

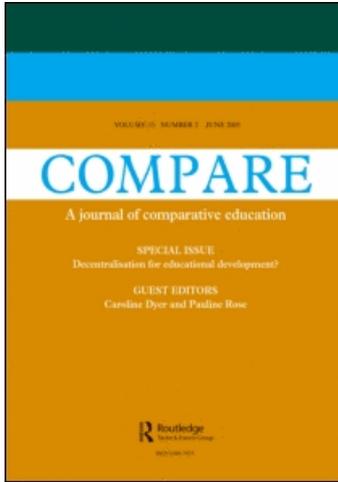
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Developing a systemic approach to teacher education in sub-Saharan Africa: emerging lessons from Kenya, Tanzania and Uganda

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While many countries in Eastern and Southern Africa are on track for meeting the Education for All targets, there is a growing recognition of the need to improve the quality of basic education and that a focus on pedagogy and its training implications needs to be at the heart of this commitment. By drawing on three East African countries, Kenya, Tanzania and Uganda, which are at different stages of development with regard to the reforming of teacher education, this paper explores the challenges and the lessons learned from each of the countries with regard to the development and strengthening of pre- and in-service training. The tension between quality, breadth and cost-effectiveness is explored together with a broader discussion of key principles to be taken into account when enhancing teacher education in the region as a whole.

Keywords: pre-service and in-service training; teacher education reform; sub-Saharan Africa; Education for All; basic education; quality education

Introduction

While many countries in Eastern and Southern Africa are on track for meeting the Education for All (EFA) target, an estimated 8.8 million children in these two regions remain out of school and around 50% of children are failing to complete primary education (Lewin 2009; UNICEF 2010). For those who do complete five or six years of basic education, the quality and relevance of the provision appears to be low with many leaving without having achieved a functional level of literacy and numeracy. A regional assessment of 15 countries conducted by the Southern African Consortium for Measuring Educational Quality (SACMEQ 2010), suggest only 57% of students are attaining basic levels in reading and 25% for mathematics. In the face of these challenges, there is a growing recognition of the need to address issues of quality as well as access, and that a focus on pedagogy and its training implications needs to be at the heart of the commitment to improve student retention, progression and learning outcomes (Aslam and Kingdom 2007; Alexander 2008; Stuart, Akyeampong, and Croft 2009; Mulkeen 2010).

The 2009 EFA monitoring report (UNESCO 2010) focusing on marginalized children reflects this shift in emphasis. It calls for a commitment to policies that focus on the creation of an effective learning environment for all children regardless

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of background, through the provision of adequate facilities, well-trained teachers, a relevant curriculum and clearly defined learning outcomes. Most importantly, it acknowledges that educational quality is largely obtained through pedagogical processes in the classroom and that what students achieve is heavily influenced by the knowledge, skills, dispositions and commitment of the teachers in whose care students are entrusted.

In placing pedagogy, and its training implications, centre-stage, this paper acknowledges the dangers of international agencies urging developing countries to adopt 'best practices' with regard to teacher professional development that ignore the everyday realities of the classroom, and the motivations and capacity of the teachers to deliver such reforms. Comparative research shows that teacher reform needs to combine the culturally or nationally unique with what is universal in classroom pedagogy if internationally driven reforms to teacher education are to be embedded in the classroom reforms (Alexander 2001; Crossley 2009; Heynemann 2009). Similarly, in an extensive review of research into teacher professional development in both the developed and developing world over the last 10 years, Avalos (2011) concludes that the way contextual factors interact with learning needs varies depending on the traditions, cultural mores, policy environments and school conditions of a particular country. Acknowledging the importance of local cultural and educational circumstances is also necessary if we are to avoid the simplistic polarization of pedagogy into 'teacher-centred' versus 'student-centred' that has characterized much of the educational discourse in the international donor community (Tabulawa 2003; Barrett 2007; Alexander 2008).

While bearing this broader contextual picture in mind, this paper focuses on issues centred on the design of effective professional development systems, and on the challenges of providing quality training to all teachers within a poorly resourced education system. The paper begins with a discussion of the general trends to teacher education reform in Eastern and Southern Africa before going on to consider the three country case studies, and the main lessons to emerge from the studies for those charged with improving teacher capacity and the quality of primary education in sub-Saharan Africa and beyond.

