and Olsen 1989 and 1990).

However, the opposite happened in some African countries. With the expansion of access to education in low-income countries, teacher salaries have often fallen in real terms (OECD, 1998). Between 1985 and 2000, teacher salaries in Africa fell from 6.3 times GDP per capita to 4.4 times GDP per capita (Lambert 2004). Despite these falls, teacher salaries remain higher than the global averages when expressed as a multiple of GDP per capita, and therefore may continue to fall (relative to GDP).

Average primary education teacher salary (ratio to per capita GDP) by world region, 1975-2000 (countries with per capita GDP below US\$ 2000 in 1993)

	1975	1985	1992	2000
All countries with pc GDP below 2000 US\$	6.6	4.6	4.3	(3.7)
Africa	8.6	6.3	6.0	4.4
English speaking	4.4	3.5	3.6	4.2
French speaking	11.5	8.0	6.3	4.8
Sahel	17.6	11.8	8.2	6.4
Asia	3.7	2.7	2.5	(2.9)
Latin America	2.7	2.9	2.3	(2.3)
Middle-East and North Africa	5.6	2.8	3.3	(3.3)

Source: Lambert (2004) from Mingat 2002 (Mingat and Suchaut, 2000 for the years 1975 to 1992, and estimates made in the context of World Bank EFA costing exercise for the year 2000.)

Primary education teacher salary (ratio to per capita GDP) for selected African countries, 1970-2000

	1970	1980	1990	2000
Cameroon	-	4.2	2.6	3.4*
Ghana	2.7	0.9	1.3	3.6*
Kenya	5.5	3.6	3.4	5.3*
Madagascar	4.4	3.4	3.0	3.3**
Senegal	11.6	9.7	7.2	4.9
Tanzania	7.8	3.7	3.6	3.6*
Uganda	3.4	1.3	1.1	2.9

Source: Lambert (2004) citing Mingat and Suchaut, 2000 for the years 1970 to 1990, and UNESCO (2003) for the year 2000
 Numbers followed by * refer to the year 1998, numbers followed by ** refer to the year 1997.

Levels of remuneration perceived to be low can result in hidden attrition, as teachers leave their posts to engage in additional income generating activities. In Malawi for example, it is reported that teachers are often reluctant to leave their positions formally

if employment opportunities are scarce, but that when salaries are low and sometimes late, teachers may seek other ways of supplementing their income, and this can contribute to absenteeism (Kadzamera 2006). A Presidential Commission of Inquiry, set up in Malawi to investigate the reasons behind the poor examination performance of students at MSCE, found increasing levels of absenteeism and indiscipline among teachers (Presidential Commission of Inquiry 2000). Students interviewed during the inquiry also reported that most of their teachers were engaged in moonlighting activities in order to generate extra income (Kadzamera 2006).

Movement from primary to secondary schools

In sub-Saharan Africa, the greater attractions of secondary teaching combined with a shortage of secondary teachers, have resulted in attrition of primary teachers to teach in secondary schools. In general, secondary teachers are better paid than primary teachers, have a higher status, are more likely to have timetables free periods, and are more likely to work in schools near to centers of population. With the rapid expansion of secondary education in many African countries, there is a shortage of secondary teachers, resulting in a flow of primary teachers into secondary teaching. In some countries the scale of this migration is very significant. In Eritrea, 66% of middle school teachers in government schools were only qualified at the elementary level. In Malawi, 61.5% of teachers in secondary schools were actually qualified as primary teachers. These flows result in significant attrition of primary teachers. In the Gambia the entry into the course which allows primary teachers to upgrade to secondary level is almost half the annual output of newly trained primary teachers. In Zambia, the annual intake into upgrading programs is about one quarter of the annual output of primary teachers (Mulkeen 2010).

Teaching as a stepping stone

Some teachers deliberately enter teaching with a view to moving out of the profession as quickly as possible. In many African countries, teacher training provided an access route to higher education to students without the academic achievement or financial means to enter universities. In-career education schemes that allow teachers to get study leave to return to university, or to attend open learning provide opportunity for teachers to gain further qualifications and leave the teaching profession. In Ghana, for example, teachers become eligible for study leave after three years of teaching if they pass the university entrance exam in an education related subject. They can then attend university for three years on full pay. In general, study leave is not seen as an opportunity to develop one's skills as a primary teacher, but a way to leave the sector altogether or become a secondary teacher (Hedges 2002; Mereku 2002:2). In interviews with 23 newly qualified teachers in

Ghana, Hedges (2002) found that all of the teachers interviewed mentioned study leave as an incentive to enter the profession. These opportunities may encourage the view of teaching as an occupation you pass through, rather than a career in itself.

International Migration

In response to a shortage of teachers in developed countries, an international labor market for teachers has emerged, contributing to loss of teachers from low-income countries (Hamett 2007). The numbers of teachers migrating are relatively small. Arends (2007) notes that there are an estimated 8,812 South African teachers working in the UK, approximately 5% of the number of trained teachers in South Africa. In Jamaica, it is estimated that 300 teachers per year emigrate, from a total teacher workforce of 23,000. However, international opportunities tend to take the best qualified teachers (Appleton 2006), and teachers with skills in key areas of mathematics, science and international languages (Jamaica Teachers' Association, in Appleton 2006).

