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Editorial Postscript

1. Introduction

The MUSTER project grew out of shared concerns about the lack of research-based insights into teacher education policy and practice in low-income countries. The papers in this special issue begin the process of filling some of the gaps and speak for themselves. This postscript provides an opportunity to discuss some over-arching and cross-cutting issues that arise from the research. First, questions concerning the development of teacher education policy are explored. Second, some of the possibilities for structures and modes of delivery are considered. Third, reflections on the role of external assistance are offered. Finally, some reflections are developed on the research process that may be of interest to those contemplating building on the base that MUSTER has created.

2. Policy

Across the MUSTER countries policy on primary teacher education is fragmented, incomplete, and more often than not simply under-developed. Initial training is central to the achievement of nationally and internationally agreed goals to universalise primary schooling, improve quality, and enhance equity in access and retention. It follows that the development of coherent, medium-term, financially sustainable teacher education policy tailored to meet the demand for new teachers is critical.

The policy problems we have identified in MUSTER suggest that at their root are several causes. First, primary teacher education policy has often been seen as an afterthought to policy on Education

for All. It is almost as if it is a residual concern that has had to be addressed in the wake of policy on universalising schooling, which has had a much higher public profile and has been catalysed by development agencies. Second, the locus of control over teacher education has been ambiguous and is often a subsidiary function within a department of a line Ministry. Third, and partly as a result, resources have not flowed in ways consistent with demand for newly trained teachers. Fourth, key stakeholders (parents, teachers' unions, educational administrators, college lecturers) have been slow to assert the importance of re-conceptualising teacher education in the wake of primary curriculum reform and universal access, as also have been at least some development agencies.

In the MUSTER countries the situation varies. In Ghana, College reform has not been a priority since Free Compulsory Universal Basic Education (FCUBE) was announced. The recent introduction of the In-In-Out programme to replace three-year fully residential training has not evolved from a considered strategy to supply the number of teachers needed to meet the objectives of FCUBE. Lesotho continues to train far fewer teachers than it needs to implement Free Primary Education (FPE). The recent establishment of the Task Force on Teacher Education after the Lesotho MUSTER conference is a first step in the direction of a strategic plan which is yet to be formulated. Malawi has grappled with the implication of its Free Primary Education programme and has attempted to meet the need for trained teachers through the innovative Malawi Integrated In-service Teacher Education Project (MIITEP) of mixed college and school-based training. The suspension of this programme, with the consequence that no new teachers were enrolled in training in 1999 and 2000, reflects the absence of national teacher education policy. The recent creation of a Teacher Education

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Division within the Ministry, the inclusion of teacher education more prominently in the Plan Implementation Framework, and the agreement on the funding of three extra cohorts for MIITEP are signs that the importance of a plan for teacher education are now recognised. In Trinidad and Tobago the training colleges may be moved from the Ministry of Education to the Ministry of Human Resource and Development. This creates an opportunity to revitalise the college system and capitalise on its strengths. The announcement of elections (late 2001) may result in a more general reconsideration of teacher education policy.

It is self-evident that national planning, within or outside the discussions that surround sector-wide agreements with external development agencies, must directly address questions of teacher supply and demand, quality, curriculum and deployment. To be plausible such policy needs to be clear about its goals (what are the skills and competencies newly trained teachers should possess?), methods (how are these to be acquired), costs (what resources are needed?) and timescale (how long will it take to achieve the desired outcomes?). This then is the first priority for policy makers. There are a number of others.

The second priority is to recognise that what is possible and sustainable is constrained in different ways in the different countries. Most simply put, any medium-term policy has to recognise the realities imposed by demography (which determine the numbers of pupils and hence teachers needed each year), teacher attrition (retirement, alternative career choices, the impact of HIV/AIDS), and enrolment rate targets (achieving and sustaining universal enrolment up to a specified grade level). It also has to start from existing training capacity and recognise the constraints of infrastructure on the rate at which output might grow in quality and quantity. Our analysis indicates how different the situations are in the different countries, and also draws attention to some of the constraints and opportunities imposed by history, politics and finance. In three of the countries the choice is between mass methods that could produce trained teachers in sufficient quantity to meet demand, and those which might improve quality but would limit the number of pupils with access to teachers with

any training at all. The MUSTER analyses of supply and demand, and of efficiency and costs, need refinement, periodic up-dating, and incorporation into the policy frameworks at national level.

A third area of policy concern relates to the mechanisms through which teacher education is resourced, and its performance monitored. Typically budgetary systems use historic budgeting at institutional level. The arrangements vary, but none of those we have explored seem sufficient to provide a stable financial environment conducive to efficient management of colleges. Where budgetary allocations are unpredictable, release of funds irregular, and auditing and accountability weak, it is difficult to see how consistent development can take place. Under these circumstances it is also unlikely that training institutions can develop their own medium-term strategic planning and gain the commitment of their staff to a common set of goals. Given the relatively small number of institutions involved there is no obvious reason why they should not stand in a direct relationship with a Ministry department and budget. The exception may be where training is located within higher education institutions which have the capacity to manage resources effectively, and which receive adequate support from funding systems to sustain their teacher education programmes. Where we have observed the effects of decentralising the budget to intermediary levels, this seems to introduce an unnecessary layer of bureaucracy and delay.