Reforming teacher education

In discussing teacher quality in Eastern and Southern Africa it has to be acknowledged that by international standards average teacher academic qualifications and levels of training are low as many teachers are unqualified or underqualified. SACMEQ data collected in 2007 shows that a significant percentage of students in the region are being taught by teachers with a junior secondary school qualification or lower. Where teachers have received pre-service education and training (PRESET) it is judged to be of poor quality (Feiman-Nemser 2001; Lewin and Stuart 2003; Lewin 2005; McGinn and Schiefelbein 2010). It is found to be largely institution-focused, lecture-based (usually from trainers who lack experience and expertise in primary education) with little in the way of supervised practical teaching, thereby creating a large gap between theory and actual classroom practice, and a repetition of secondary education at several times the cost (Lewin 2005; Mattson 2006).

Similarly, the provision of in-service education and training (INSET) is also judged to be of poor quality with little transferability to the classroom. Where it

does exist, it is often found to be ad hoc with little follow-up in the classroom and mainly concentrated in urban areas (Duthilleul and Allen 2005; Penny et al. 2008; Mulkeen 2010). The studies also found that there was confusion in the way INSET was being conceptualized with teacher certificate upgrading to improve academic qualifications rather than pedagogic skills being classed as INSET. This conflating of teacher professional development with certificate upgrading appears to have its historical roots in the large number of teachers with low academic qualifications.

Such identified weaknesses at the PRESET and INSET stages have led to calls for a radical overhaul of teacher education that moves away from a largely college-based PRESET to a more long-term sustainable vision of continuous professional development (CPD) that would systemically update the key competences that teachers require in the classroom (Verspoor 2005; Timperley 2008; Mulkeen 2010). In response to this need, development partners in the Eastern and Southern African region have been assisting governments to develop national INSET strategies and CPD systems for teachers. The emphasis has been to bring together PRESET and INSET to ensure coherence, consistency and quality of training so that all children have access to teachers with minimal competences. The use of school-based INSET supported by distance learning materials and school clusters has been strongly advocated as a way of closing the gap between theory and practice, and raising the quality of teaching and learning in the region's primary schools (Mattson 2006; O'Sullivan 2006; Hardman et al. 2009).

Such trends represent a clear strategic shift away from institutional-based primary teacher education towards more flexible school-based provision. In many countries in the region, ministries have been setting up INSET units with their own budgets to work through a decentralized network of provision at the regional, district and zonal-level in order to monitor and support school-based programmes. Many programmes have also put in place local support agents to work with head teachers and teachers in the schools. The decentralization of teacher education has also been in line with the broader section-wide approach to education planning promoted in the region (World Bank 2001). These initiatives have been supported by arguments for increased governmental responsiveness, greater community participation, more flexible planning and implementation and more efficient and less expensive provision (Mattson 2006).

Country case studies

Given the need to place pedagogy and its training implications centre stage in the quality debate, this paper focuses on teacher development initiatives in Kenya (supported by DFID), Tanzania and Uganda (supported by UNICEF) where more flexible and decentralized approaches network for delivering training have been developed. Kenya provides a case of a country where national systems for INSET linked to other key systems were established before the rapid expansion of enrolment due to free primary education in 2003. It also provides evidence to demonstrate that a well-designed INSET programme, supported by other key interventions, can have impact on teaching and learning practices. The Tanzania case focuses on the challenges of designing a new INSET system from scratch, while Uganda focuses on how systems can be strengthened through identifying and addressing critical capacity gaps within the system.

Kenya

Kenya recognized the need to develop a national INSET and CPD programme to improve pedagogical practices in the late 1990s. It also recognized that professional development programmes need to focus processes in the school and classroom as necessary levels of intervention for improving the quality of teaching and learning (O'Sullivan 2006; Hardman et al. 2009). Likewise it saw the need to link teacher education with head teacher training and community empowerment, including the development of a school-based textbook management system and quality assurance procedures (Herriot et al. 2002; Crossley et al. 2005).