While the absolute numbers migrating may be modest, international migration tends to have a disproportionate impact on the system. In South Africa, one study found that 27% of student teachers were planning to teach abroad. The anticipation of migration increases the demand for additional qualifications. In Zambia, it was noted that a frequent by-product of gaining additional certificates and degrees is brain-drain, out-migration of educated professionals to better-paid positions in other countries. One headmaster reflected on the numbers of colleagues who had left Zambia: *"It's just that the conditions there were very good,.....Almost all of our friends who had gone, they have come back, and they have homes, and they seem not to want to go back into teaching."*

Push factors - poor conditions

In addition to the attractions of alternative employment, some teacher attrition is encouraged by negative factors within teaching. In Africa one of the most frequently cited sources of dissatisfaction is the poor living conditions of teachers (Moleni and Ndalama 2004). Teacher housing is often not provided, and teachers may find it difficult to get accommodation. There are particularly acute difficulties in rural areas, where teachers may experience inadequate housing, lack of amenities to which they are accustomed such as clean water, electricity, access to healthcare and telephone coverage. A study in the Gambia (VSO 2007) reported that very few schools had staff quarters and those that did often only accommodated the head teacher. At one school, teachers spoke of moving into a disused classroom during the rains. Another spoke of their roof falling in and lack of toilet facilities at their accommodation. Only one out of the 24 schools visited had staff

quarters that the teachers found comfortable and a good housing facility. The impact of poor accommodation on classroom teaching was noted by many teachers. The issues ranged from lateness, impacting on school contact hours and lack of a suitable environment for planning and lesson preparation, to the more fundamental comment: "If you don't sleep well then when you go to the classroom you do not perform well".

As a result many strongly resist posting to a rural school, resulting in losses of newly qualified teachers (Bennell and Akyempong 2007). Many of the alternative occupations open to people with the required levels of education to enter teaching, such as the police force and civil service administrative jobs, are located in larger population centers, and so offer more attractive living conditions. As one Zambian commentator noted: "teachers live in abysmal conditions. They work long hours, for understaffed schools, in overcrowded classrooms, with too few resources, for too little pay." (Kebabe et al. 2007; Sinyolo in Education International 2007).

The poor conditions in rural schools contribute to a vicious cycle. A study of twelve low income countries found that rural schools typically experience high staff turnover, and have the highest vacancy rates. Teachers in these schools then face larger classes, increasing workloads, and a more difficult school environment (Bennell and Akyempong 2007). Teachers in rural schools often find it more difficult to access opportunities for professional development, further lowering morale and job satisfaction (Kadzamera 2006).

Poor quality school infrastructure also contributes to the disincentives to remain in teaching (Moleni and Ndalama 2004). In South Africa, poor physical infrastructure is reported to contribute to low teacher retention:

"Conditions in the schools in which the research was conducted were far from conducive to learning for substantial periods of time. Classrooms had broken windows, cracked walls, no doors for a long period; some buildings were collapsing, whilst those that were incomplete yet available were without roofs, which warrant classes to be cancelled during bad weather". (Lumandi 2008)

Poor management and administration

In addition to poor infrastructure, teachers are discouraged by poor management and administrative supports. One of the key areas of difficulty is in the administration of pay. Late payment, incorrect payments, and inability to access pay in a timely manner all cause considerable hardship for teachers, particularly those newly appointed, those on very low salaries, and those in areas where credit is not readily available. Difficulties with payment contribute to the perception of teaching as a low status occupation. (Hedges 2002; Francis et al 1990).

Teachers are further demotivated by a perception of little control over their posting, transfer or promotion. A report for VSO in Ghana noted that "reports can be made against a person and they will be moved immediately. Decisions appear to be made arbitrarily, rather than on the basis of a fair and transparent appraisal system, and teachers lack awareness of any appeals procedure to allow them to dispute the decisions. The feeling was expressed that, at times, 'teachers suffer as a result of politics' within postings issues" (VSO, 2007). Lack of management training for headteachers can result in poor management practices, a lack of teacher involvement in decision making, and hence to lower teacher morale and increased attrition (Quartz et al 2008; Mpkosa and Ndaruhutse et al 2008). Promotion procedures which are perceived to be unfair, further reduce the attractiveness of the profession. In South Africa for example, Arends (2007) has suggested that gender imbalances remain inherent in the appointment of teachers to the highest educator posts such as deputy principals and principal, demotivating female teachers.

Teacher effectiveness

There is some evidence that teachers derive satisfaction and motivation from the success of their students. As a result, teaching in difficult contexts and where the success is less visible, is less rewarding and results in more teacher attrition and inter-school movement. An example for this is that urban high-poverty schools in the US experience high teacher attrition (NCTAF; 2003). A study in Texas found that public school teachers are less likely to exit schools with relatively high-achieving students (Hanushek, Kain and Rivkin 2004). It has even been suggested that some of the movement between schools can be characterized as a search for "schools that make good teaching possible"(Johnson and Birkeland 2003).

In Africa, there are also indications that teachers are motivated by student success. A report by VSO (2002) highlights the role of student achievement in teacher motivation.

As one teacher in a secondary school in Zambia said, "I am coming to like my job when I see that the pupils are learning. In 1998 I used to complain a lot. I had a group that did well in the examinations and that really motivated me" (VSO 2002: 35).

School Climate and Supports for Teachers

Evidence from the US suggests that school climate may contribute to attrition. Moreover, factors such as heavy workloads, large class sizes, lack of administrative support, lack of parental involvement, feelings of little or no appreciation and student discipline problems have all been found to cause attrition (Croasmun, Hampton and Hermann1997). Several studies report inadequate administrative support and a lack of

teacher involvement in decision making as linked to higher attrition (Quartz et al 2008, Ingersoll & Alsalam, 1997; Shen, 1997), along with ineffective school management and poor social support for teachers in their schools (Stockard & Lehman, 2004). Another reason for giving up teaching in favor of a non-teaching job is a perceived higher control of one's own work.

In Africa, a VSO survey in 2007, reported that teachers spoke of a lack of respect coming from the education authorities and some felt this was shown through the way teachers are treated. For example, when teachers are not given correct or regular information, or they are not consulted about new developments, they feel it is because their views are not valued by those above and they are not respected enough to be considered and kept well informed. Junior teachers at times feel they are not treated fairly or respected by their elders.