MUSTER research has not identified existing funding mechanisms which reward efficiency and penalise waste. Funding is generally not linked to any formula related to the number of students, or their successful graduation. Salary costs per student vary across training institutions within the same country largely as a result of variations in student teacher ratios. This suggests that norms on staffing are inconsistently applied, and that this results in under-staffing of some institutions and over-staffing of others. The average size of training institutions is often small, and falls below 500 trainees. This is smaller than the size of typical secondary schools and many primary schools. Economies of scale are available if it is possible to increase average size and distribute fixed costs

across more trainees. Expenditure on learning resources in training institutions is often small and no mechanisms seem to exist to ensure that learning resources are replenished at some minimum level. There are many mechanisms that could be used to regularise the flow of funds and create at least some incentives to increase efficiency.

Fourth, policy on initial teacher education should be linked to that on subsequent in-service training (INSET) and continuing professional development (CPD). This is not the case. The main reasons to make these links are that however effective initial training is, it leads into development as a newly-qualified teacher (NQT), a critical period when new teachers require support and guidance. Training institutions should play a full role in INSET and CPD since these activities should cross-fertilise and feedback into more effective initial training. In principle an initial qualification is precisely that, and not a terminal stage in a career ladder. The balance between the time and money spent on initial training and subsequent INSET and CPD is a key policy question. If most investment is front-loaded (i.e. at the beginning of a teachers' career), if teacher attrition is high and rising, if teachers' career lifetimes as primary teachers are shortening, and if substantial effort is to be directed to changing school practice through direct support for whole school development, then it may make sense to shorten periods of initial training in favour of more training inputs for NQTs as their careers develop. Amongst other things this has the benefit of directing more investment of training resources towards those on the job and likely to remain so.

Fifth, none of the countries within MUSTER (with the exception of South Africa), has begun to address the question as to whether non-government resources have a role to play in expanded and more effective teacher education. Historically much was provided through not-for-profit non-government institutions. It may or may not be the case that these questions should be reopened. Where resources are a major constraint on teacher education, and internal efficiency of public institutions is low, some forms of public-private partnership need to remain among the options. The detailed

articulation of these is necessarily contextually located within each system.

Finally, it seems to us, the constructive and effective development of teacher education policy requires direct access to Ministerial authority, clear lines of administrative control and accountability, and strategic delegation of some measure of autonomy to training institutions, at least in professional arenas. The latter would seem essential if teacher education institutions are to move away from patterns of organisation and operation which closely resemble secondary schools to become professional development institutions working to facilitate the learning of young adults and their induction into new roles as self-confident, competent and creative professionals.

3. Structures and modes of delivery

Teacher education systems develop within specific national contexts which condition their form. New ideas for methods and structures have to recognise the realities of differing needs, circumstances and resources. Suggested improvements have to be formulated within the assumptions, processes and expectations of the wider national education system. There is thus no 'one-size-fits-all' solution to the problems of teacher education MUSTER has explored. However there are some structural questions that recur across systems. Such basic structural issues for teacher education systems revolve around where training should take place, how long it should take, and what if anything should happen before and after periods of initial training leading to certification.

There are three common options as to institutional location. These are colleges of education, university education departments, or schools. In reality the choices between these locations are not free. College-based systems for primary training are common in many low income countries and reflect how training systems have developed. Colleges are often the only post-secondary institutions in their geographic area and may be associated with opportunities for particular groups who have a political stake in the continuity of the institutions. College systems seem likely to persist unless or

until essentially political decisions are taken to adopt another arrangement. South Africa has taken the step of making all initial training university-based or affiliated with universities. However, the circumstances under which this has come about are unique (see Sayed this volume).

College-based systems may have advantages in terms of a local location linked to communities or clusters of schools, a focus on a single profession, and a direct role for in-service education and continuing professional development. They also should have lower costs than tertiary level institutions. Our research suggests that these potential advantages are not necessarily reflected in the realities. The potential advantages also have to be balanced against the risks of parochialism associated with the local (especially when colleges are rural, and physically and intellectually isolated), the limits of expertise and insight associated with training institutions divorced from research, and the high costs that may be associated with small size.

University-based training offers the prospect of inputs from staff with high levels of disciplinary expertise, connection to insights from research relevant to learning and teaching, multi-disciplinary perspectives, and superior teaching resources associated with large scale institutions. On the other hand critics suggest that university-based training may be a long way removed from the issues of practice in primary schools, high levels of academic knowledge in disciplines are largely irrelevant, and tutors' career advancement is likely to depend more on research recognition than training competence.