Support for the above developments was provided through the two complementary DFID funded projects – Strengthening Primary Education and Primary School Management. The systems that were developed during this period were to prove critical when Universal Free Primary Education was announced in 2003 by the National Rainbow Coalition. Efforts to cope with the huge surge in enrolment and to attain the goal of universal primary education by 2015 focused attention on the scaling-up textbook provision, as well as countrywide in-service training provision. The Ministry of Education through its INSET unit ran a national, distance-led teacher education scheme for classroom teachers called the School-based Teacher Development (SbTD) programme. SbTD was designed to be cost-effective and to combine the benefits of distance education with school-based teacher development. The aims of the programme, which ran from 2001–2005, were primarily to improve the quality and cost effectiveness of teaching and learning in primary schools through teachers acquiring new skills that promote active learning and training them in the use of new textbooks (Hardman et al. 2009).

SbTD was developed as a programme of self-study, using distance-learning modules combined with regular face-to-face cluster meetings. It successfully graduated over 47,000 primary school teachers throughout Kenya in the three core subjects of English, mathematics and science. This initial focus was important to SbTD's success in rolling out the training. Three teachers from every school, called Key Resource Teachers (KRTs) were trained to lead school-based professional development within their subject area in their schools. The programme was supported by a zonal-based teacher advisory system of over 1,000 teacher advisory centre tutors, who were trained to provide group-based support service to the KRTs who were working with distance learning materials while carrying a full-time teaching load in the schools. Head teachers also received training materials so that they could support the KRTs in providing school-based training.

In 2005, as part of a five-year sector wide programme, the Government of Kenya, with support from development partners, launched the Kenyan Education Sector Support Programme (KESSP 2005–2010). A major strand was the expansion of SbTD to include the teaching of Kiswahili and training in guidance and counselling, and the launching of a national textbook programme called the Instructional Materials Programme. The programme aimed to accelerate textbook availability in schools using the school-based textbook management systems, thereby further reducing the costs of education to all Kenyan primary age children and significantly improving textbook: pupil ratios (MoEST 2006; Barasa and Hardman 2008), using systems that had already been established through the Strengthening of Primary Education (SPRED) project. Eighteen thousand primary head teachers were also given training in curriculum leadership and whole-school development in an

initiative entitled school empowerment programme, which built on the primary school management programme (Crossley et al. 2005).

Evaluating the impact of SbTD on teaching and learning

Too often, it is difficult to assess the impact of interventions due to the lack of baseline data (Riddell 2008). However, in the case of Kenya, SPRED supported the Kenyan national primary baseline in 1998 (MoEHRD 1999), which incorporated the SACMEQ survey of the same year, as well as specific studies, including an evaluation on teacher–pupil interaction (Ackers and Hardman 2001), which was specifically designed to allow for the future measurement of the impact of SbTD. Building on the baseline study, follow-up evaluations were conducted in 2005 and 2006 to investigate the impact of SbTD and the provision of textbooks on classroom practices (Barasa and Hardman 2008; Hardman et al. 2009).

While the 1999 national primary baseline found an overwhelming level of directive teaching and rote learning going on in the teaching of primary English, mathematics and science, characteristic of many classrooms in the region, the 2005 evaluation of SbTD suggested that there had been major changes in pedagogic practices in Kenyan primary schools. For examples, 34% of teachers in the 2005 sample used paired/group work in their lessons compared to only 3% in 1999. The findings also showed that a greater range of organizational arrangements were being deployed by teachers to meet different educational goals: in the 1999 national primary baseline, most classrooms (97%) were organized using a traditional classroom layout (i.e. desks organized in rows); this compared to 42% of classrooms in the 2005 evaluation using an alternative classroom layout. Textbooks were also far more in evidence compared to the national primary baseline with an average pupil/textbook ratio of 2:1 at Standard 6 and 3:1 at Standard 3.

Another premise for change that was addressed was the role of the head teacher, which was seen to go beyond the traditional role of administrator to include the leading of pedagogic change. The practice of having KRTs and head teachers collaborate with other educational professionals, such as inspectors and teacher centre advisers, to examine what is taking place in classroom and schools, and provide constructive and non-directive feedback, was also identified as an achievement by the study. In addition, the practice of having KRTs paying fees directly to the teacher advisory centre tutors so as to participate in the training was judged to have been a success: it increased resources, incentives and accountability at the local level as tutors were informally monitored in their effectiveness in programme delivery and record keeping.