The Status of the Teaching Profession

The status of teachers and popular perception of teachers plays an important part in teachers perception of the jobs. It is frequently argued that teacher status has fallen (Education International 2007), and that the low status of teachers has an impact of student achievement (Kubberund et al 1999). In Ghana in some cases teachers felt that they were not welcome in the communities they worked in (Hedges 2002).

Attrition attenuated by lack of alternative opportunities

In sub-Saharan Africa, teacher attrition is heavily influenced by the lack of alternative employment opportunities for teachers. Bennell and Akyempong (2007), in a study of 12 countries, point out that while resignation rates are very low in all the countries, this is not the consequence of high levels of job satisfaction, but rather an acute paucity of alternative employment opportunities. They suggest that low attrition in the context of pervasive teacher de-motivation only tends to make matters worse because dissatisfied teachers are unable to leave.

In South Africa it was reported that nearly three-quarters of teachers in the Western Cape have considered leaving the profession due to low morale, heavy workloads, low job satisfaction, and better employment opportunities elsewhere (Hall et al., 2005). In Lesotho, attrition from teaching was reported to be relatively low, as there were few alternative salaried jobs open to teachers. In Sudan, a government official described teaching as "a waiting place. It's not a profession. Teachers just teach when they have nothing else to do. But when an opportunity comes, they leave. Actually, the most qualified teachers change their profession. They go and work with NGOs. As soon as they get an opportunity, they shift (Sommers 2005)".

4

Patterns of Attrition



Netherlands/H. Wagner

Patterns of Attrition

Teacher attrition is not random, but rather reflects in many cases a conscious decision to leave the profession. There are two groups of teachers who seem more likely, in general, to leave the profession. The best qualified teachers, and those with skills and qualifications most valued in the labor market, seem more likely to leave, presumably because of the more attractive alternative opportunities available to them. At the other end of the scale, there is often higher attrition of unqualified teachers, those on informal contracts and those posted to the least attractive locations.

Higher rates of attrition among the best qualified

In general, attrition rates are reported to be higher for teachers with greater academic qualifications presumably reflecting the greater labor market opportunities open to them.

Similar patterns are reported in sub-Saharan Africa. In Namibia the highest rates of attrition were among teachers with higher levels of academic training, both for qualified and unqualified teachers; in 1997 nearly one quarter of those with more than two years of tertiary training left. In Lesotho, Uganda, Malawi and Zanzibar, the rates of attrition of secondary teachers were higher than those for primary teachers. In addition, there were anecdotal reports in Lesotho and Malawi of higher attrition rates for teachers with degrees than for those with diploma qualifications (Mulkeen 2010). In Tanzania, 2008 data reveals that secondary teachers with degrees were leaving the profession (voluntary resignation) at four times the rate of secondary teachers with diploma level qualifications.

Tanzania: Number of secondary teachers recorded as leaving the profession by qualification (Data from 2009 EMIS survey; refers to departure in 2008).

Teacher qualification	Number leaving the profession Note that other causes of attrition (retirement, death and illness) are not include in this figure	Number of teachers	%
Degree	161	5,836	2.8
Diploma	141	20,032	0.7
Grade A and other	106	8,086	1.3
Total	408	33,954	1.2

Higher attrition of secondary teachers

Evidence from a longitudinal study in the US suggests that attrition of secondary teachers is higher than that of primary teachers because their higher qualifications lead to greater labor market opportunities (Quartz et al 2008). As a result, attempts to improve quality by raising the qualification standard may result in increased attrition. As Quartz et al (2008) put it: *"Ironically, as the calls increase for highly qualified teachers, many bemoan the fact that these candidates seem to leave earlier and in greater numbers than their less academically credentialed counterparts"*.

Available data from sub-Saharan Africa suggests that the rate of attrition is higher for secondary teachers. In a series of cases in Anglophone Africa attrition of secondary teachers was higher than that of primary teachers in all countries where separate data were available. In Lesotho the reported attrition rate for secondary teacher is more than three times the rate for primary teachers. In addition, a greater proportion of the attrition of secondary teachers was a result of voluntary resignation. In Malawi resignation accounted for 29% of secondary teacher attrition, and only 11% of primary teacher attrition. In Uganda resignation or dismissal accounted for 33% of secondary teacher attrition, but only 29% of primary attrition. This is consistent with the suggestion that secondary teachers have more alternative labor market opportunities (Mulkeen 2010).

Annual teacher attrition rates for primary and secondary teachers (Mulkeen 2010)

Lesotho	3% primary, up to 10% for secondary.
Malawi	5% primary, 10% for secondary
Uganda	5% primary, 6% secondary
Zambia	9%, though may be overestimated by inter-school movement
Zanzibar	5% primary, 6-7% secondary

Higher rates of attrition of teachers of key subjects

Teachers of certain subjects have higher attrition rates than others. Mathematics and science teachers are found to leave at a higher rate than teachers of other subjects because they have more career options than other teachers (Boe, Bobbitt, Cook, & Whitener, 1997; Murnane & Olsen, 1990; Rumberger, 1987; Scafidi, Sjoquist, & Stinebrickner, 2005). In 1994-95, the rate of attrition of mathematics and science teachers in the US was 33% higher than the rate for teachers in general (Ingersoll, 2002).

This is consistent with the OECD (2002) view that shortages can be more pronounced in the subject areas of science and mathematics.

Teacher attrition and subject area in the US (OECD 2002, p74)

	Annual percentage
Mathematics and science 1994-95	16
All subjects 1994-95	14
Employees in all occupations (early 1990s)	11

In sub-Saharan Africa it seems likely that the attrition of mathematics and science teachers is higher than that for other teachers. Shortages of teachers of mathematics and science have been reported in Anglophone Africa (Mulkeen 2010) and Francophone Africa (Caillods 2001). While there is little data on the attrition rates of teachers with different subject specializations, there are anecdotal reports of greater attrition of science and mathematics teachers in Uganda and Lesotho (Mulkeen 2010).