School-based training has become increasingly common in rich country systems. There are many good pedagogic and professional development reasons why training located in the work environment is potentially attractive, including its direct links with practical problems, advice from successful teachers, and socialisation into professional norms and standards. However, the basic assumptions of school-based training – namely that there are sufficient schools to offer appropriate training environments and enough qualified teachers to act as professional mentors to trainees – are often difficult to meet in low income countries. Most

schools may not be appropriately resourced as training sites, lacking both qualified teachers and enough teaching and learning materials. Nor do staff necessarily see their role as including training new teachers, and they are unlikely themselves to have any training as trainers. Under these circumstances, school-based training may simply become a form of 'sitting by Thabo', with new teachers simply copying what is done around them whether or not this is good practice. The MIITEP experience does suggest that with enough support, some elements of school-based training are possible even in very resource-poor circumstances. But expectations of what can be achieved have to be realistic, and serious investment has to be made in print-based handbooks and manuals for trainees and for trainers, field-based peripatetic resource persons, and selected members of school staff trained in supervision and support.

School-based training is generally associated with various forms of distance education, as it is in MIITEP. Distance education methods are attractive because they allow teachers to be trained while on the job, which saves the costs of replacement. It should also reduce the direct costs if a proportion of the training is self-instructional and based on print or other low cost media. However, the problems of distance learning are well known. For primary teachers in rural Africa there are particular problems. The materials have to be at the right language level for ESL learners and cover a wide range of topics, as the trainees may have access to few other printed resources. In so-called predominantly 'oral' cultures students may find book-based learning particularly difficult; aural media such as radio programmes or audio-cassettes may be more effective, if the technology is available and motivation can be maintained. Video is much more expensive, and unlikely to be as cost-effective as alternatives. Though new information technologies based on computers and the internet appear to offer many potential benefits, these are yet to be demonstrated in practice in mass systems of teacher education in Africa. They have high initial costs and carry risks of rapid obsolescence of hardware and software. Regular face to face contact with peers and a tutor are likely to remain essential compo-

nents of training, albeit supplemented by other methods.

The questions of how long training should take and what should happen before and after the period of initial training are important, but like the question of where training should be located there is no single answer. A wide range of possibilities can be imagined. Table 1 identifies seven. Descriptively these can be summarised as:

- Mode 1 Conventional full-time college-based training preceded by no experience
- Mode 2 Conventional full-time college-based training preceded by pre-course experience and followed by mentored induction into schools
- Mode 3 Untrained teaching experience followed by conventional full-time college-based training
- Mode 4 Mentored pre-training experience followed by conventional full-time college-based training and mentored induction into schools
- Mode 5 Mentored pre-training experience followed by a short period of conventional college-based training followed by school placement with INSET support
- Mode 6 Mentored pre-training experience fol-

lowed by alternating short periods of conventional full time college-based training followed by mentored induction into schools

Mode 7 Mentored pre-training experience followed by wholly school-based training on the job leading to mentored distance support

There are many other possible mixes that carry different cost and curriculum implications. We can note four key observations. First, extended full-time institutionally based training is only one of many options. Second, what comes before and what comes after core periods of training may be just as important as what occurs in the core, though rarely is it systematically considered as part of the training process. Thirdly, there is no necessity for core periods of training to be continuous or front-loaded in terms of costs or training inputs. Fourth, mixed-mode methods which make use of distance education and learning while working are clearly options which have potential cost advantages. The resource implications of different approaches can only be identified when their component parts are specified in particular country contexts.

The analytic questions related to future policy and practice focus on which of these (and other

Table 1
Some possible training modes

Mode	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Pre Training		College Training			Post Training
1		no experience	Full time training	Full time training	Full time training	
2		pre-course programme	Full time training	Full time training	Full time training	post course mentor support
3	Unsupported	Teaching	Full time training	Full time training	Full time training	
4	Mentored	Teaching	Full time training	Full time training	Full time training	post course mentor support
5	Mentored	Teaching	Full time training	In school + INSET	In school + INSET	In school + INSET
6	Mentored	Teaching	Full time + in school	Full time + in school	Full time + in school	post course mentor support
7	Mentored	Teaching	School Based INSET	School Based INSET	mentor+distance	mentor+distance

possible modes) are feasible, relevant to short to medium term needs, and are likely to be cost-effective. Is a new and different balance of inputs attractive to meet new needs, in view of the disquiet over both costs and effectiveness of existing patterns of delivery? There are opportunities to reconsider how investment in teacher education and training is best organised and delivered, given the shortfalls in teacher supply generated by enrolment expansion, the new emphasis in many countries on changing curricula to improve pupils' achievement, the consequences of austerity, and the importance of improving quality and effectiveness.