However, findings from the SbTD evaluation suggested that the ‘cascade’ model of school-based training, whereby KRTs work with other colleagues in the school to pass on their training, was having less impact than had been anticipated by the programme’s designers (MoEST 2006). It was found that 62% of KRTs used some form of peer interaction in their lesson, compared to 17% of the non-KRTs. A similar picture emerged with the use of open-ended questions (i.e. questions eliciting a range of responses): KRTs were twice more likely to ask an open question; 11% of the questions asked by KRT teachers were open compared to 5% asked by non-KRTs. The main reason given for the lack of effectiveness of the KRT in leading school-based training was the heavy workload of all teachers, which left little time for systematic input. This suggested the need for all teachers to undergo in-service

training with official time being set aside for school-based training, and for KRTs to be given time to observe, coach and provide feedback to their colleagues (Joyce, Calhoun, and Hopkins 1997; O'Sullivan 2006; Darling-Hammond 2006; Peck et al. 2009).

Tanzania

Tanzania was the first country in the region to come very close to achieving universal primary education in the early eighties under Nyerere's African socialist policy. *Education for self-reliance* was administered through a village-based programme structured around the notion of *ujamaa*, or extended family, found in traditional African cultures. School fees were abolished and there was a focus on the establishment of a more 'practical' and 'agriculturally-oriented' curriculum. However, in 1984, school fees were introduced and by the end of the twentieth century less than 60% of primary school-aged children were in schools.

In a new drive to address problems of access and quality, 2001 saw the abolition of school fees and in 2002 the heavily donor supported Primary Education Development Programme was launched. This was followed by the Secondary Education Development Programme in 2004, designed to expand secondary education access by up to 50% by 2010 (Wedgwood 2007). In 2008, given the need to address the quality of the rapidly expanding teaching force, the Tanzania Ministry of Education and Vocational Training (MoEVT) requested the support of UNICEF in developing a national INSET Strategy and Operational Plan based on the Teacher Development and Management Strategy (TDMS 2008–2013). It is very important to stress that while the INSET strategy was a key component of the TDMS, this component was acted upon before the strategy as a whole was finalized, as the TDMS was very broad in scope and required much more dialogue and elaboration. A baseline study of the quality of classroom interaction¹ and the current provision of INSET to inform the TDMS was therefore conducted (UNICEF 2008), as well as a mapping of existing teacher education related policies, structures, plans and activities (UNICEF 2009). These two baseline studies culminated in a set of guidelines for the development of an INSET and CPD strategy linked to the TDMS (MoEVT 2009).

The findings from the analysis of 300 lessons from eight districts, covering the teaching of primary English, mathematics, Kiswahili and science at Standards 3 and 6, found that teacher-directed activities (explaining, question and answer, writing on the chalk board, reading to the class, asking pupils to read, lesson summary) took up over half (55%) of the lesson time (Figure 1). Individual seatwork, where pupils worked on exercises from the chalkboard or textbooks and teachers marked the exercises, accounted for 25% of the lesson time (UNICEF 2008). More pupil-centred forms of learning (i.e. paired or group work, pupil demonstration) accounted for just 14% of the lesson time, with paired/group work making up 6% of the lesson time. Non-curricular activities (i.e. administration, no teaching activity taking place) took up a further 6% of the time.

The classroom interaction analysis also suggested there was little variation in teaching approaches across all four subjects at both stages of the primary curriculum and no significant differences were found between urban and rural schools. In other words, teachers used the same teacher approaches regardless of the subject they were teaching, and there were few opportunities for pupils to contribute their

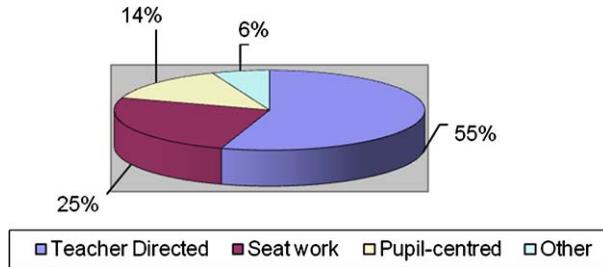


Figure 1. Lesson activity.

own ideas through paired or group work, a finding similar to small-scale studies of classroom interaction conducted in Tanzania (O-saki and Agu 2002; Wedin 2010) and the 1999 Kenyan national primary baseline study (Ackers and Hardman 2001; Hardman et al. 2009).