High attrition of unqualified teachers

While there is high attrition of the teachers with the highest qualifications, there is also unusually high attrition of teachers without formal qualifications. In Namibia, it was reported that unqualified teachers left the teaching service at more than double the rate of qualified teachers (Kubberund et al, 1999). This may reflect their less secure employment conditions. Data from Zambia suggests that the rate of attrition of teachers from community schools, where teachers are very poorly paid, employed at the discretion of the community and are often unqualified, have a much higher rate of turnover than teachers in government schools.

Zambia: Attrition from government and community schools, 2005 (Source EMIS data 2006)

	Community	Government
All teachers	6,441	45,060
Attrition	2,376	4,056
Attrition rate	36.9	9.0

Higher attrition from undesirable locations.

Teacher attrition is often higher from schools located in areas seen as undesirable. In sub-Saharan Africa there is a pattern of higher attrition from less attractive postings, which are generally postings in more remote rural schools. In Namibia the lowest teacher attrition was in Windhoek, with the highest in the rural Okavango region (Kubberund 1999). In Malawi too, there were slightly higher attrition rates reported in rural schools (Kadzamira 2006). These patterns are not entirely consistent. In Zambia, for example rural areas appear to have higher attrition rates than provincial towns, but the capital city Lusaka also has a higher attrition rate than many provincial towns.

Teacher attrition in Namibia by region (1997 EMIS data)

	Attrition rate (%)	Schools with electricity
Namibia total	11.7	33.9
Rundu/Okavango	16.7	24.6
Ondangwa West	12.3	15.8
Ohangwena	12.4	13.2
Windhoek	7.5	87.8
Keet-manshoop	12.6	70.4

Zambia: Teacher attrition rates in selected districts 2007 (EMIS statistical bulletin 2008)

Province	District	Context	Male	Female	Total
Lusaka	Lusaka	Capital city	16%	8%	11%
Western	Mongo	Provincial capital	6%	7%	7%
Western	Shangombo	Rural	13%	9%	12%
Southern	Livingstone	Major town	6%	6%	6%
Southern	Namwala	Rural	14%	11%	13%

Inter-school migration

The preference for schools in some locations also encourages movement between schools. While movement between schools is not technically attrition, as the teachers remain in the profession, this movement results in loss of teachers in the less desired locations. The scale of the internal movement of teachers is very significant. Taken together, movement and attrition result in over 15% of teachers leaving their posts annually (Luekens et al. 2004).

5

Impact of Attrition



Sri-Lanka/
I. Voss-Lengnik

Impact of Attrition

Teacher attrition imposes costs on education systems. In the US it is estimated that each teacher leaving costs the employer about 30% of the annual salary in costs of substitution, recruitment and appointment. In addition there is the far greater cost of preparing newly qualified teachers to fill these positions.

But perhaps more important, high attrition has damaging impacts on the quality of schooling. High turnover schools are more likely to get inexperienced teachers (Rockoff, 2004; Rivkin, Hanushek and Kain 2005; Kane, Rockoff and Staiger, 2006) or under-qualified teachers, who are likely to be less effective (Darling-Hammond, 2000). Even if the replacement teachers are fully qualified, significant management time is absorbed in recruitment (Rosenholtz, 1985), and there is discontinuity in teaching with the change to a new teacher (Quartz et al 2008). The disruptive effects of attrition are unequally distributed, as teachers in the most difficult schools (the least desired posts) are more likely to leave, and more likely to be replaced by newly qualified or under-qualified teachers.

Impact in sub-Saharan Africa

In sub-Saharan Africa, teacher attrition also imposes significant costs on education systems. First, there is the cost of training new teachers. Teacher training is often financed from public funds, and as training is normally residential, it typically costs a multiple of the per capita cost of primary or even secondary schooling. Second, the inability to train sufficient teachers in many countries results in the widespread use of unqualified teachers, with consequent impacts on quality. Third, the loss of teachers often results in long delays before recruitment of replacements, resulting in unfilled posts, and loss of teaching time, sometimes for months. Finally, high turnover results in increased reliance on inexperienced teachers.

The use of unqualified or under-qualified teachers is well documented. In the Gambia, it is reported that student teachers sent to schools for practice teaching, are often placed in charge of full classes and take the same responsibilities and workload as qualified

teachers (VSO 2007). Similarly in Ghana, unqualified teachers often "hold the fort" in rural schools in the absence of suitable qualified teachers (Hedges 2002). In the Gambia, one head teacher reported that in one year all six teachers in his school had left, and only 2 of the 6 replacements were qualified teachers (VSO 2007). The negative impact of high turnover is well recognized. In Malawi, one study found secondary school students complaining that they were taught by more than three teachers in one term (Kadzamira 2006).