4. External assistance

Several issues stand out from the MUSTER research for those who provide external assistance. First, where teacher education, and more broadly the education system as a whole, is partly externally financed, it is incumbent on agency representatives to promote a strategic approach to teacher education and ensure it is appropriately considered in medium term planning. Where such policy does not exist it should be encouraged and the evidence base for its development supported. Teacher supply is the main constraint on the achievement of EFA in a good number of the poorest countries.

The second point is that it is not sufficient to make external finance available either through projects or as part of more general budgetary support. Availability is not the same thing as disbursement; disbursement is not the same thing as resources reaching end users in ways that result in valued outcomes. Where teacher education institutions are starved of funds (resulting in erratic and often very low salary payment, near zero allocation to learning materials, and lack of maintenance to the point where facilities are closed for long periods), regeneration of effective training systems is impossible.

The third point is that judgements do have to be made about the profile of external assistance whether within a sector plan or without. More specifically, assistance directed to the school level designed to improve access, retention and quality has to include support for teacher development,

since it is teachers who determine, more than anything else, the quality of learning that takes place. How this is articulated with the initial training system, and its institutions, is a core question. Initial training of itself is always unlikely to result in the transformation of teaching and learning in schools in the short term (new teachers are likely to be less skilled than experienced teachers, their organisational status is such that they have less influence on curriculum and school policy and practice, their numbers are small compared to those established in the profession etc.). Nevertheless, new teachers, and the institutions that train them are in principle one of the few vectors for introducing new practices to improve pupil learning. Others may exist or be developed (e.g. teachers centres, peripatetic advisory teachers). So a key question for those who provide external assistance is whether to include initial training institutions in development plans or to by-pass them in favour of direct support into the school system. A strategy of benign neglect of colleges, which does seem by implication to have been followed in some cases, seems an opportunity missed - unless of course the judgement is made that such institutions really have reached the point where they are largely ineffective and not amenable to significant reform.

Fourth, external support has a comparative advantage in some spheres but not in others. Most obviously subsidy of development budgets for capital assets (predominantly buildings) may be the only way in which physical capacity can be expanded in ways suited to purpose with appropriate durability and recurrent costs. Technical assistance is the other common form of support. Few believe that agency support of staff directly delivering services is cost-effective. More attractive is expert assistance for curriculum development, especially in those areas of the curriculum that are most internationalised (e.g. mathematics, science, international languages). This can also promote access electronically or otherwise to networks which allow developers to share their experience across institutions and countries. External support for learning materials production as well as development can also be useful. Views may differ on the value of supporting low volume, low quality domestic production of print material

(which often has a high import content), rather than contracting printing to the lowest cost international provider. The fact is the latter may be considerably cheaper and cost effective, but it requires foreign exchange. External assistance is often the only source of staff development for college staff, especially where this involves periods spent outside the country acquiring new skills and evaluating different approaches to training. Training institutions generally account for a small proportion of the education budget and relatively small amounts of external assistance can have a substantial impact on their quality. Their staff ought to be aware of the most recent developments in their fields of study elsewhere and be able to adapt and develop these sensitively and realistically for local use.

Teacher education is a certification process that carries with it a licence to practise and salary benefits. Inevitably this means that curricula in action are heavily influenced by the form and content of the assessment system. MUSTER research identifies this as an area of general weakness. There is evidence that assessment is narrowly limited and excludes many things identified in curricula materials as valued learning outcomes. Professional knowledge and skill are rarely reliably assessed and much teaching practice evaluation is ritualised to the point where it is unlikely to be valid and reliable. Assessment and certification techniques require expertise and systematic application. External assistance can and should make a direct contribution to the development of reliable and valid examination systems with the objective of ensuring curriculum relevance, technically robust selection, and cost-effective assessment.

The management of many teacher education systems and their institutions is weak. Few systems provide training or support for senior management, who are likely to have been promoted from teaching positions. None of the colleges where we undertook research had a strategic medium-term plan, and as far as we can establish none had been asked to produce one. If they had, it is likely they would have needed assistance. Management information systems were also lacking, with basic information often incomplete or simply not collected or retained. Much is known about more and less efficient and effective management, and external

assistance can help such knowledge to be shared in ways which are sensitive to what will, and what will not, make a difference within a particular system.

Lastly innovation almost invariably requires resources. Poorly financed systems under pressure rarely have these available. Crisis management informs action more often than tested solutions to problems of learning and teaching. External assistance can be crucial to develop work that would otherwise not occur. It can and does also support experiments with innovative curricula and alternative delivery systems that may promise cost-effective methods of meeting expanded demand. This has to be seen as what it should be. It is development support for limited periods beyond which such innovations need to become self-sustaining. If this is not so, then such assistance begins to resemble recurrent budgetary support, which needs a different kind of justification. It should be support for innovations grounded in the systems to which they are applied, not simple transplants of blue prints developed elsewhere for different purposes.