The pupil–textbook ratio was found to be 10:1 at Standard 3 and 6:1 at Standard 6. Of the 300 lessons observed, 40% of classes had no pupil textbooks. Similarly, the use of visual aids, such as charts, models and scientific equipment were only recorded in 19% of the lessons observed. The findings therefore show the scarcity of teaching and learning resources in Tanzanian primary classrooms, reinforcing the practice where teachers spent an excessive time writing up notes on the blackboard with pupils copying from it.

The baseline survey of INSET provision in the eight districts found it to be poorly funded and often ad hoc (UNICEF 2008). There was an absence of strategic planning, coherent policies, regular provision and monitoring of INSET, and confusion between the central and local governments over roles and responsibilities with regard to teacher employment, professional development and accountability for performance. Where it did take place, INSET often took the form of government-supported certificate upgrading rather than school-based INSET and workshops focusing on pedagogy. Otherwise, agencies like UNICEF and key non-government organizations, including Oxfam, provided support in certain locations and for certain themes. However, less than a half of the teachers in the questionnaire sample ($n = 400$) had been exposed to any INSET since they had entered teaching. A survey of teacher resource centres, introduced in the late 1990s with the help of international donors to support INSET at the local level, found that many had fallen into disuse or merely acted as a meeting venue (UNICEF 2008). Where they were still functioning, they were usually staffed by a teacher seconded from a local school with very little training, status and autonomy. Because salaries and resources had been attached to the life-cycle of donor projects, and with little government support, many had ceased to function.

Overall, the baseline findings suggest that improving the quality of primary education in Tanzania presents a considerable challenge. Many of the teachers observed were working in an environment of genuine constraints caused by inadequate funding: schools lacked electricity, learning resources and other facilities. Where material conditions are poor in terms of the availability of teaching and learning resources and classrooms are often overcrowded, there are clearly limits on what teachers can do to change their teaching practice. However, findings from the Kenya SbTD programme, where the context is not dissimilar in many respects,

support the view that changing in teachers' beliefs, knowledge, understandings, skills and commitments, is still achievable through a well-designed and supported school-based INSET system and programme. Indeed Tanzanian Ministry of Education INSET officials visited Rwanda and Kenya to look at systems that were already tested to guide their thinking.

Building on the baseline study, guidelines for the development of an INSET strategy linked to the TDMS (UNICEF 2009) were subsequently developed. They recommended the development of a systemic approach to CPD. This included: a national school-based model of INSET delivery, placing teacher development at the school, classroom and cluster level; an overarching national framework of teacher competencies covering both PRESET and INSET; an effective CPD framework, building on national training modules for use at PRESET and INSET allowing for flexible modes of delivery to meet local conditions; an agreed code of professional conduct and training for teachers overseen by a national teacher accreditation council; an agreed incentive and accreditation system to support the implementation of the CPD framework; a communication strategy to promote and develop understanding of the CPD framework at national, regional, district, ward and school level; and, a human resource strategy developed for key players to manage systems at national, regional, district, ward and school level with clear roles and responsibilities mapped out for each level.

As Figure 2 shows, the proposed system for delivering INSET to address the CPD needs of teachers at different stages of their careers places the teacher and the school at the heart of the professional development process.

As reflected in Figure 2, the key objectives of the school-based INSET strategy are to develop a system where teachers reflect upon their own beliefs and classroom practices through paper-based and online distance learning materials, and face-to-face meetings with tutors and cluster meetings of teachers at ward level. It is therefore designed to ensure school-based INSET activities are embedded in the school and district yearly development plans, and teachers are supported in the classroom through observations, coaching and feedback to improve the quality of teaching carried out by ward coordinators, inspectors and teacher training college tutors.