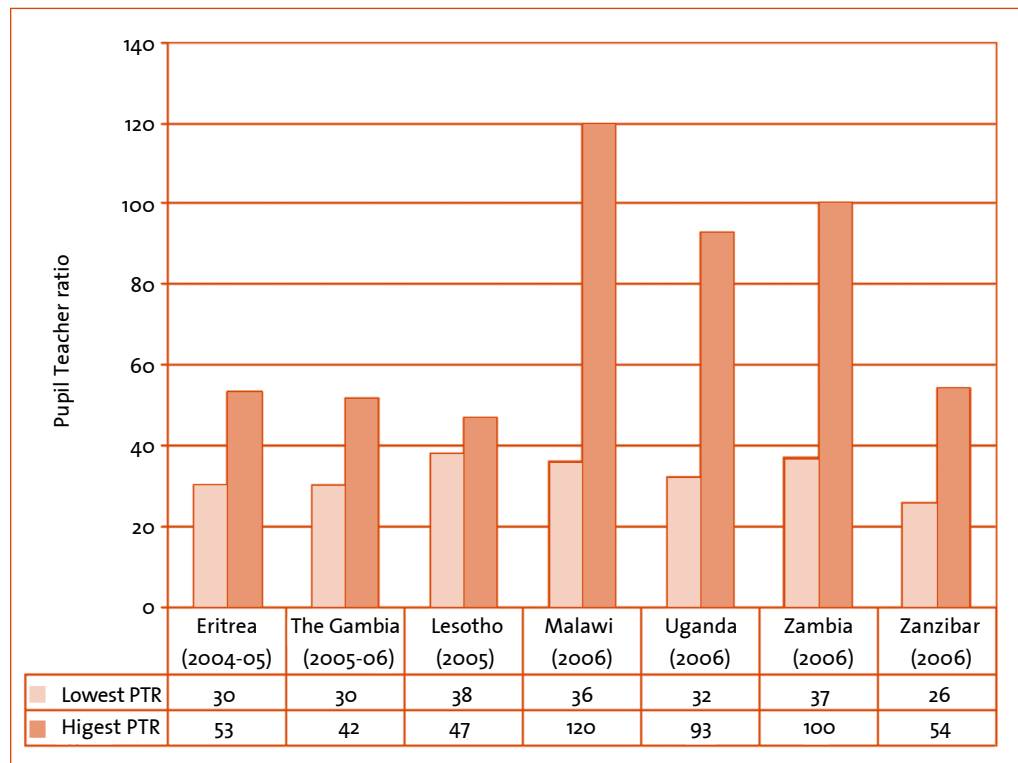
Greater impact on the most disadvantaged students

The impact of teacher attrition tends to fall disproportionately on the poorest and most disadvantaged teachers, for a number of reasons. First, teacher shortages tend to result in uneven teacher deployment, as the qualified teachers are able to find places in the more desirable locations and are able to avoid deployment to remote rural schools. The same is true when there are shortages of teachers with specific qualifications or subject specializations. As the figure below demonstrates, there are very significant variations in pupil teacher ratios within countries, reflecting the inability to ensure equitable deployment.

Second, teacher attrition tends to create opportunities for inter-school mobility, often resulting in empty classrooms at the least desirable postings. Empty positions in desirable urban locations are often filled quickly, as teachers in less desired locations are able to arrange a transfer. The resulting vacancies in less desired remote schools are less easily filled, and may remain vacant for an extended period, or be filled by an unqualified teacher.

Third, where teacher attrition and mobility are high, the most remote schools tend to experience a high turnover of qualified staff, as teachers posted to the school seek a transfer as soon as possible. As a result of the combination of these factors, the most remote schools are more likely to have more inexperienced teachers, more unqualified teachers, and longer periods with vacant teacher positions (Mulkeen 2010).

Variation in district average pupil-teacher ratio (PTR) in primary schools (Mulkeen 2010)



6

Possible Actions to Address Attrition



Latin America

Possible Actions to Address Attrition

Some kinds of attrition may be reduced by changes on policy and practices. Much of the discussion has focused on addressing the pull of alternative employment through increased teacher remuneration. However, it may also be possible to address some of the other factors, through reducing the push factors, and increasing the attractiveness of teaching as a profession.

In the US, while there is considerable research reporting the positive affects of a pay rise on attrition, increasing salaries across the board may not be a viable option to increase retention (Quartz et al 2008). Hanushek, Kain, and Rivkin (2001) estimated that school districts in the United States would have to increase urban teachers' salaries by up to 50% to convince them to stay.

Evidence from the US suggests that there are a number of school level non-salary interventions which can encourage teacher retention, including:

- 1. Mentoring and induction.** Schools providing mentoring programs for new teachers, and particular those that provided mentoring by colleagues in the school, appear to have lower rates of staff turnover (Guarino et al 2004; Quartz et al 2008).
- 2. Autonomy.** Schools which allow teacher more autonomy in planning and delivering the curriculum are found to have lower rates of attrition (Guarino et al 2004).
- 3. Support for professional development.** Schools which encourage and support staff professional development are likely to see improved retention (Quartz et al 2008).

The US research also suggests some wider policy actions which may increase teacher retention. In the US the ethnic background of teachers is associated with attrition rates. In particular, schools with a high proportion of African American students are more likely to retain African American teachers (Hanushek et al 2005). However, minority representation in teaching appears to be adversely affected by teacher-testing requirements (Guarino et al 2004). These suggest that policies which increase the minority access to teacher training courses may help to increase retention of teachers, particularly in schools with large proportions of minority students. There are also indications that teachers who enter the profession late are less likely to leave. Quartz et al (2008) note that female teachers who enter teacher training at older ages are less likely to leave within the early years of their careers.

Development of the teacher career structure is another promising avenue for encouraging teacher retention. In many systems, teacher salaries increase in small increments, and teachers find that the main avenues for career advancement involve leaving the classroom either to non-teaching positions or positions outside of the education sector. Darling-Hammond (1997) suggests that a new vision of the teaching career is needed, one which rewards the knowledge and expertise of those who work closest to children as highly as the skills of those who work furthest away and that makes those skills more widely available, thus enabling teachers to take on complementary roles as school and program leaders, curriculum developers, mentors, staff developers, teacher educators, and researchers while they remain teachers. One example of this vision in action is Rochester's (New York) Career in Teaching Framework, which includes four stages of teacher development: intern, resident, professional, and lead teacher (Koppich, Asher, & Kerchner, 2002). Here, advancement does not mean leaving the classroom. Lead teachers, who are selected by a joint panel of teachers and administrators, take on leadership roles such as mentor, staff developer, and curriculum specialist, but continue their accomplished teaching at least half time. In return, lead teachers have the potential to earn more than administrators. As Urbanski and O'Connell (2003) explained, this staffing framework provides "an opportunity for exemplary teachers to inspire excellence in the profession, share their knowledge and expertise with others, and actively participate in instructional decision-making without leaving."