5. Reflections on the research process

This postscript would not be complete without some reflection on the research process. A project of the magnitude of MUSTER inevitably experiences dilemmas and difficulties as well as successes. Many things did not go according to plan and many adjustments had to be made. During the fieldwork Lesotho experienced political unrest and occupation by South African troops. For much of the research period MIITEP in Malawi was suspended as government and agencies negotiated over funding. At the end of the third year South Africa finally announced a new national policy to incorporate Colleges of Education into the higher education system, ending a period of uncertainty and confusion about policy on the location of initial training. In Ghana elections created uncertainties about the implementation of the In-In-Out system in 2001. An election was announced to coincide with the Trinidad and Tobago national dissemination workshop, causing it to be resched-

uled. At Sussex staff changes occurred which had to be accommodated and new members inducted into the MUSTER research.

MUSTER set out to build capacity for research on teacher education through a research programme designed to create opportunities to undertake research and develop skills in a supportive environment. To a large extent it seems to have succeeded. The contributions to this special edition and the other MUSTER publications provide evidence of the extent to which the research teams have been able to design research studies, collect and analyse data and publish findings. MUSTER encouraged the researchers to reflect on their participation in the project and identify aspects of the experience that might inform future collaborative research of a similar kind.¹ The comments below are drawn from some of these reflections.

5.1. Collaboration and participation

The original proposal for the research was made from Sussex on the basis of general discussions that emerged from the academic link programmes. This followed from the nature of the DFID research commissioning process at the time. Thus, the first research framework that emerged was not a product of formal collaboration for this purpose, but a distillation of issues and questions that had arisen as teacher education issues were debated within the various academic links maintained by the CIE. Ideally, perhaps, a developmental proposal should have been made at the outset to allow a detailed research framework to be developed through a systematic process of collaboration designed with this in mind. This would have involved perhaps six months to a year of preparatory work in partnership with colleagues in the link institutions, and the provision of funds for exploratory work in advance of a joint proposal. This strat-

egy may be an option for future research funding. As it was, outline approval for MUSTER was obtained with a list of possible collaborators. Research fellow positions were advertised and the final list of collaborating partners was agreed in consultation. It took more than six months to firm up partnerships, make the necessary appointments, and draw up draft research contracts.

Thus Sussex initiated the project, negotiated the outline proposal, and became the fund holder accountable to DFID for the research products. In practice, this meant that Sussex, together with DFID, agreed a time-table for products in consultation with the researchers, and disbursed funds against the achievement of agreed milestones in the form of research reports. This was judged a more appropriate way to proceed than the alternative of payments linked to detailed accounting of fieldwork activity.² The latter would have created a considerable administrative overhead and not necessarily guaranteed timely completion of work.

As a result of its origins, and the arrangements for accountability for funds, there were some perceptions that MUSTER was hierarchically organised from the centre and 'product-driven'. The latter is in part true and arguably appropriate for commissioned research intended to inform policy and practice within a finite time scale. Products are needed and completion of research reports can be the most problematic and time-consuming element of the research process. However, MUSTER was intellectually driven by the agreed research questions; the products arose from exploration of these questions. The administrative organisation of MUSTER was partly shaped by the nature of accountability to DFID. Overall responsibility for delivery rested with Sussex and through the project co-ordinators with the sub-contracted research groups. Other approaches are conceivable, and might be considered in future. They would have to satisfy needs to maintain accountability, manage the quality and timely delivery of products, and be administratively efficient. MUSTER researchers did recognise that the structure of the project had

¹ For example, we held a full team discussion during the July 2000 workshop, which was taped and transcribed; the D.Phil research students invited the Principal researchers to individual semi-structured interviews about their experiences of the project; June George wrote a short article for the issue of Perspectives that Michael Samuel was editing (an example of South-South collaboration).

² Local budgets were subject to the accounting rules of the collaborating institutions.

some advantages. Thus one comment was that “the project structure pushed us to draw on our reserves and make that extra effort” in meeting agreed deadlines. Perhaps a less structured approach would have resulted in more slippage in the completion of the various sub-studies.

MUSTER established an email network for communication early in its life. At first communications developed with most information flowing from outwards the centre. This generated a reciprocal flow of responses back to the centre. News from the remote sites was passed on to other sites, with limited communication along the ‘rim’ of the network. This may well have arisen because of pre-occupations with the work in hand in each country which may have discouraged the development of a cross-country dialogue. The notable exceptions occurred at the annual workshops where face to face interaction was possible. To enhance the flow of ideas among the researchers, drafts from the different sites were made available electronically, and each site was provided with a laptop computer. Facility with new technology varied, as did infrastructure and back-up services, with the result that sometimes communication failed for significant periods. It also became clear that the volume of work produced across the five sites was such that there were problems in simply keeping up to date with developments in all the sites. Sometimes it seemed that there was not enough time to download and read all the material available. Later on, as a result of the experience of the team meetings, and in particular the dissemination workshops, there was more sharing, and mutual learning grew. If funds had permitted it would have been desirable to rotate meetings around all the five sites.