The core of the strategy is a competency framework covering the four domains of subject and professional knowledge, teaching skills, assessment and evaluation and professional values and behaviour. By drawing on national and international literature, the competency framework is designed to act as a common reference point for making explicit the knowledge, skills and attributes that characterize good teaching practice to provide direction for the development of the national INSET and CPD strategy. Equity is a critical priority in the development of the strategy and, learning from the Kenyan experience, the role out of the Tanzanian CPD strategy will build on the provision of school-based INSET provision to all teachers over a three-year period. Building on this provision, the most effective teachers will be encouraged to take more advanced modules in, for example, mentor training, curriculum leadership, middle management, so as to provide curriculum leadership and training. At school and district level, the training needs of teachers will be annually reviewed to determine INSET provision.

Ensuring government leadership and the systemic integration of the programme within the education sector plan is critical for such programmes to go to scale. While an implementation plan has been approved by the education ministry, major

challenges remain both in the funding of the strategy and resource allocation at different levels of the education system, particularly at the school level, to ensure the success of school-based training. The capacity and training needs of those charged with organizing and providing the training, mentoring and coaching, such as district officers and college tutors, also remains a major challenge, as does the creation of incentives and accreditation for those college tutors and teacher mentors teachers who will be taking part in the INSET.

Uganda

Like Kenya and Tanzania, Uganda's education system has undergone significant development following a commitment to universal primary education and the abolition of school fees in mid-1996. In 1998, following the large growth in primary school numbers, the Government of Uganda launched the Education Strategic Investment Plan. The plan formed part of its sector-wide approach and the Ministry of Education and Sport (MoES) was committed to a decentralized approach to increase local leadership, capacity and transparency in the distribution of resources, and to achieve greater integration of development partner and government effort to arrive at coherent and comprehensive approach to aid management (Penny et al. 2008).

Uganda first developed a national CPD strategy in 1994. A major part of the strategy was the development of a Teacher Development Management System (TDMS), which led to the institutionalization of a coherent PRESET and INSET approach to the primary teacher education system in order to address inherent weaknesses in classroom pedagogy (Burke et al. 2002; Mattson 2006; Penny et al. 2008). In 2004, the TDMS was succeeded by the Primary Teacher Development and Management Plan with a greater focus on CPD and accountability by strengthening the role and functions of parent-teacher association, school management committees and head teachers in school-based training. One of the main purposes of the plan was to ensure primary teachers were provided with CPD so as to raise attainment in primary schools. A focus on quality is the key target of the MoES's latest Education Sector Strategic Plan (2007–2015) and builds on numerous reforms and initiatives in recent years, such as a revised lower primary curriculum with a greater focus on literacy, numeracy and life skills, and taught through the medium of local languages.

Uganda has 46 primary teachers' colleges of which 23 are seen as being core to the delivery of school-based INSET. Kyambogo University, acting on behalf of the MoES, is responsible for all of the teacher training colleges, and relies on nine of them to act as co-ordinating centres for the delivery of a mixed-mode education diploma for practising teachers, offering face-to-face contact during the school holidays. Audio cassettes have also been introduced to supplement print material and face-to-face college tutor support (Mattson 2006; Penny et al. 2008). Each core primary teachers' college has up to 40 INSET teacher educators, called coordinating centre tutors, attached to the college. This contrasts with Kenya and Tanzania where teacher colleges have not engaged in INSET in a systematic sense to date, although, as discussed above, it features strongly in the Tanzanian INSET/CPD strategy.

Coordinating tutors are based at the centres and provided with a motorbike to enable them to do in-school CPD work, which comprises the majority of their time. Each tutor is responsible for providing workshops at the coordinating centre on

Saturdays and during school holidays, and school-based support involving lesson observation and feedback to teachers and head teachers within a reasonable distance of their centre. Inspectors also provide some support supervision but mainly monitor and evaluate the effectiveness of implementation. Implementation of the Primary Teacher Development and Management Plan has meant every teacher in Uganda receiving training and support supervision from a coordinating centre tutor. For example, in 2007–9, every primary 1–3 teacher and head teacher was trained to implement a thematic curriculum.