Incentives and awards

In sub-Saharan Africa a variety of strategies have been used in an attempt to retain teachers. There have been some attempts to retain teachers by offering rewards for excellence in teaching, with mixed results. A scheme in Kenya offered incentive prizes ranging from 21% to 43% of monthly salary for teachers whose students achieved high performance in examinations. The impact of the financial incentives on teachers' practices was to increase the number of preparatory sessions for the exams. However the authors noted that this scheme could result in teachers encouraging cheating at exams, or provide an incentive for teachers to ask for transfers to "better" schools. The program did not impact on the levels of teacher absenteeism in Kenya (Glewwe et al 2003). In Ghana an annual award for the best teacher in each region has been reported to have a positive impact on morale of teachers. In The Gambia teachers were reported to be motivated by a Best Teacher Award organized by the Gambia Teachers Union (GTU). This seems so popular that one of the head teachers interviewed in the study was planning to conduct similar awards at a school level (VSO 2007).

Deployment

In sub-Saharan Africa, one of the keys to attrition is the reluctance of teachers to accept posts in remote rural schools. Many African countries, including Botswana, Uganda, Lesotho, Zambia, and The Gambia provide an additional allowance to teachers located in hardship schools (defined in a variety of ways). While these have some value, they are rarely sufficient to attract teachers to rural posts.

A number of African countries have experimented with bonding systems, where teachers are required to serve in a rural schools for the first period of their career. However, most of these have been difficult to enforce. Ghana provides a typical example, where a bonding scheme was introduced, that required newly qualified teachers to repay a bond if they failed to remain at their posts for three years. Over time, inflation reduced the value of the bond, and enforcement became lax. As a result the bond lost its value as a deterrent over time (Hedges 2002).

There have been some indications that changes to deployment policy could reduce attrition. In Lesotho, individual schools are allowed to select the teacher to be employed, a system which tends to favor local teachers, or teachers who are believed likely to accept the post (Mulkeen and Chen 2007). In general, systems of local recruitment tend to increase teacher satisfaction, and reduce attrition (Bennell and Akyeampong, 2007). In Ghana there are indications that deployment systems that allow newly qualified teachers, especially young women, to take posts in rural communities where they would perhaps feel safer, for example, near their relatives, , and systems that posted two newly qualified teachers together to the same school, would help to enable teachers move to difficult locations (Hedges 2002).

In countries where there are large numbers of untrained teachers, provision of in-service training may reduce attrition. For untrained teachers working in rural areas in African countries, there may be few other opportunities for salaried employment, but their status as untrained teachers limits their prospects for promotion, and in some cases for long term employment. Schemes of in-service training provide a career structure that can allow unqualified teachers to gain the required skills and qualifications.

7

Conclusions



Conclusions

This paper has reviewed the available literature on teacher attrition, defined as all permanent losses of teachers from the teaching profession, in particular as it relates to teachers in sub-Saharan Africa. Based on this literature, a few general conclusions can be proposed.

Published research on teacher attrition is fragmented. There are numerous published articles related to teacher attrition, both globally and in sub-Saharan Africa. However, many of these articles are themselves commentaries, and draw on the same limited sources of data. Data cited in publications comes from two main sources, (i) official statistics which tend to record quantity of attrition but provide little detail on the causes or even the patterns, and (ii) small scale qualitative studies, which provide anecdotal indications of causes.

In sub-Saharan Africa, teacher attrition is poorly monitored. There is a paucity of published statistics on teacher attrition. Many countries (even developed countries) have no robust system for capturing teacher attrition. One exception is the US, where the NCES has collected data on teacher attrition and conducted longitudinal studies. In SSA, information on teacher attrition, where available, is drawn mainly from two sources; (i) the annual census of schools collecting data for the ubiquitous Education Management Information Systems (EMIS) and (ii) data from human resource departments. Both sources have significant limitations. EMIS data may have a lower response rate in private schools, is reliant on school principal opinion as to the causes of attrition, and often has difficulty in distinguishing true attrition from inter-school movement. Data from human resource systems is normally confined to public sector teachers, often has difficulty in distinguishing teachers from other education sector workers, and often collects little information on the reasons for attrition. There is little systematic use of attrition data in planning for teacher requirements, and many of the projections are based on very crude assumptions.

There are often existing systems which could easily be modified to obtain more robust data on teacher attrition. School census instruments could easily be adapted to include questions on teacher attrition, and to collect data on key policy-relevant information such as teacher level of qualification, location of posting, gender and subject

specialization. Human resource databases could also collect this information at the point of termination. Availability of reliable data on attrition could allow much more sophisticated understanding of the requirement for replacement teachers, and the impact of policies on deployment and retention.

Teacher attrition rates are varied, with some countries experiencing low attrition that is unlikely to be sustained. Teacher attrition rates vary between countries and vary over time, in response *inter alia* to demographic patterns and labor market conditions. Attrition rates in African countries, where available, suggest attrition of between 2% and 10% of teachers annually. At the lower end of the scale, these attrition rates are unlikely to be sustained and can exist only because of either a temporary ban on retirement (in the case of Eritrea) or an unusually young teaching force and few alternative labor market opportunities. In SSA, as a consequence of the recent expansion of educational access, many countries have unusually young populations of teachers, thus contributing to this low attrition.