A steering committee was set up which included a ‘critical friend’ who was invited to comment periodically on the progress of the research. This proved very helpful and various suggestions were taken on board. DFID advisors were also kept in the picture about emerging work and were invited to comment on drafts and attend workshops. This proved useful throughout MUSTER.

5.2. Research design and building research capacity

MUSTER experienced some tensions from the outset that are common to many multi-site research

projects. On the one hand there was a firm commitment to be responsive to the research interests and enthusiasms of the principal researchers and their teams. Context and priorities differed, as did the history, content, and process of teacher education. It would have been ill-advised if not impossible to ignore this in designing the research in detail. On the other hand, there was an ambition to address common issues to highlight aspects of practice, policy, and possibilities that would not necessarily appear from single country studies. Not least there was an aspiration to address teacher education issues at the international level, and develop dialogue with those working in development agencies and governments on externally assisted Education for All programmes.

At the first workshop it proved possible to identify common questions and approaches to data collection for parts of MUSTER. As a result some sub-studies followed similar pathways for data collection and analysis. Alongside this other sub-studies were devised which were specific to particular sites. Adopting this approach was one of the factors that led to MUSTER growing in scope. Had it elected to focus only on the national without regard to cross-national perspectives, or alternatively adopted a single standard set of questions and research instruments, it would have been less complex. But neither of these options seemed appropriate since either alone would overlook what were generally agreed to be important perspectives, not least because of the interactions between national and international aspects of teacher education curriculum, policy and practice.

The discussions around the development of the research framework encouraged researchers to use a range of data collection and analysis techniques that included those with both qualitative and quantitative characteristics. This meant that to different degrees the researchers had to use methods they were already familiar with and to acquire understanding and skill with those that were new to them. Support for this was provided from Sussex through in-country visits, email, and the opportunities that arose for researchers to spend periods of time at Sussex. The researchers also shared experiences with colleagues in-country and across the MUSTER team. Technical advice was provided from Sussex when unavailable locally.

Developing higher level research skills is time consuming. Intuitively such skills are best developed with a mixture of systematic study and involvement in the real world of application. MUSTER attempted in some measure to both undertake high quality research and to develop skills in the process. It has succeeded to a degree evident in the various outcomes. In an ideal world many facilitating factors would have been present – a supportive national environment for research, a critical mass of researchers at PhD level, adequate technical support in-country, release time for researchers, substantial infrastructure to underpin national level data analysis, interpretation, and the production of high quality draft research reports. In the nature of the project not all these things were present at each site. The MUSTER infrastructure helped partly compensate for this and generated solutions to many of the problems that arose. It also drew attention to the implications of adopting approaches to policy which are more rather than less evidenced-based. The reality is that robust evidence rigorously collated is often a time-consuming and skill-intensive activity. Though the costs can be high, they remain small in relation to the costs of misguided policy founded on assumption and casual empiricism.

5.3. Resources

MUSTER supported a wide range of research activity across six sites for four years. Though the funding made available was substantial it was nevertheless very modest when compared to the resources currently allocated to teacher education in each country and to the size of external support for Education for All programmes which depend at least in part on teacher supply for their success. More could have been well spent. Lessons can also be learned from how the project resources might be utilised more effectively in future.

The MUSTER research contracts were largely made with the institutions, not with individuals. The funds provided were intended to include payment for the time of lead researchers and team members, and to cover direct costs of fieldwork, data analysis, report production etc. As a principal researcher noted “One of the difficulties in doing

research in a setting that doesn't have a rich culture of research is finding appropriate blocks of time in which to do the work”. Key individuals often carried heavy teaching and/or administrative loads and responsibilities for other projects. Most of the collaborating institutions did not have formal arrangements for release time for research projects related to their funding. Where they did, norms and practice varied widely. This created difficulties both for principal researchers and for team members when time needed was not necessarily forthcoming.

It was assumed that all the participating institutions would contribute some ‘institutional’ time and other resources to the enterprise, since the research would benefit the institutions and their staff in terms of capacity building and research profile. All in fact did this in different ways. There was general agreement among all the researchers, including those at Sussex, that “the amount of time that was funded was nothing like the amount of time that was put into it”. The project's success was due to the great efforts that everyone made well over and above the personal and institutional contributions originally envisaged. Without these non-costed contributions the MUSTER research would have been compromised.

The institutions all had different ways of handling research money which sometimes clashed with the project framework established. Thus in general resources were provided against the completion of agreed products e.g. the baselines studies, drafts of sub-study reports, and the full country reports. Internal accounting systems often refused to advance money for research expenses until funds had been transferred notwithstanding the existence of a contract. A degree of flexibility was therefore needed. The MUSTER experience draws attention to the need to share expertise in research management, not least the fact that accounting systems designed primarily to handle university general business (e.g. student fees, government subsidies, staff salaries etc.) can be dysfunctional for research contracts.