However, one of the main challenges in raising the quality of primary education in Uganda has been to improve the technical capacity of the coordinating centre tutors and inspectorate at national and district level to implement new initiatives (Penny et al. 2008). Much of the training tutors and inspectors receive is made up of one-off, workshop-based provision that does not include on-site coaching and refresher courses in skills. Hence, it is too short to enable them to develop their own technical knowledge and understanding of various primary teaching approaches, and to develop their own skills in training teachers and head teachers to implement new initiatives in teaching and management strategies. There is also little in the way of mentoring/coaching type training provided to coordinating centre tutors and inspectors, which research has shown is the most effective type of training (Joyce, Calhoun, and Hopkins 1997; O’Sullivan 2006; Hardman et al. 2009; Avalos 2011). There is also a technical capacity gap in some areas among the trainers of trainers providing training to tutors and inspectors.

In light of the above, a UNICEF supported comprehensive long-term coaching and mentoring training programme has been planned to develop the capacity of all centre coordinating tutors and district inspectors in Uganda to support primary teachers and head teachers to implement MoES minimum standards. In light of the lack of national capacity, the programme will provide 23 international primary teacher educators. Each teacher educator will be based at a core primary teachers’ college and will use coaching/mentoring training approaches over four years to develop the capacity of all tutors and inspectors attached to the college. This programme is beginning with a national baseline survey of 15% of all primary schools in Uganda, which is currently gathering data on the current state of education in relation to national minimum standards. This survey will be used for mid- and end-of-programme evaluations, and to inform the coaching/mentoring activities that will take place.

Emerging lessons

Overall, the findings from the three case studies support the view that enhancing the capacity of the teaching profession is crucial if the quality of teaching and learning in primary schools in the region is to improve. The findings from Kenya and Uganda suggest that the provision of well organized, large-scale, but decentralized, INSET has done much to enhance teacher access to the competences required for them to deliver higher quality basic education (UNESCO 2010). They also suggest a move away from ad-hoc provision, which is inequitable and can be of variable quality, to a more systematic and longer-term approach where the teacher is much more involved in his or her on-going professional development, and where other actors play critical supporting roles. By focusing on the classroom, school-based training can help teachers develop more of a dialogic pedagogy so as to

promote cognitive engagement and understanding. This would help to broaden the repertoire of whole class teaching currently found in many African classrooms so that dialogue and discussion are included alongside the more traditional drilling, closed questioning and telling (O'Sullivan 2006; Barrett 2007; Alexander 2008; Hardman et al. 2009).

In each of the three cases discussed, a multi-mode system, including distance learning and teacher development at school and school cluster level, is seen as the most effective way for ensuring national INSET coverage (ADEA 2002; UNESCO 2004; Mattson 2006). School-based mentoring and support is central to all three INSET strategies as a way of building technical capacity in core areas of the primary curriculum. In the case of Kenya, school-based training has been supported by using distance-learning modules combined with regular face-to-face cluster meetings. In the Ugandan model, teachers are expected to try out a series of classroom interactive activities followed by out-of-class analysis, discussion and preparation of lessons, and instructional techniques and materials. Such cluster meetings are facilitated by teacher educators who serve as mentors, and school teachers who serve as facilitators, thereby contributing to their own professional development in primary pedagogy. Similarly, the Tanzanian model that is currently being developed will involve teacher trainers providing residential contact sessions to practising teachers during the school holidays. They will be supported by INSET building on the established training of tutors programme. As in Uganda, they will be responsible for the distance learning modules through cluster arrangements, and observing and coaching teachers in the schools.

In adopting the school-based model of training, there would appear to be economies of scale due to the wide reach of distance education programmes and their ability to reach remote areas. However, Mattson (2006) questions the assumption that school-based training, with face-to-face teaching and classroom-based guidance, supervision and assessment provided by local-level support tutors, is a cheaper option than the traditional college-based approaches to teacher education. She argues that there is little reliable evidence to support the view that distance education programmes with strong local face-to-face support and assessment are cheaper than full-time residential courses. Such provision requires a significant investment of time and money in building partnerships, collaboration and delegation. It also requires a clear division of roles and responsibilities between national, regional and district offices, and between head teachers, schools, tutors and local colleges.

Teacher education will also have limited success if there is disjuncture between the training teachers receive and the cultural mores, policy environments and school conditions of a particular country (Avalos 2011). For example, end-of-primary examinations continue to exert a powerful influence on teaching and learning in many sub-Saharan African countries because of their focus on memorization and factual recall, leading to transmission forms of teaching (Somerset 2010). It is important that other approaches supplement the current normative evaluation and that teachers have a thorough understanding of formative and competency-based assessment (Akyeampong, Pryor, and Ampiah 2006; Wiliam 2010).