The drivers of attrition are varied. Some of the attrition is involuntary attrition resulting from reaching retirement age, illness or death, and is determined largely by demographics, health conditions and retirement policy. A second part of attrition is voluntary and driven largely by personal factors, the pull of alternative labor market opportunities and the push of dissatisfaction with teaching. While much of the discourse of attrition is concerned with HIV/AIDS and teacher mortality, in practice mortality accounts for a minority of teacher losses. A few general patterns related to the causes of attrition are suggested:

1. Attrition from retirement is likely to rise, as most countries in SSA currently have unusually young teacher populations, presumably as a result of recent expansion.
2. Attrition from mortality, although high, appears to be falling as health conditions improve and the HIV/AIDS mortality of the better educated appears to be declining. Mortality associated with AIDS has been lower than projected, reflecting both the achievements of information campaigns and the impact of ARTs.
3. Attrition to other employment is highly varied, and is likely to fluctuate with labor market conditions. This attrition is non-random, and has the greatest impact on the best education teachers.
4. Attrition driven by dissatisfaction with teaching is likely to be linked with the availability of alternative employment opportunities, but also with policies on deployment, career development, and school management.

One of the strong messages emerging was the importance of success in teacher motivation. In the US and in SSA, teachers were reported to be more frustrated in conditions where they could not see their students making progress. It is therefore suggested that unrealistic curricula and poor conditions of learning may contribute to attrition.

There are some general patterns emerging from the available attrition data. (i) For qualified teachers, in both developed countries and SSA, the attrition is concentrated in the early years. For those who stay for the first three years, attrition rates are lower until they reach retirement age. (ii) Attrition is higher among the best qualified and those with skills in high demand in the labor market. As a result, attrition of secondary teachers tends to be significantly higher than that of primary teachers, within secondary schools the teachers with mathematics and science qualifications appear to leave more frequently than others. (iii) Teachers posted to undesired locations, which in SSA normally means remote rural schools, have a higher rate of attrition than those in urban schools. (iv) There is also high turnover of unqualified teachers and teachers in less formal schools such as community schools in Zambia. The impact of teacher attrition falls disproportionately on some of the poorest and most disadvantaged children, as the effects of teacher shortage and teacher turnover are greatest in the most remote schools.

In SSA some of the attrition is hidden, and appears in the form of absenteeism. The literature on attrition is strongly linked with the literature on absenteeism. In the context of very limited resources, and in the absence of alternatives, many of the factors which drive attrition in developed countries may result in absenteeism in low income countries. There are repeated reports that where teachers are seriously ill, their head teachers and colleagues facilitate their absence and fail to report this absence, out of concern for the ill teacher and his/her family. Where teachers are dissatisfied by low pay, late payment, lack of autonomy, or poor management practices, this can be reflected in increased absenteeism. In addition, when teachers are presented with alternative opportunities in the informal labor market, these are sometimes taken up while retaining a teaching post.

The data suggest some policy actions that may be effective in reducing teacher attrition.

- *Attrition is likely to be responsive to changes in remuneration, and in the career progression of teachers, although improvements in these have fiscal implications.*

- *Attrition driven by personal factors may respond to deployment practices which are "family friendly", or are perceived to offer greater personal safety, such as postings near to relatives, to communities from the same ethnic group, or posting of newly qualified teachers in pairs. Local recruitment of teachers provides one mechanism for allowing teachers a greater choice of location.*
- *Attrition may also respond to policies which reduce the causes of dissatisfaction, including improved reliability of payment, more transparent promotion systems, opportunities for further training, and improved teacher management practices. Overall, teachers are less likely to leave the profession if they feel that they are successful in educating their students, that this is valued by the community and that they are appreciated by their managers. Hence *improvements in the quality and relevance of education, and any steps which "make success possible", are likely to contribute to teacher retention.**

Teacher attrition - some possible actions

a. Category: Demographics

Possible Factors:

Retirement age and policies, age profile of teaching force

Possible actions:

Changing retirement age, or policies to allow retired teachers to continue to work.

b. Category: Personal factors

Possible Factors:

Marriage, family responsibilities, illness

Possible actions:

Deployment policies which are family friendly. greater recruitment of local teachers

c. Category: Pull factors - alternative employment

Possible Factors:

Labor market conditions, relative pay of teachers, relative pay progression of teachers

Possible actions:

Increased remuneration, improved career progression (if affordable - both have significant costs).

d. Category: Push factors - dissatisfaction with teaching

Possible Factors:

Conditions of schools, living conditions at post, management within school, management within education sector, poor school climate, low job satisfaction

Possible actions:

Improved delivery of payment, transparent promotion systems, opportunities for training and development, improved in-school management and teacher autonomy, conditions of teaching and learning which "make success possible"

Part of the response to teacher attrition may include deliberate recruitment of the teachers most likely to stay in the system. Under current conditions, better educated teachers are less likely to remain in teaching. Consequently attempts to improve quality of education which involve raising the standard of certification of teachers, may have the unintended effect of increasing attrition resulting in greater use of unqualified teachers.

Planning for teacher provision is made more difficult by lack of reliable and detailed data on teacher attrition. Many of the countries likely to experience teacher shortages have inadequate data on which to base appropriate policy responses. Improved collection and analysis of teacher attrition data would provide a clearer foundation for development of appropriate policies.