5.4. Benefits and burdens

There was no doubt that the project constituted a steep learning curve for all involved, from which

everyone gained in terms of professional development. Some of the benefits mentioned frequently by the researchers were:

- skills in managing research projects
- working with other academics, sharing ideas, getting feedback
- gains in academic confidence, especially in writing skills
- a broadening, or refocusing, of research and career interests

There were many indications that the associated institutions had gained in terms of:

- enhanced local and international reputation
- research publications, especially where Discussion Papers, or articles based on them, were made available locally
- expanding the numbers involved in research to include new and inexperienced researchers

For the research students based at Sussex, being part of a larger project removed some of the isolation of doctoral research, and working in collaboration with a local institute and its staff during fieldwork enriched both their data and the personal experience. The ‘hidden costs’ to the local institution for hosting such students were generously absorbed in a spirit of collaborative activity.

Not surprisingly, given the scope of MUSTER and the dynamic ways in which its emphases changed, some reflections suggested that the project became too ambitious and covered too much ground. The initial enthusiasm generated research agendas that were sometimes out of proportion to the resources and time available. Everyone mentioned experiencing periods of pressure and stress, especially as deadlines for workshops approached.

It was generally recognised that much had been learned and that there were many benefits both individually and to the institutions, though the personal costs in terms of tension and overload had at times been substantial.

6. Other publications

MUSTER has produced many other published outputs in addition to those contained in this volume. Over 50 people have worked as researchers on MUSTER and have created an extensive corpus of work that is unique in the respective countries. Most have been able to publish through one or other of the MUSTER channels. The hope is that this now stands as a base from which to build, so that future innovation and policy reform can have the benefit of an evidence base that is more substantial than anything that currently exists (see Appendices 1 and 2 at the end of the volume). During 2001/2 policy workshops are being held in each country to present the findings to national communities of practice, researchers, policy-makers, and development agencies.

Full details of these and other activities are to be found on the MUSTER website www.sussex.ac.uk/usie/muster

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Appendix 1.*List of researchers by country***Ghana Team**

Lead Researcher:

Kwame Akyeampong

Associate Researchers:

Joseph Ampiah, Jonathan Fletcher, Nicholas Kutor, Ben Sokpe

Lesotho Team

Lead Researcher:

J. Pulane Lefoka

Associate Researchers:

Vuyelwa M. Ntoi, Edith M. Sebatane, Mabaphuthi J. Moorosi-Molapo, Mamotebang K. Molise, H. Johnson Nenty, Puleng Mapuru, Baatswana Moeti, Mantoetse Jobo.

Malawi Team

Lead Researcher:

Demis Kunje

Associate Researchers:

Joseph Chimombo, Shadreck Chirembo

South Africa Team

Lead Researcher & Coordinators:

Michael Samuel and Yusuf Sayed

Research Contributors:

Nazir Carrim, Luis Crouch, Ken Harley, Jan Heysteck, Jonathan Jansen, Elizabeth Mattison, Ben Parker, Daisy Pillay, Dirk Postma, Labby Ramrathan, Vijay Reddy, Maureen Robinson, Brigitte Smit, Reshma Sookrajh, Crain Soudien, Mark Steele, Tania Vergnani,

Sussex University Team

Research Fellow:

Keith Lewin, Yusuf Sayed (1999 onwards), David Stephens (1997-1999), Janet Stuart Julie Coultas (1998-1999)

Doctoral Researchers:

Alison Croft, Dominic Furlong, John Hedges (Research Fellow Jan.- Sept. 2001)

Trinidad and Tobago Team

Lead Researcher:

June George

Associate Researchers:

Marie-Louise Brown, Janice Fournillier, Arthur Joseph, Michael Kallon, Carol Keller, Samuel Lochan, Jeniffer Mohammed, Jeanette Morris, Susan Otway-Charles, Lynda Quamina-Aiyejina, Balchan Rampaul, Jocelyn Rampersad, Patricia Worrell