Similarly, the official policy of teaching the primary curriculum through the medium of English in Kenya and Uganda also seems to be exerting a powerful influence on the patterns of classroom interaction and presenting communication difficulties for both teachers and pupils (Arthur and Martin 2006; Hornberger and Chick 2001). In the case of Tanzania, Wedin (2010) argues that Swahili, like

English, is a second language for the majority of primary pupils which few have mastered when they start school leading to similar communication difficulties. Such difficulties have led to what Hornberger and Chick (2001) call 'safe talk' where the chorusing of answers is used as a 'participation' strategy in response to teacher-led rote and recitation, often with little understanding on the part of the pupils, is used to save face on the part of teachers and pupils and mask the language difficulties and fact that little academic learning is taking place (Pontefract and Hardman 2005; Abd-Kadir and Hardman 2007).

Recent studies point to the advantages of using African languages as the medium of teaching and learning in addition to the former colonial language (Arthur and Martin 2006; Cummins 2007). However, the linguistic complexity and financial implications of providing for mother tongue teaching in context where there are many local languages has to be recognized. In Uganda, for example, there are now 11 languages of instruction in a context where there is far less money for textbooks than in previous years when only English was recognized (Penny et al. 2008). It will also require the appropriate training of teachers in the use of mother tongue and second language teaching to make the curriculum more relevant by connecting the learning to the pupil's experience, environment and culture.

Concluding remarks

The main lesson from each of the case studies is that a systemic approach to teacher education is required if teachers are to maintain the necessary skills to ensure effective learning outcomes in classrooms. The case studies suggest that there needs to be clear linkages between PRESET and INSET and an alignment of policies, plans and institutional arrangements for teacher education, so that an effective CPD programme can ultimately be implemented at a national scale. This will ensure that teacher education is part of a broader capacity development strategy that supports all actors in the education system, including, for example, head teachers, district education officers and teacher trainers, and that it is cost effective against all the other competing demands in a resource-poor environment.

Ideally, teacher education should be treated holistically and PRESET should be linked seamlessly to INSET provision, although in practice these linkages are often not made and INSET is developed while antiquated PRESET systems remain. As the case studies show, there is a need to adopt a planning continuum that integrates the use of distance education and face-to-face delivery in a flexible model, and supports teachers in the classroom by ensuring resources, capacity building and incentives are devolved to those responsible for observation, coaching and assessment. Building capacity of the entire system and support networks that link key stakeholders with one another is therefore crucial, as is the need to take the political economy of a country into account. In decentralizing teacher education it is also necessary to encourage transparency about the budget, build capacity at all levels of the system, and to consult all stakeholders on the distribution of responsibilities, resources and incentives.

Putting in place a systematic monitoring and evaluation system with input from stakeholders across all levels of the education system will help improve accountability, planning and implementation, and assist in knowledge sharing. The starting point should always be a baseline assessment of existing classrooms practices. A broad situation analysis of all factors affecting education quality and access is also

highly desirable, as is an analysis of existing structures, systems and policies and plans. Too often new initiatives start at the micro level and are very seldom scaled up because they have not addressed systemic issues that need to be identified through feasibility studies, audits and baseline studies to gauge existing capacity and identify developmental inputs.

This paper does not conclude, however, that school-based INSET alone can address the problems faced by teachers and learners in sub-Saharan classrooms where resources are scarce and the education systems are likely to continue to face many constraints. It has been argued that a holistic approach to building an education system is required which emphasizes capacity building and the equitable distribution of resources at national, regional, district and school level. However, the quality of the teacher is essential to raising standards in the region's primary schools, and systemic school-based INSET, together with management and career structures that result in consistent and high quality performance by teachers, could contribute to teachers' sense of professionalism and classroom practice, and raise educational achievement.

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Note

1. A computerized systematic observation was used to code teaching behaviours capturing both frequency and duration. The coding of the data primarily focused on The Initiation–Response–Feedback structure adapted from the work of Sinclair and Coulthard (1992) by gathering data on the types of teacher questions, whether questions were answered (and by whom) and the types of follow-up given in response to answers.

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