Annex A

Annex A: Teacher Attrition in Selected African Countries

Eritrea: Recorded reasons for Teacher Attrition 2005 (Ministry of Education Data)

Reason for attrition	Number	%
Unknown	251	68.0
Expatriate	107	29.0
Death	10	2.7
Released	1	0.3
Total excluding expatriates	369	100.0

Malawi: Recorded reasons for Primary Teacher Attrition 2006 (EMIS Data)

Reason for attrition	Number	%
Died	618	29.8
Dismissed	421	20.3
Reason not known/Other	279	13.5
Retired	239	11.5
Resigned	230	11.1
Prolonged illness	149	7.2
Transferred to a non teaching post	135	6.1
Total	2,071	100.0

Malawi: Recorded reasons for Secondary Teacher Attrition 2006 (EMIS Data)

Reason for attrition	Number	%
Resigned	297	29
Prolonged illness	173	17
Died	157	15
Transferred to a non teaching post	151	15
Dismissed	138	14
Retired	63	6
Reason not known/Other	35	3
Total	1,014	100

Uganda: Recorded reasons for Primary Teacher Attrition 2005 (EMIS Data)

	Total	% of total
Reason not known/Other	2,347	36.57
Resigned/Dismissed	1,894	29.51
Died	721	11.23
Transferred to a non teaching post	518	8.07
Retired	495	7.71
Prolonged illness	443	6.90
Total attrition	6,418	100.00

Uganda: Recorded reasons for Secondary Teacher Attrition 2005 (EMIS Data)

	Total	% of total
Resigned/Dismissed	632	33.8
Reason not known/Other	541	28.9
Transferred to a non-teaching post	301	16.1
Died	191	10.2
Retired	115	6.1
Prolonged illness	91	4.9
Total attrition	1,871	100.0

Zambia: Recorded reasons for attrition, government and community schools (EMIS 2006)

Reason for attrition	Government	Community	% of Government	% of community
Other	1,804	418	44.5	17.6
Retired	924	25	22.8	1.1
Death	607	107	15.0	4.5
Contract expired	330	198	8.1	8.3
Resigned	140	1,202	3.5	50.6
Illness	121	79	3.0	3.3
Assigned to non-teaching duties	105	110	2.6	4.6
Dismissed	25	237	0.6	10.0
Grand Total	4,056	2,376	100.0	100.0

Zambia: Attrition of basic education teachers by reason and gender (Data from 2008 EMIS survey, refers to losses in 2007¹).

	Male teachers	Female teachers	Total teachers	% of total male	% of total female	% of total
Resigned	1,343	848	2,191	34.3	30.0	32.5
Others	883	743	1,626	22.5	26.3	24.1
Retired	458	393	851	11.7	13.9	12.6
Contract expired	407	285	692	10.4	10.1	10.3
Death	268	234	502	6.8	8.3	7.4
Dismissed	324	130	454	8.3	4.6	6.7
Illness	124	118	242	3.2	4.2	3.6
Assigned to non-teaching duties	111	76	187	2.8	2.7	2.8
Total attrition	3,918	2,827	6,745	100.0	100.0	100.0
Number of basic school teachers 2007	29,531	27,364	56,895			
Attrition rate	13.3	10.3	11.9			

Zanzibar: Recorded reasons for teacher attrition 2006 (EMIS 2006)

Reason for leaving	Total number	% of attrition
Move to private sector	89	24.9
Frequent or prolonged illness	85	23.8
On leave without payment	63	17.7
Retired	35	9.8
Transfer to other government post	31	8.7
Died	28	7.8
Expelled	26	7.3
Total	357	100.00

Percentage of teacher attrition attributed to retirement, death and resignation in selected African countries

	Retirement	Death	Resignation
Malawi Primary 2006	12	30	11
Malawi Secondary 2006	6	15	29
Uganda Primary 2005	8	11	30 (includes dismissed)
Uganda Secondary 2005	6	10	34 (includes dismissed)
Zambia Government schools	23	15	3.5
Zambia community schools	1	4.5	51
Zanzibar	10	8	25

¹ In Zambia, schools are asked to report teacher departures, including teachers who transfer to other schools. Teacher transfers to basic schools and to high schools have been excluded from this table as these are not considered part of teacher attrition.

Annex B

Annex B: Age profile of teachers in selected African countries

Eritrea: Age profile of teachers (EMIS 2004-05)

Number of teachers	Under 20	20-25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
Elementary	20	1,855	1,667	1,696	917	440	265	154	94	45
Middle	-	246	364	665	424	141	114	121	92	28
Secondary	4	241	365	271	193	109	102	99	91	34
Total	24	2,342	2,396	2,632	1,534	690	481	374	277	107
% of teachers										
Elementary	0.3	25.9	23.3	23.7	12.8	6.2	3.7	2.2	1.3	0.6
Middle	0.0	11.2	16.6	30.3	19.3	6.4	5.2	5.5	4.2	1.3
Secondary	0.3	16.0	24.2	18.0	12.8	7.2	6.8	6.6	6.0	2.3
Total	0.2	21.6	22.1	24.2	14.1	6.4	4.4	3.4	2.6	1.0

Lesotho: Age Profile of teachers (2005)

	Number	%
Under 25	126	3.6
25 to 29	687	19.6
30 to 34	728	20.7
35 to 39	608	17.3
40 to 44	495	14.1
45 to 49	322	9.2
50 to 54	233	6.6
55 to 59	165	4.7
60 to 64	87	2.5
65+	62	1.8

Liberia: Age profile of teaching staff in public schools (including principals and vice principals), of the 70% whose age is recorded, 2007 (HR records)

	Number of teachers	%
Over 70	111	1.6
65 to 69	148	2.1
60 to 64	350	4.9
55 to 59	625	8.8
50 to 54	1,443	20.4
45 to 49	1,820	25.7
40 to 44	1,399	19.8
35 to 39	818	11.6
30 to 34	160	2.3
25 to 29	160	2.3
20 to 24	39	0.6
Total for whom age is recorded	7,073	100.0

Zanzibar: Age profile of teachers

	Primary	Secondary	% primary	% secondary
Under 20	3	-	0.1	-
20 to 24	221	59	3.8	2.4
25 to 29	1,581	517	27.3	20.9
30 to 34	1,081	488	18.7	19.7
35 to 39	684	331	11.8	13.4
40 to 44	736	423	12.7	17.1
45 to 49	981	360	17.0	14.5
50 to 54	330	183	5.7	7.4
55 to 59	142	106	2.5	4.3
60 to 64	19	9	0.3	0.4
65+	3	3	0.1	0.1
Total	5,781	2,479	100.0	100.0

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