Appendix 2. MUSTER Publications.*The MUSTER Discussion Paper Series*

- No 1 *Counting the Cost of Teacher Education: Cost and Quality Issues* (January 1999) Keith M Lewin
- No 2 *The Costs and Financing of Teacher Education in Malawi* (March 2000) Demis Kunje & Keith M Lewin
- No 3 *Primary Teacher Education Curricula as Documented: A Comparative Analysis* (July 1999) Janet S Stuart
- No 4 *“On the Threshold”: The Identity of Student Teachers in Ghana* (April 2000) Kwame Akyeampong & David Stephens
- No 5 *Malawi: A Baseline Study of the Teacher Education System* (December 1999) Demis Kunje & Joseph Chimombo
- No 6 *Trinidad & Tobago: A Baseline Study of the Teacher Education System* (July 1999) Lynda Quamina-Aiyejina, Jeniffer Mohammed, Balchan Rampaul, June George, Michael Kallon, Carol Keller & Samuel Lochan.
- No 7 *Ghana: A Baseline Study of the Teacher Education System* (September 2000) Kwame Akyeampong & Dominic Furlong
- No 8 *Lesotho: A Baseline Study of the Teacher Education System* (September 2000) J Pulane Lefoka et al
- No 9 *Teacher Education in Trinidad & Tobago: Costs, Financing and Future Policy* (August 2000) Keith M Lewin, Carol Keller & Ewart Taylor
- No 10 *Costs and Financing of Teacher Education in Lesotho* (November 1999) Keith M Lewin, Vuyelwa Ntoi, H J Nenty & Puleng Mapuru
- No 11 *The Malawi Integrated In-Service Teacher Education Project: an analysis of the curriculum and its delivery in the colleges* (February 2000) Janet S Stuart & Demis Kunje
- No 12 *The Malawi Integrated In-Service Teacher Education Programme and its School-based Components* (June 2000) Demis Kunje & Shadreck Chiremba
- No 13 *The Importance of Posting in Becoming a Teacher in Ghana* (June 2000) John P Hedges
- No 14 *Gender Gaps in Schools and Colleges: Can Teacher Education Policy Improve Gender Equity in Malawi?* (August 2000) Alison Croft
- No 15 *Newly Qualified Teachers: Impact On/Interaction with the System in Trinidad & Tobago* (March 2000) Jeanette Morris & Arthur Joseph
- No 16 *Careers and Perspectives of Tutors in Teacher Training Colleges: Case Studies of Lesotho and Malawi* (November 2000) Janet Stuart with Demis Kunje & Pulane Lefoka
- No 17 *Learning To Teach In Ghana: An Evaluation Of Curriculum Delivery* (August 2000) Kwame Akyeampong, J. Ampiah, J Fletcher, N. Kutor & B. Sokpe
- No 18 *The Costs and Financing of Teacher Education in Ghana* (August 2000) Kwame Akyeampong, Dominic Furlong & Keith Lewin
- No 19 *On-the-Job Training: Pre-service Teacher Training in Trinidad & Tobago* (August 2000) June George, Janice Fournillier & Marie-Louise Brown
- No 20 *Becoming a Primary School Teacher in Trinidad & Tobago, Part 1 The Curriculum in the Teachers’ Colleges* (October 2000) June George, Patricia Worrell, Joycelyn Rampersad, Balchan Rampaul & Jeniffer Mohammed
- No 21 *Becoming a Primary School Teacher in Trinidad & Tobago, Part 2: Teaching Practice Experience of Trainees* (October 2000) June George, Patricia Worrell, Joycelyn Rampersad & Balchan Rampaul
- No 22 *Primary Teacher Trainees in Trinidad & Tobago: Characteristics, Images, Experiences and Expectations* (January 2001) June George, Jeniffer Mohammed, Lynda Quamina-Aiyejina, Janice Fournillier & Susan Otway-Charles.
- No 23 *Analysis of the Curriculum as Documented at the National Teacher Training*

- College in Lesotho* (May 1999) J. Pulane Lefoka & Janet S. Stuart
- No 24 *The Experience of Training: a Study of Students at The National Teacher Training College in Lesotho* (August 2000) J. Pulane Lefoka with Mantoetse Jobo, Baatswana Moeti & Janet S. Stuart
- No 25 *Teaching Practice at the National Teacher Training College in Lesotho* (May 2001) J. Pulane Lefoka with Mantoetse Jobo & Baatswana Moeti
- No 26 *Turbulence or Orderly Change? Teacher supply and demand in South Africa - current status, future needs, and the impact of HIV/Aids.* (June 2001) Luis Crouch with Keith M. Lewin

Research Reports published by the U.K. to the Department for International Development

(Provisional Titles: To be published in 2002)

- Akyeampong, K. *Teacher Training in Ghana: Does it count?*
- George J. et al *Teacher Training in Trinidad & Tobago*
- Kunje D. *The Malawi Integrated In-service Teacher Education Project*
- Lefoka J.P. et al *Teacher Training in Lesotho*
- Lewin, K.M. and Stuart, J.S *Teacher Education under Challenge: the Findings of the MUSTER Project*, Synthesis Report
- Samuel M. and Sayed Y. *Insights from the MUSTER Project in South Africa*

Other planned publications

- Lewin K.M., Samuel M. and Sayed Y. (eds) *Changing Patterns of Teacher Education in South Africa: Policy, Practice and Prospects.*
- Stuart J.S. and Croft A.M. *Teacher Educators' Resource Materials: a handbook for college tutors.*